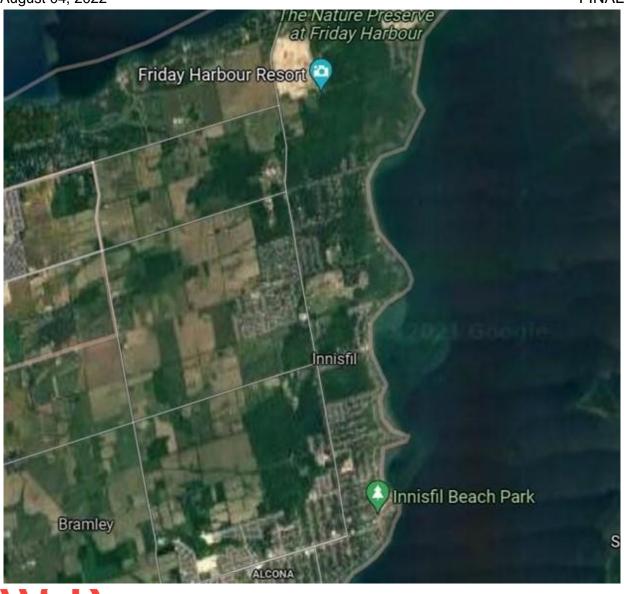
Town of Innisfil

Preliminary Design & Reconstruction Plan of 25th Sideroad, Town of Innisfil

Stormwater Management Report

August 04, 2022 FINAL







Preliminary Design & Reconstruction Plan of 25th Sideroad, Town of Innisfil

Stormwater Management Report

Town of Innisfil

FINAL

Project No.: 211-06027-00 Date: August 04, 2022

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Appendices

- A Background Information
- **B** Stormwater Management Calculations
- C Visual OTTHYMO Results
- D CulvertMaster Results

1 INTRODUCTION

1.1 Scope

WSP has been retained by Town of Innisfil to provide a preliminary stormwater management plan for implementing Low Impact Development (LID) systems within the proposed reconstruction of the 25th Side Road (approximately 7 kilometres from Big Bay Point Road / 13th Line to Innisfil Beach Road) and a proposed roundabout at the intersection of 25th Side Road and 9th Line. The Town also seeks to implement roadway improvements to accommodate growth while prioritizing active transportation along the length of the project. The objective of this report is to:

- Provide preliminary direction for planning
- Design a range of LID systems appropriate for the subject site
- Analyze the capacity of the 25th Side Road existing crossing culverts
- Review the condition of existing culverts and recommend repair or replacement of the existing culverts

This report will illustrate how each requirement will be addressed as informed by the goals of the Town of Innisfil Engineering Design Standards and Specifications Manual, Technical Guidelines for Stormwater Management Submission LSRCA (2016), and MOE (now MECP) Stormwater Management Planning and Design Manual (Ontario Ministry of Environment, 2003).

The study area is located within the Innisfil Creeks subwatershed under the jurisdiction of the Lake Simcoe Conservation Authority (LSRCA).

The existing 25th Side Road is a two-lane roadway and can be classified as a collector roadway with rural cross-sections along the corridor. The following images present the existing conditions of the road. Please refer to **Figures 1-A, 1-B, 5** and **9** for the existing road cross-sections in **Appendix A**.



Image 1-1: Existing Conditions of 25th Sideroad © 2022 Goggle Earth



Image 1-2: Existing Conditions of 25th Side Road © 2022 Goggle Earth

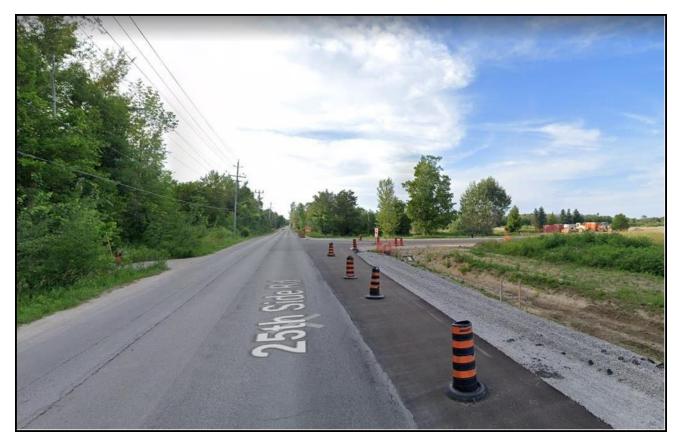


Image 1-3: Existing Conditions of 25th Side Road © 2022 Goggle Earth

Under post-development conditions, WSP proposes the following contexts to illustrate the varying roadway character:

Context 1 (Low-density Residential):

Includes the community of Alcona from 80 m north of Innisfil Beach Road to Rose Lane (2.0 km) and through Sandy Cove Acres from Lockhart Road to 300 m south of Mapleview Drive (1.1 km).

Context 2 (Green Space):

Includes the segment north of Mapleview Drive (1.4 km) which is adjacent to rural and key natural heritage feature areas. Context 2 includes rural cross-sections and will have limited driveways.

Context 3 (Downtown Commercial):

Includes the first 80 m north of Innisfil Beach Road, the Innis Village development in Sandy Cove Acres (~0.7 km) and the future urban area south of Mapleview Drive inclusive of the intersection approaches (0.3 km). Context 3 includes urbanized

cross-sections. This portion of the road will be designed for on-street parking, streetscaping, placemaking, walkable development, and lower vehicle travel speeds.

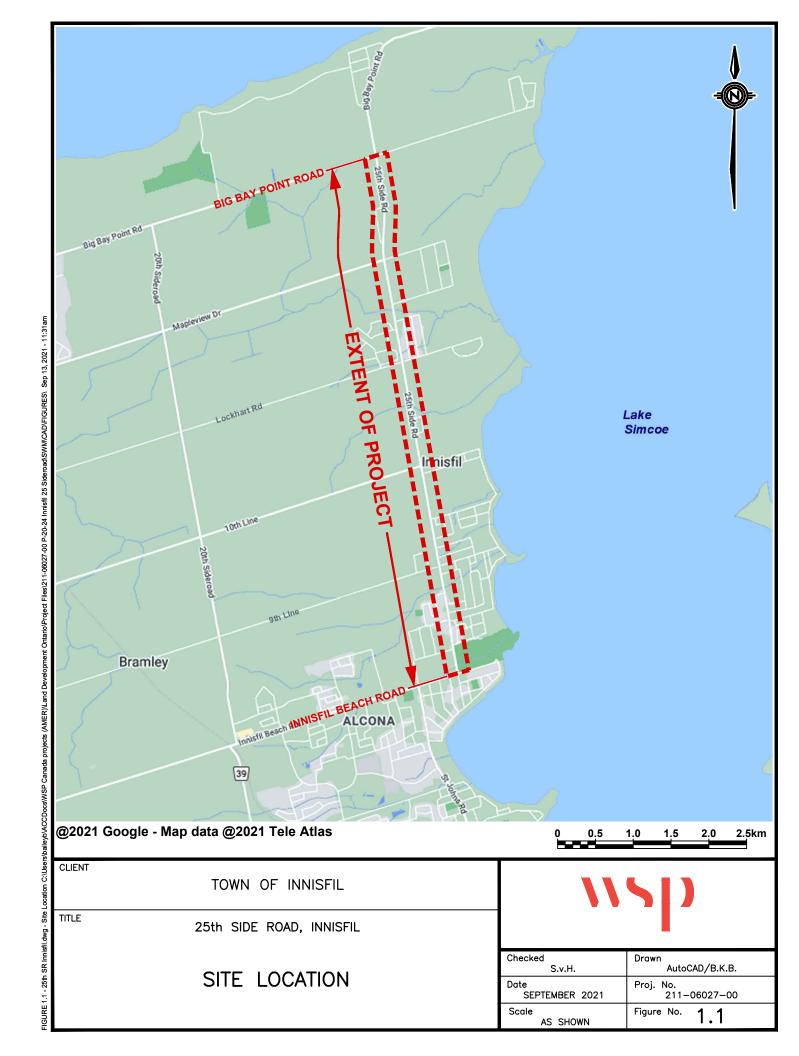
The location of the proposed Contexts 1 to 3 is shown in the map below.



Image 1-4: Map of the Study Area including the Three Corridor Contexts

1.2 Site Location

This section of the 25th Side Road is bounded by Innisfil Beach Road to the south, Lake Simcoe to the east, Big Bay Point Road to the north and residential and agricultural lands to the west. Please refer to **Figure 1-1** for the location of the site.



1.3 Design Criteria

1.3.1 Stormwater Drainage System Policies and Design Guidelines

The following documents were referenced in the assessment of the drainage system:

- Town of Innisfil Engineering Design Standards and Specifications Manual (Revision # 6 May 2020)
- Technical Guidelines for Stormwater Management Submission LSRCA (2016)
- Low Impact Development Stormwater Management Planning and Design Guide, 2010, CVC and TRCA
- Ministry of Environment (MOE, now MECP) Stormwater Management Planning and Design Manual, March 2003
- MTO Drainage Management Manual, 1997
- Comprehensive Stormwater Management Master Plan (CSMMP) Town of Innisfil prepared by C.C. Tatham & Associated Ltd, dated October 2016
- Alcona North Secondary Plan Town of Innisfil prepared by C.C. Tatham & Associated Ltd, dated August 2011
- City of Toronto, Wet Weather Flow Management Guidelines, November 2006

The MTO Highway Drainage Design Standards (HDDS, 2008) prescribe standards for designing Surface Drainage Systems (SD) and Water Crossings (WC). The standards that are relevant to this study are as follows:

Road Crossing and Entrance Culverts:

- The minimum sizes for entrance and road crossing culverts are 400 mm and 500 mm, respectively.
- The conveyance capacity of the culvert must be sufficient to ensure that the maximum depth of ponding as indicated in the table below is not exceeded.

| LOCATION | STORM RETURN FREQUENCY (YEARS) | | | |
|--|--|--|---|--|
| | 5 | 25 | 100/Hazel | |
| Local Roads (2 Lane) | No ponding | 0.05m above crown | 0.15m above crown | |
| Collector (4 lane+), Local and Industrial Roads (extra wide lanes) | 1.0 m wide in gutter or 0.10m deep at low point catchbasins | up to crown "contradictions" - discuss | 0.10 m above crown maximum depth of flooding of 0.3 m | |

Source: WC-7; MTO Highway Drainage and Design Standards. January 2008.

 The minimum depth of cover for all culverts is 300 mm unless otherwise indicated by the Town.

SD-1 Design Flows for Surface Drainage Systems:

This standard identifies the minimum design flows that shall be used for the sizing of road surface drainage systems. The selected design flow shall be applied to size the minor and major drainage systems (piped and surface flow) for various MTO road types as shown in **Table 1-1**.

Table 1-1: Design Flow for Minor system and Major System

| Functional Road Classification | Drainage System Type | Design Flow | |
|--------------------------------|----------------------|-------------|--|
| Freeway | Minor System | 10-Year | |
| Arterial (Urban) | Major System | 100-Year | |
| Arterial (Rural) | Minor System | 10-Year | |
| Collector (Urban and Rural) | Major System | 100-Year | |
| Local Road (Urban and Rural) | Minor System | 5-Year | |
| | Major System | - | |

Source: SD-1: MTO Highway Drainage Design Standards. January 2008.

Road grading must direct flows from the right-of-way to a safe outlet at specified low points. Roads may be used for major system overland flow conveyance during the Regulatory Event (i.e., the larger of the 100-yr storm or Hurricane Hazel) storm subject to a water depth limitation of 0.10 m above crown of road for collector roads.

SD-9 Roadside Ditches (Conveyance Only):

This standard identifies the minimum design requirement of roadside ditches for the conveyance of flow. It does not address the design of roadside ditches for improvement of water quality. Roadside ditches shall be designed to convey both the Minor System Design Flow and the Major System Design Flow, as defined in Standard SD-1, Design Flows for Surface Drainage.

— WC-1 Design Flows (Bridges and Culverts):

This standard identifies the minimum design flows for the sizing of bridges and culverts for flow conveyance on Regulated and Non-regulated watercourses as shown in **Table 1-2**. It also identifies the requirement for accommodating the regulatory flow on regulated watercourses, and for determining the maximum allowable increase in flood elevations upstream of a bridge or culvert.

Table 1-2: Design Flow Return Period for Bridges and Culverts – Standard Road Classification

| Functional Road Classification | Return Period of (Years) | Check Flow for | |
|-----------------------------------|--|-------------------------------------|------------------|
| | Total Span less than or equal to 6.0 m | Total Span greater than 6.0 m | Scour |
| Freeway, Urban Arterial | 50 | 100 | 130% of 100 year |
| Rural Arterial, Collector Road | 25 | 50 | 115% of 100 year |
| Local Road | 10 | 25 | 100% of 100 year |

Source: WC-1; MTO Highway Drainage Design Standards. January 2008.

WC-7 Culvert Crossings on a Watercourse:

This standard identifies the minimum Freeboard (**Table 1-3**), the minimum Clearance, and the maximum Flood Depth at culvert crossings (**Table 1-4**).

Table 1-3: Freeboard for Culverts

| Road Type | Freeboard |
|---|-----------|
| Freeways, Arterials, Collectors | ≥ 1.0 m |
| Highway Ramps | ≥ 1.0 m |
| Local Roads including Private Entrances | ≥ 0.3 m |

Table 1-4 depicts the design standard for Flood Depth at the upstream face of a culvert. It is expressed as a ratio of the Flood Depth at the upstream face of the culvert to the diameter or rise of the culvert (HW/D).

Table 1-4: Flow Depths at Culverts

| Functional Road Classification | Design Flow | HW/D Ratio |
|---|--------------------|--|
| Freeways, Arterials, Collectors | See Standard WC-1 | Culverts with diameter or rise < 3.0 m HW/D ≤ 1.5 |
| Highway Ramps, Other Roads, and Private Entrances | See Standard SD-13 | Culverts with diameter or rise 3.0 to 4.5 m HW ≤ 4.5 m Culverts with diameter or rise > 4.5 m HW/D ≤ 1.0 |

1.3.1.1 Stormwater Management Policies and Design Guidelines

— Quantity Control:

The post-development peak flow rates are not to exceed the corresponding predevelopment peak flow rates for the 1 in 2 year, 1 in 5 year, 1 in 10 year, 1 in 25 year, 1 in 50 year and the 1 in 100 year design storm events.

– Volume Control:

Linear redevelopment projects on sites without restrictions that create 0.5 or greater hectares of new and/or fully reconstructed impervious surfaces, shall capture and retain / treat on site, the larger of the following:

- 1 The runoff from a 12.5 mm event from the fully reconstructed impervious surface and newly constructed impervious area.
- **2** The runoff from a 25 mm event from the net increase in impervious area on the site.

- Water Quality:

Suspended Solids

The required suspended solids removal treatment is MOECC (now MECP) Enhanced Protection Level (Level 1). This corresponds to a long-term average removal of 80% of suspended solids.

Phosphorus

LSRCA initiated the Lake Simcoe Phosphorus Offsetting Policy (LSPOP) in 2017, which requires that all new development must control 100% of the phosphorus from leaving their property. This is referred to as the Zero Export Target. Under this policy, any remaining phosphorus load that cannot be controlled would trigger the need for an offset to achieve a net zero target.

Water Balance:

Maintain pre-development infiltration rates under proposed development conditions.

1.4 Rainfall Information

Rainfall Intensity-Duration-Frequency (IDF) parameters for various return period design storms were obtained based on the IDF tables developed by Environment Canada for Barrie Water Pollution Control Centre (WPCC) including a 15% increase in rainfall intensity data to account for climate change. The parameters, 4-hour, 6-hour and 12-hour rainfall depths are summarized in **Table 1-5**.

Table 1-5: Rainfall Parameters

| Return Period (Years) | 2 | 5 | 10 | 25 | 50 | 100 |
|---------------------------------|-------------------|---------|---------|----------|----------|----------|
| А | 678.085 | 853.608 | 975.865 | 1146.275 | 1236.152 | 1426.408 |
| В | 4.699 | 4.699 | 4.699 | 4.922 | 4.699 | 5.273 |
| С | 0.781 | 0.766 | 0.760 | 0.757 | 0.751 | 0.759 |
| Equation for Rainfall Intensity | $I = A/(t+B)^{C}$ | | | | | |
| Rainfall Depth, mm (4 hour) | 37.0 | 50.5 | 59.7 | 71.3 | 79.5 | 87.6 |
| Rainfall Depth, mm (6 hour) | 42.3 | 59.5 | 70.8 | 85.2 | 95.9 | 106.5 |
| Rainfall Depth, mm (12 hour) | 46.7 | 64.3 | 76.0 | 90.7 | 101.7 | 112.5 |

1.4.1 Storm Distribution

A hydrologic study was completed by C.C. Tatham Associates Ltd. within the Comprehensive Stormwater Management Master Plan (CSMMP) Town of Innisfil Report dated October 2016 for subwatersheds within the study area (i.e., Bon Secours, Leonard, Mooselanka, and Sandy Cove Creeks). The hydrologic study was completed using Visual OTTHYMO (VO2) hydrologic model software and applied the 4-hour Chicago and 12- hour SCS Type II design storms. For the purpose of this study, the CSMMP model data and catchment delineations have been used where possible. For the SCS storms, a 12-hour SCS Type II mass storm file has been used, using total precipitation depths for the 12-hour storm event from the Barrie WPCC data. The 4-hour Chicago storm event has also been modelled using the Barrie WPCC rainfall data to determine the peak flows under existing and future conditions. In order to model a climate change scenario using only the 12-hour SCS storms, we have selected the Barrie WPCC data as our baseline and applied a 15% increase in rainfall intensity. The total rainfall depths for the 12-hour SCS Type II storms are summarized in **Table 1-6**.

Table 1-6: Total Rainfall Depths

| Storm Event | Depth (mm) | | | | | | | |
|------------------|-------------------------------|----------------------------|--|--|--|--|--|--|
| | 12-hr SCS (no climate change) | 12-hr SCS (climate change) | | | | | | |
| 2-year | 40.8 | 46.8 | | | | | | |
| 5-year | 56.4 | 64.8 | | | | | | |
| 10-year | 66.0 | 75.6 | | | | | | |
| 25-year | 79.2 | 91.2 | | | | | | |
| 50-year | 88.8 | 102.0 | | | | | | |
| 100-year | 98.4 | 112.8 | | | | | | |
| Regional (Hazel) | 212 | | | | | | | |

1.5 Geotechnical Investigations

1.5.1 Geotechnical Investigation 25th Side Road

A preliminary Geotechnical investigation report was provided by WSP Canada Inc. (WSP), dated April 2022 for the subject site. Fourteen boreholes ranging between 1.5 m to 2.1 m depth below ground surface (bgs) and seven coreholes were installed through the existing road surface to determine the type and thickness of the pavement structure. Six hand-dug holes were implemented to confirm topsoil thickness for the proposed new active transportation facilities (cycle tracks, multi-use paths, and sidewalks) within the study limits. Based on the Geotechnical Investigation Report a flexible pavement structure (asphalt over granular fill material) was encountered. The existing pavement structure consists of:

Asphalt Thickness: 125 mm

Granular Base Thickness: 200 mm

Granular Subbase Thickness: 290 mm

Total Pavement Structure Thickness: 615 mm

Subgrade soil material consists mostly of sand, except in areas of BH1 and BH5 where silty clay was observed.

1.5.2 Geotechnical Investigation (Proposed Roundabout)

Peto MacCallum Ltd. (PML) conducted a geotechnical investigation in 2018 on 9th Line between Ralph Street and Lake Simcoe. A total of 12 boreholes were drilled to a depth of 2 m.

For the preliminary design of the roundabout, the recommended pavement design will be based on the findings of BH17 from the PML report (18BF060), which was drilled

approximately 30 meters east of the intersection. A flexible pavement structure (asphalt over granular fill material) was encountered within BH17. The existing pavement structure consists of:

Asphalt Thickness: 70 mm

Granular Base Thickness: 150 mm

Granular Subbase Thickness: 280 mm

Total Pavement Structure Thickness: 500 mm

A deposit of sand with a trace of gravel and silt was encountered below the granular subbase in BH17 at a depth of 0.5 m and was present up to borehole termination depth (2 m).

1.5.3 Groundwater and Hydraulic Conductivity

Groundwater was not encountered during the WSP investigation, and all of the boreholes remained open and dry upon completion. It should be noted that groundwater levels can vary and are prone to seasonal fluctuations in response to major weather events. The lowest permeability (i.e., hydraulic conductivity) of the subgrade has been estimated in Boreholes BH1 and BH5 (i.e., between 1 x 10⁻⁸ to 1x 10⁻¹⁰). The medium permeability (i.e., 1 x 10⁻⁴) has been estimated in Borehole BH3.

The Geotechnical Investigation Report was provided in a separate package.

2 EXISTING CONDITIONS

2.1 General

The existing road is a two-lane, two-direction roadway classified as a collector roadway. Within the study limits, the existing road is a flexible pavement with a rural cross-section (i.e., surface water drains towards ditches on either side of the road crown except for the first 80 m north of Innisfil Beach Road, which drains to the existing catchbasins along the road). Please refer to **Appendix A** for existing cross-sections of the road.

The 25th Side Road study area is located within the Innisfil Creek subwatershed (see **Appendix A / Figure 2-1**). Some portions of the four named streams (i.e., Bon Secours Creek, Leonard's Creek, Moosenlanka Creek and Sandy Cove Creek) were identified within the study boundary, all of the subwatershed's streams have headwaters in agricultural areas and then flow downstream toward the existing 25th Side Road crossing culverts prior to being discharged into Lake Simcoe. Refer to **Figure 2-1** for the location of Bon Secours, Moosenlanka, Sandy Cove, and Leonard Creeks. **Figure 2-2** illustrates the subwatershed boundaries within the study area.

Although the majority of the study area includes agricultural lands, some settlement areas (i.e., Alcona, Sandy Cove and Big Bay Point) are identified within the study area as well.

The Alcona settlement area consists of a total of 1569.1 ha of land and a total of 21 existing SWM facilities. The Sandy Cove settlement area is 501.5 ha of land in size and hosts two existing SWM facilities. The Big Bay Point settlement area consists of a total of 239.1 ha of land with no existing SWM facility identified. Please refer to **Appendix A**, **Figures 9A** and **9F** for the location of the existing SWM facilities within the Alcona and Sandy Cove settlement areas. Some portions of Alcona, Sandy Cove and Big Bay Point settlement areas are located on the west side of the subject site (**Figure 2-2**).

2.1.1 Existing 25th Side Road Culvert Capacity Analysis

To estimate the capacity of the existing 25th Side Road crossing culverts, the study area was delineated into 12 catchments (i.e., Catchments 101, 101-1, 102 to 111). A Visual OTTHYMO (VO6.1) model was simulated to estimate the existing peak flow rates for Catchments 101,101-1 to 111. Peak flow rates for the 4-hour Chicago and 12-hour SCS Type II design storms were determined for the 25- and 100-year return periods (**Table 1-2** / **Section 1.3**).

The model has been developed using the existing land use data provided within the Comprehensive Stormwater Management Master Plan (CSMMP) Town of Innisfil Report.

As mentioned previously, there are some SWM facilities within the study area which control runoff generated from the settlement areas prior to being discharged into the 25th Side Road existing crossing culverts. The impact of the existing SWM facilities has been considered for the capacity analysis of the existing 25th Side Road crossing culverts.

The hydrologic model within the CSMMP report includes catchment delineations for Bon Secours, Leonard, Moosenlanka and Sandy Cove Creeks. Although the details of the CSMMP's Visual OTTHYMMO model outputs and SWM facilities release rates are not available, the CSMMP's Visual OTTHYMMO model data and catchment delineation within the settlement areas were used to estimate flow rates at the location of the 25th Side Road existing culverts. Refer to **Figures 9-A** and **9-F** in **Appendix A** for further details.

Under existing conditions, to estimate the capacity of the existing 25th Side Road crossing culvert (i.e., Bon Secours Creek crossing culvert), Catchment 101 was divided into two sub-catchments. The immediate catchment on the west side of 25th Side Road (i.e., Catchment 101-1) was modelled in this report. Since there are some existing SWM facilities within the remaining areas of Catchment 101, the CSMMP's Visual OTTHYMO modelling results for Catchments AC100 to AC107 were used for the remaining areas of Catchment 101.

Figure 9-A in **Appendix A** shows the location of Catchments AC100 to AC107.

Figure 1 in **Appendix A** shows a sketch of the CSMMP existing Visual OTTHYMO model for Catchments AC100 to AC 107. No SWM facility exists within Catchment 102, therefore, WSP modelled Catchment 102.

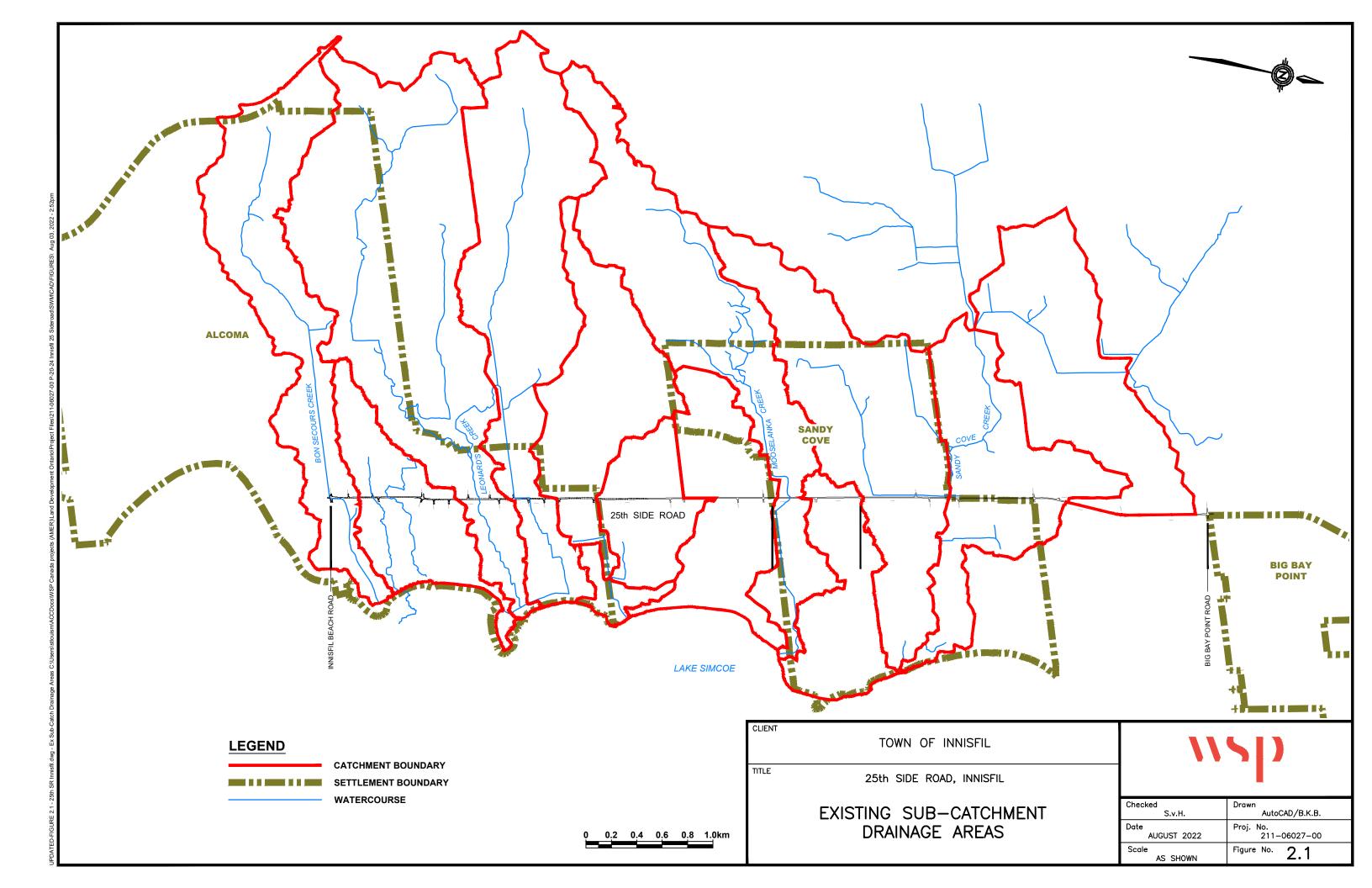
Runoff generated from portions of Catchment 103 is controlled by the existing SWM facilities (i.e., 8-3, 8-4, 8-5 and 8-9). Please refer to **Figure 9-A** in **Appendix A** for the location of these SWM facilities. The function of these existing SWM facilities has been modelled within the Alcona North Secondary Master Drainage Plan study prepared by C.C. Tatham & Associated (CCTA) Ltd. dated, August 2011 (see **Figure 9-A** in **Appendix A** for the location of Alcona North Secondary Plan). Although the details of the modelling results are not available, a summary of the peak flow rates expected at the 25th Side Road has been provided in Table 2 of the CCTA report. Based on the results, the performance of the existing SWM facilities in reducing the flow rate within Catchment 103 closely matches existing conditions (i.e., without SWM facilities). Thus,

the existing flood prone areas within Catchment 103 downstream of the 25th Side Road existing culverts are not reduced by controlling flow rates within the SWM facilities. The Alcona North Secondary report indicates some stormwater management plans to reduce runoff generated from this portion of the study area, which has not been constructed. Therefore, within the current Visual OTTHYMO model WSP disregarded the existing SWM facilities within Catchment 103.

There is no existing SWM facility within Catchments 104 to 111. As such, Catchments 104 to 111 have been modelled.

Table 2-1 summarizes drainage areas, the assumed CN numbers corresponding to each land use, the TIMP and XIMP values for STANDHYD commands and the time to peak (Tp) values for NASHYD commands within the Visual OTTHYMO model. The time to peak values for the catchment areas was calculated using the Airport Method for runoff coefficients less than 0.4. Please refer to **Appendix B**.

Under existing conditions, the existing culvert capacities were evaluated using CulvertMaster. The physically measured properties of the culverts, including diameter, length, and slope, were applied to a CulvertMaster model from the existing survey plan. Based on the CulvertMaster modelling results, the capacities of the existing culverts are significantly lower than the 25- and 100-year storm events (**Table 2-2**). CulvertMaster was used to estimate the minimum required size of the culverts to pass the 25-year design storms. The results are provided in **Table 2-2** and **Appendix B**. The details of the Visual OTTHYMO and CulvertMaster modelling results are provided in **Appendix C** and **D** respectively.



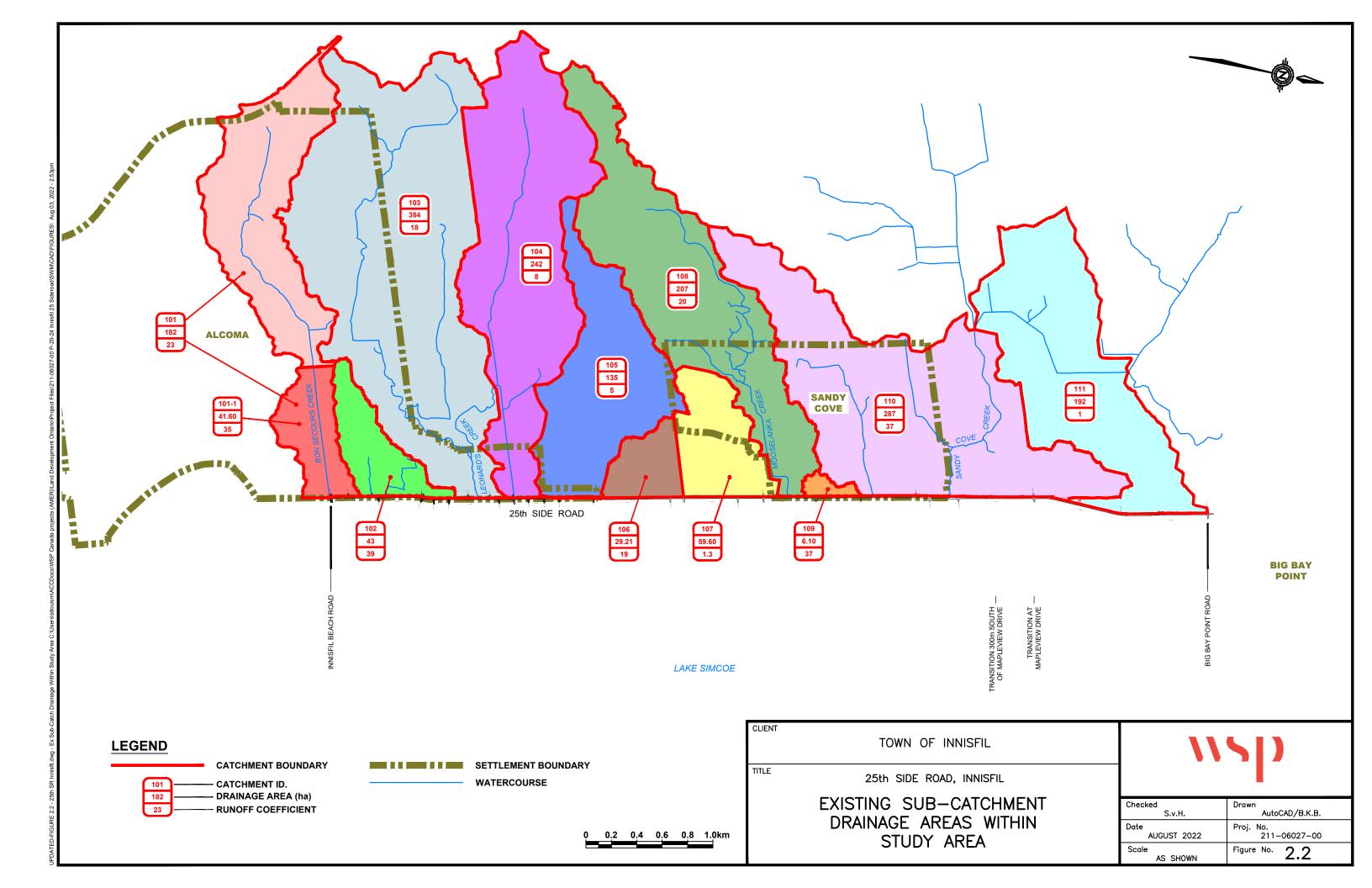


Table 2-1: Visual OTTHYMO Parameters for Existing Conditions

| Catchment Name | Catchment Area (ha) | TIMP (%) | XIMP (%) | CN | TP (hr) | Existing Culvert Size |
|-------------------------|---------------------------|-------------|-------------|-------|------------|----------------------------------|
| 101-1 | 42 | 35 | 30 | 63.57 | N/A | |
| 101 (includes 101-1) | 182 | 21 | 0.18 | 55 | N/A | 1800 mm |
| 102 | 43 | 39 | 31 | 66.18 | N/A | 500 mm and 600 mm |
| 103 | 384 | 18 | 15 | 65 | 1.87 | 1100 mm x 1650 mm |
| 104 | 242 | 8 | 7 | 59 | 1.66 | 800 mm |
| 105 | 135 | 5 | 3 | 53.4 | 0.35 | 1200 mm |
| 103 | 133 | 3 | 3 | 33.4 | 0.33 | 800 mm |
| 106 | 29.21 | 20 | 18 | 53.4 | 0.61 | 500 mm x 700 mm |
| 107 | 59.6 | 1.3 | 1.2 | 53.4 | 0.93 | 800 mm |
| 108 | 207 | 20 | 18 | 51.2 | 1.86 | 1000 mm x 700 mm and 900 mm |
| 109 | 6 | 37 | 30 | 72 | N/A | 450 mm |
| 110 | 287 | 37 | 30 | 72 | N/A | 6 m x 3.2 m Bridge and 900 mm |
| 111 | 192 | 1 | 0.8 | 63.2 | 2.72 | 400 mm |

Table 2-2: Full Capacity of the Existing Culverts

| Name | | Ex. Culvert | | 12 hr s) | 12 hr | ago | ar ago | oacity | Required Culvert | |
|-------------------------|---------------------|-----------------|-------------------|---------------------------------|-------------------------------------|-------------------------------------|--------------------------------------|----------------------------|--------------------------------------|--|
| Catchment Name | Watercourse Name | Span / d (m) | Height / d (m) | 25- year 12 SCS II (m³/s) | 100- year 12 hr SCS II (m³/s) | 25- year 4- hr Chicago (m³/s) | 100- year 4- hr Chicago (m³/s) | Culvert Capacity (m³/s) | size to pass 25- year flow (m) | |
| 101-1 | | | | 3.9 | 5 | 4.26 | 5.34 | | | |
| 101 (includes 101-1) | Bon Secours | 1.8 | 1.8 | 9.41 | 12.25 | 9.50 | 12.01 | 4.38 | 3.6 x 1.5 | |
| 102 | N/A | 0.5 | 0.5 | 4.24 | 5.4 | 4.70 | 5.86 | 0.45 | 3 x 1.2 | |
| 102 | IN/A | 0.6 | 0.6 | 4.24 | | | | 0.45 | 3 X 1.2 | |
| 103 | Leonard's Creek | 1.1 | 1.65 | 8.87 | 12.825 | 6.69 | 9.68 | 3.69 | 3.6 x 1.2 | |
| 104 | Leonard's Creek | 0.8 | 0.8 | 2.47 | 3.63 | 1.83 | 2.68 | 0.66 | 2.4 x 1.5 | |
| 105 | N/A | 1.2 | 1.2 | 6.13 | 9.13 | 3.90 | 5.86 | 1.99 | 2.1 x 1.2 | |
| 103 | | 0.8 | 0.8 | 0.13 | 9.10 | 5.90 | 5.00 | 1.99 | 1.2 x 0.9 | |
| 106 | N/A | 0.5 | 0.7 | 0.90 | 1.34 | 0.60 | 0.90 | 0.44 | 0.5 x 0.7 | |
| 100 | IV/A | 0.5 | 0.7 | 0.90 | 1.54 | 0.00 | 0.90 | 0.44 | 0.5 x 0.7 | |
| 107 | N/A | 0.8 | 0.8 | 1.35 | 2.00 | 0.93 | 1.39 | 0.58 | 1.5 x 0.9 | |
| 108 | Moosenlanka | 0.7 | 1 | 2.52 | 2.70 | 1.85 | 2.77 | 1.41 | 2.1 x 0.9 | |
| 100 | | 0.9 | 0.9 | 2.52 | 3.79 | 1.00 | 2.11 | 1.41 | 0.9 x 0.9 | |
| 109 | N/A | 0.45 | 0.45 | 0.71 | 0.97 | 0.75 | 0.94 | 0.58 | 0.6 x 0.6 | |
| 110 | Sandy Cove | 6 | 3.2 | 22.46 | 29.43 | 22.20 | 20.20 | 40 | Not Required | |
| | | 0.9 | 0.9 | | | 22.38 | 28.37 | 42 | | |
| 111 | N/A | 0.4 | 0.4 | 2.48 | 3.63 | 1.88 | 2.75 | 0.10 | 2.1 x 0.9 | |

2.1.2 Existing Road Drainage Areas

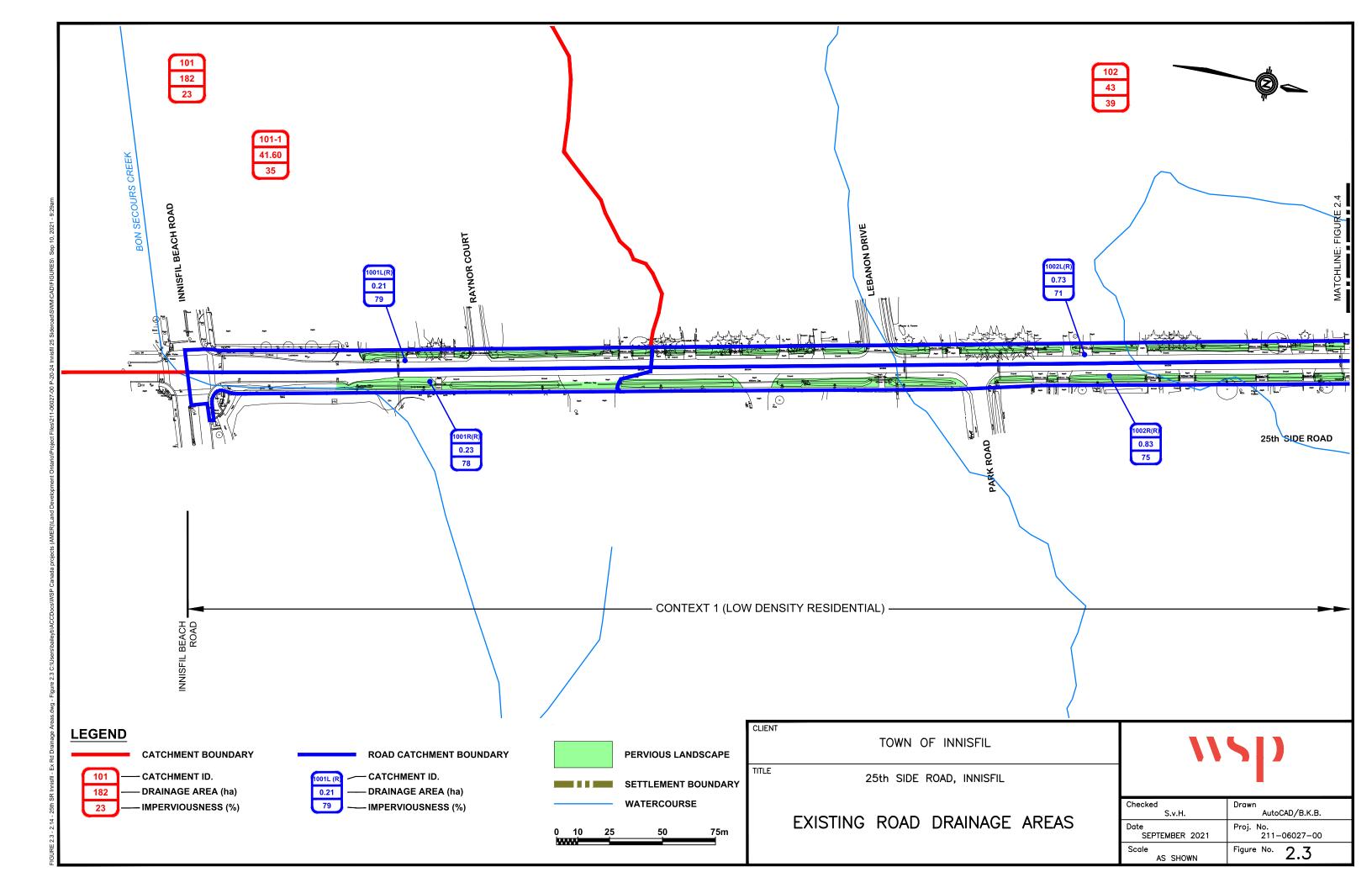
Under existing conditions, the roadway runoff is conveyed predominantly by roadside ditches prior to being discharged into the existing 25th Side Road culverts. Minor flows from a small portion of the roadway areas between Raynor Court and Innisfil Beach Road discharge into the existing storm pipes. Road drainage areas are identified in **Figure 2-3** to **Figure 2-14**.

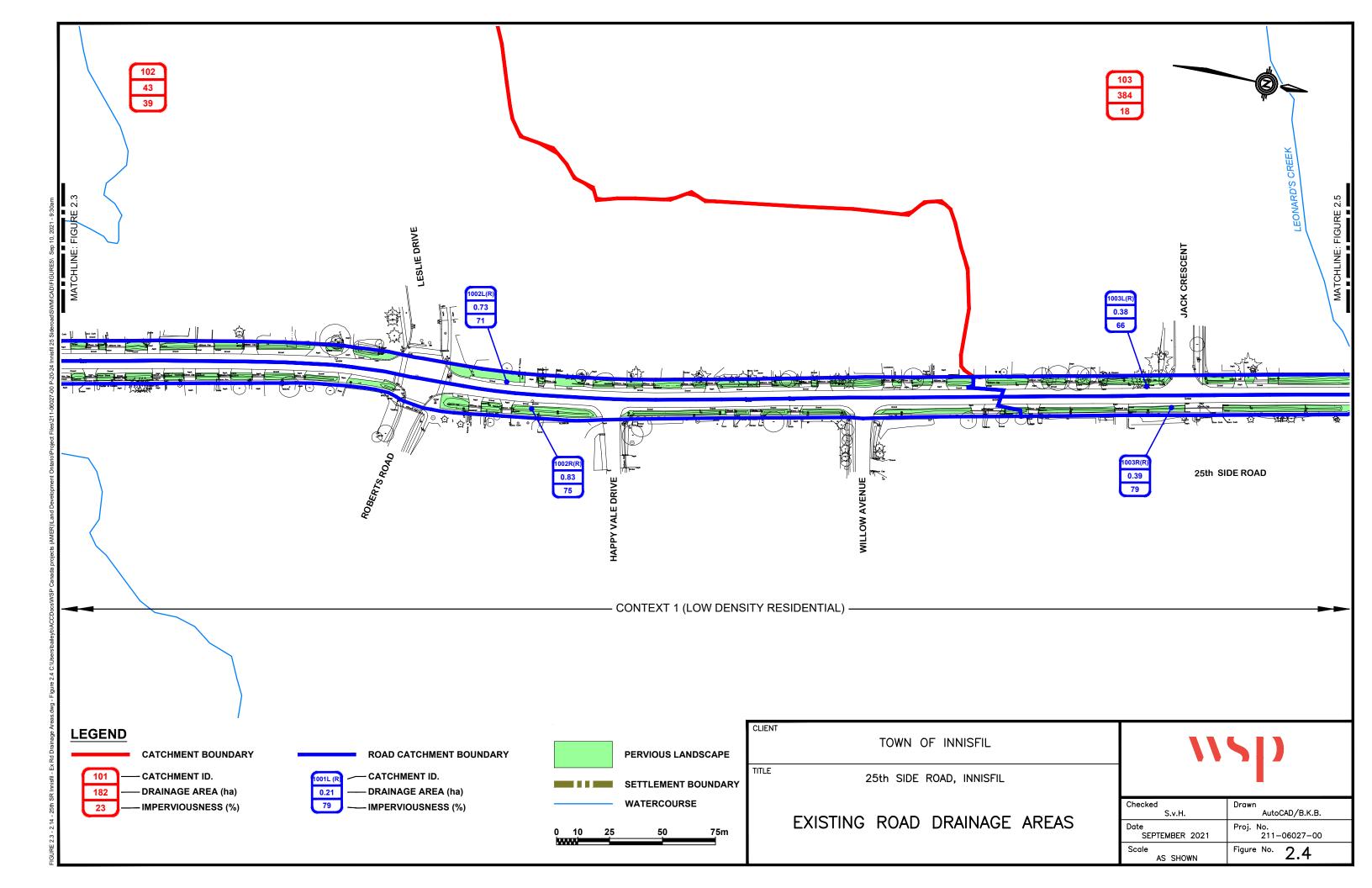
Roadway runoff from the west side of 25th Side Road is discharged into the existing culverts along 25th Side Road prior to being discharged into Lake Simcoe southerly. Under existing conditions, the left and right sides of the road were delineated into 12 catchments as shown in **Table 2-3**. A Visual OTTHYMO (VO) model was simulated to estimate the existing peak flow rates for road drainage areas. Peak flow rates for the 4-hour Chicago and 12-hour SCS Type II design storms were determined for the 25-and 100-year return periods (**Table 2-3**). More details are provided in **Appendix C**.

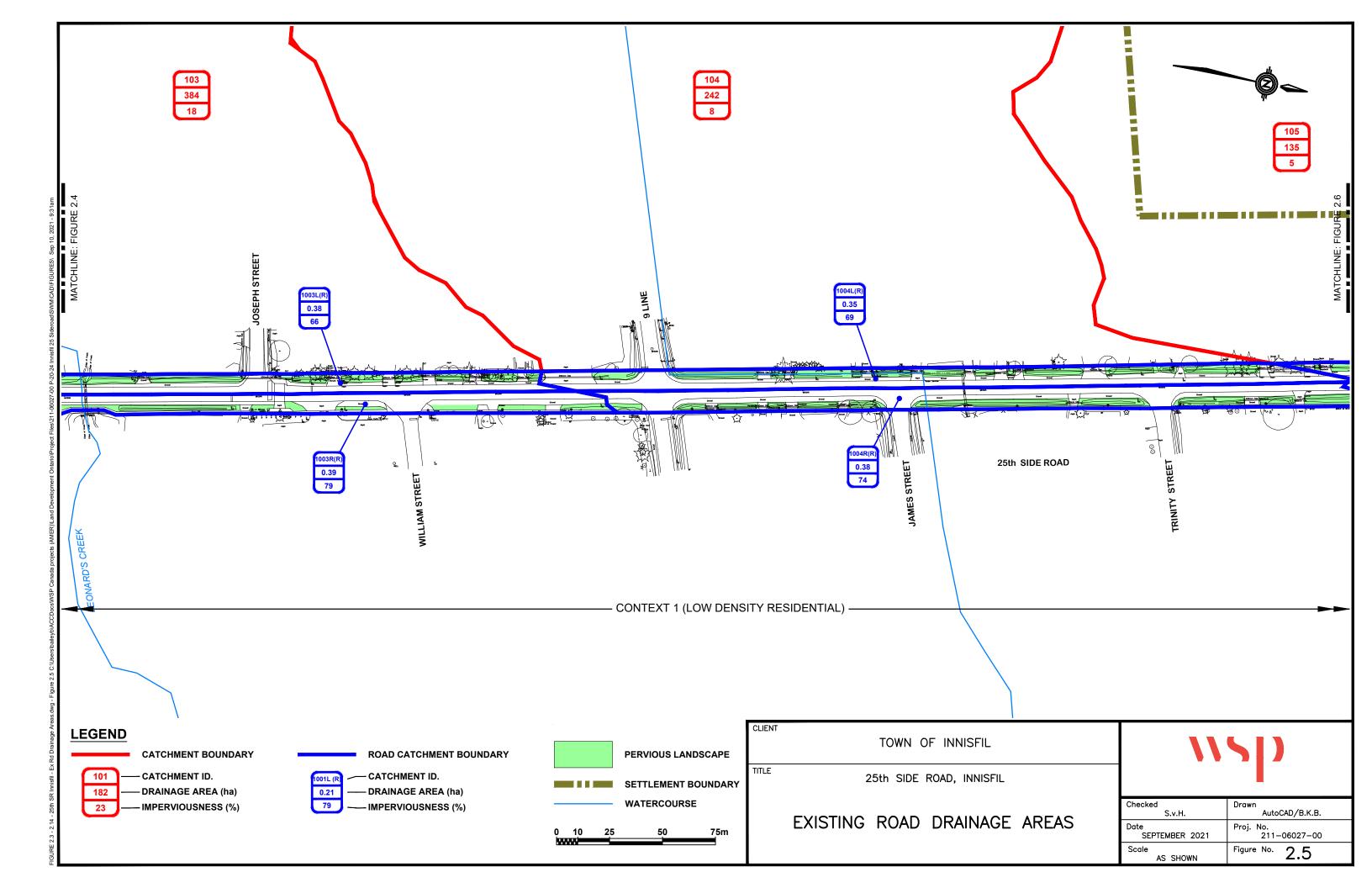
Table 2-3: Road Drainage Area Runoffs

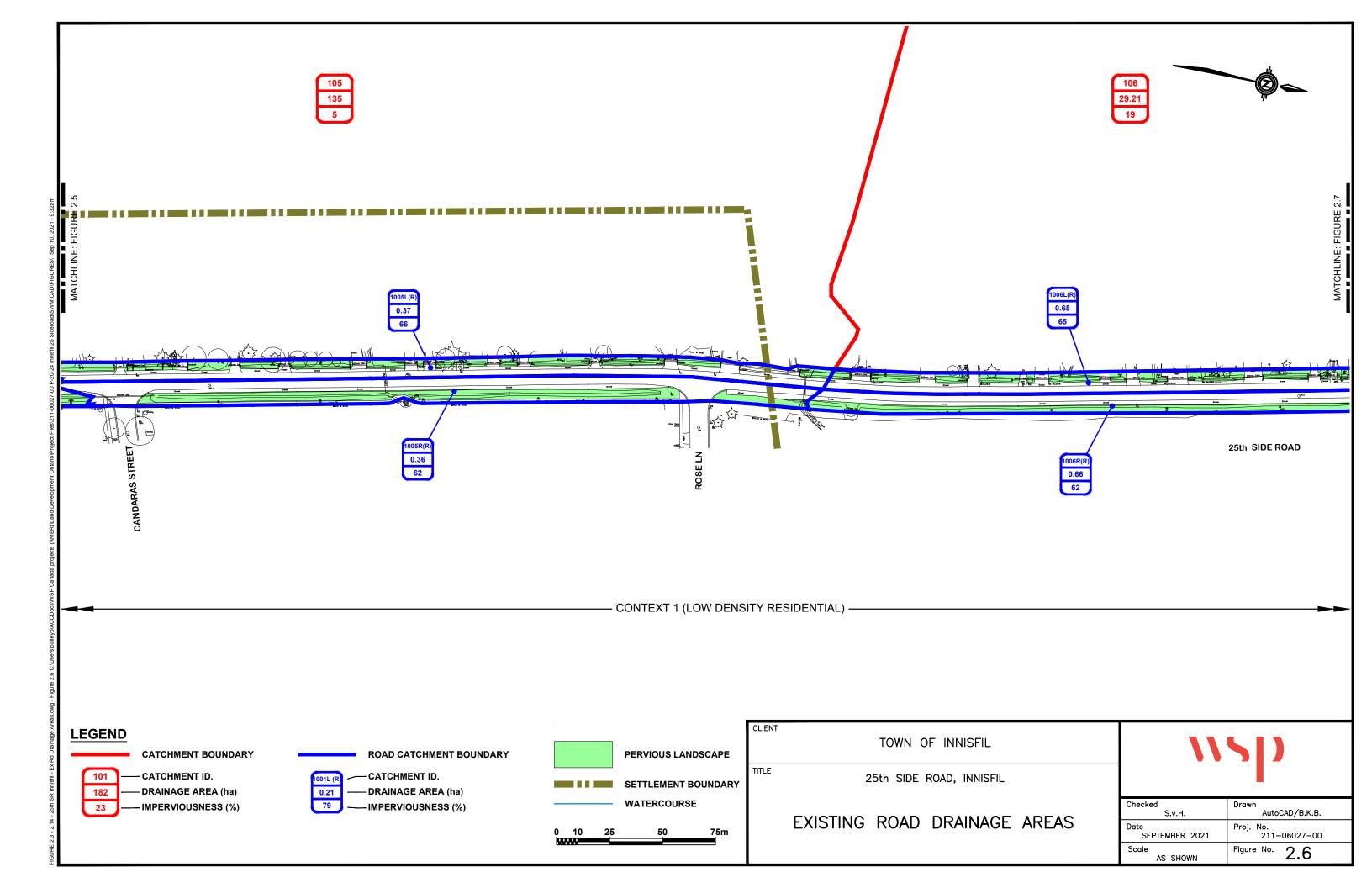
| Catchment Name | Watercourse Name | Area (ha) | Imp (%) | Ex. Culvert | | 12 hr) | 12 hr) | ar cago ;) | ear cago () |
|-------------------|----------------------|--------------|------------|----------------|------------------|-----------------------------------|-------------------------------------|-------------------------------------|--------------------------------------|
| | | | | Span /d (m) | Height /d (m) | 25- year 12 SCS II (m³/s) | 100- year 12 hr SCS II (m³/s) | 25- year 4- hr Chicago (m³/s) | 100- year 4- hr Chicago (m³/s) |
| 1001L (R) | Bon Secours | 0.21 | 79 | 1.8 | 1.8 | 0.066 | 0.083 | 0.077 | 0.098 |
| 1001R (R) | Bon Secours | 0.23 | 78 | 1.0 | | 0.072 | 0.091 | 0.084 | 0.107 |
| 4000L (D) | | 0.72 | 71 | 0.5 | 0.5 | 0.218 | 0.282 | 0.253 | 0.314 |
| 1002L (R) | N/A | 0.73 | | 0.6 | 0.6 | | | | |
| 1002R (R) | IN/A | 0.83 | 75 | 0.5 | 0.5 | 0.258 | 0.324 | 0.296 | 0.366 |
| 1002K (K) | | | | 0.6 | 0.6 | | | | |
| 1003L (R) | l a a mandia Cua ala | 0.38 | 66 | 1.1 | 1.65 | 0.112 | 0.142 | 0.124 | 0.159 |
| 1003R (R) | Leonard's Creek | 0.39 | 79 | 1.1 | 1.65 | 0.123 | 0.154 | 0.143 | 0.182 |
| 1004L (R) | Leonard's Creek | 0.35 | 69 | 0.8 | 8.0 | 0.104 | 0.135 | 0.12 | 0.149 |
| 1004R (R) | Leonard's Creek | 0.38 | 74 | 0.8 | 8.0 | 0.118 | 0.148 | 0.135 | 0.167 |
| 1005L (R) | NI/A | 0.37 | 66 | 1.2 | 1.2 | 0.118 | 0.138 | 0.135 | 0.155 |
| 1005R (R) | N/A | 0.36 | 62 | 8.0 | 8.0 | 0.104 | 0.133 | 0.114 | 0.142 |
| 1006L (R) | N/A | 0.65 | 65 | 0.5 | 0.7 | 0.190 | 0.241 | 0.209 | 0.269 |
| 1006R (R) | | 0.66 | 62 | 0.5 | 0.7 | 0.191 | 0.243 | 0.208 | 0.260 |
| 1007L (R) | N/A | 0.72 | 60 | 8.0 | 8.0 | 0.210 | 0.263 | 0.220 | 0.280 |
| 1007R (R) | | 0.74 | 71 | 0.8 | 0.8 | 0.220 | 0.285 | 0.320 | 0.319 |

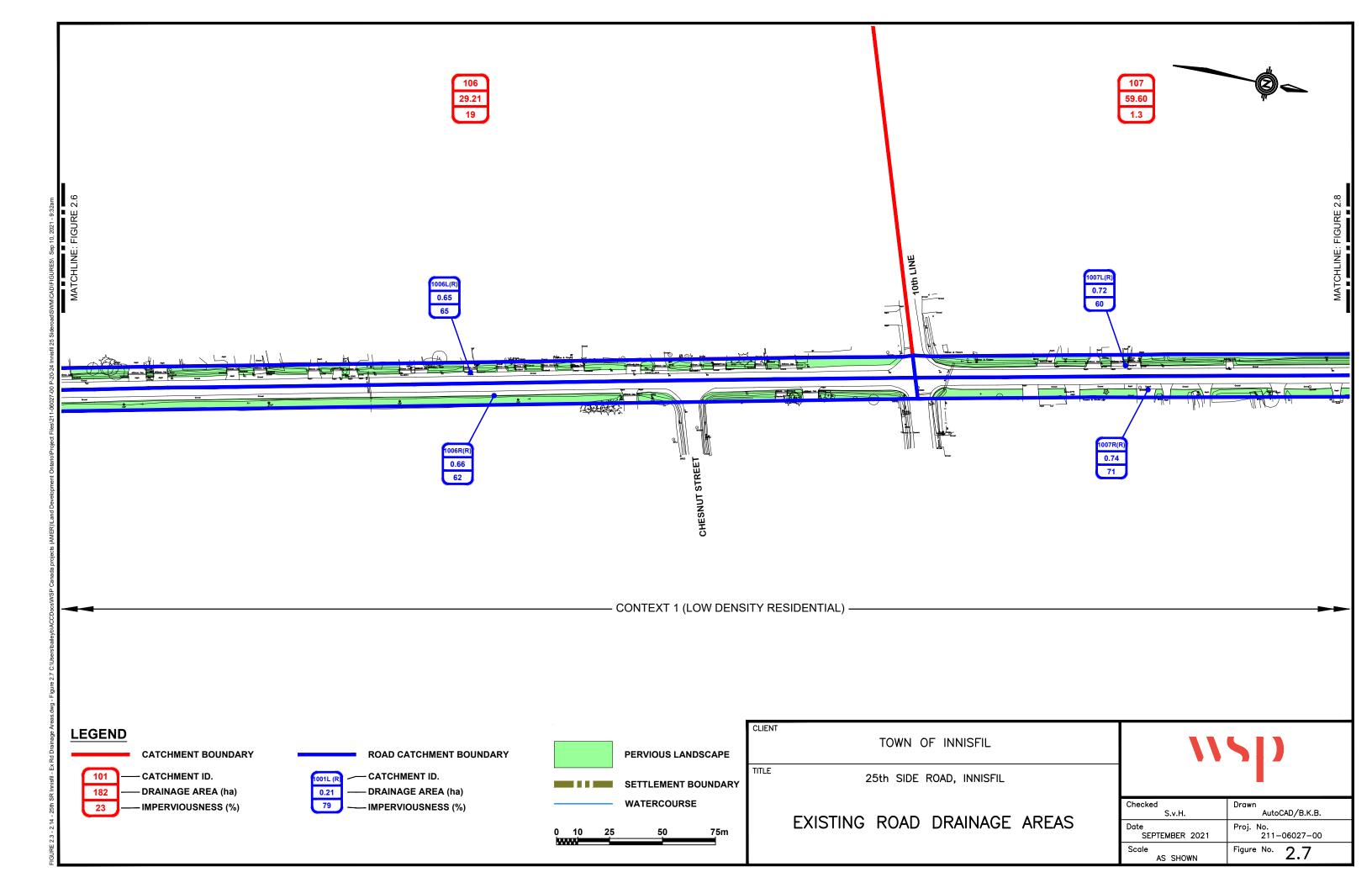
| | Watercourse Name | Area (ha) | lmp (%) | Ex. Culvert | | 12 hr) | 12 hr) | ar cago) | ear cago) |
|-------------------|---------------------|--------------|------------|----------------|------------------|-----------------------------------|------------------------------------|-------------------------------------|--------------------------------------|
| Catchment Name | | | | Span /d (m) | Height /d (m) | 25- year 12 SCS II (m³/s) | 100- year 12 l SCS II (m³/s) | 25- year 4- hr Chicago (m³/s) | 100- year 4- hr Chicago (m³/s) |
| 1008L (R) | | 0.21 | 52 | 0.7 | 1 | 0.059 | 0.075 | 0.061 | 0.078 |
| TOOOL (IX) | Moosenlanka | 0.21 | | 0.9 | 0.9 | | | | |
| 1008R (R) | Wiooseriiarika | 0.16 | 87 | 0.7 | 1 | 0.068 | 0.085 | 0.083 | 0.101 |
| 1006K (K) | | 0.16 | | 0.9 | 0.9 | | | | 0.101 |
| 1009L (R) | N/A | 0.5 | 74 | 0.45 | 0.45 | 0.155 | 0.195 | 0.178 | 0.220 |
| 1009R (R) | IN/A | 0.63 | 71 | 0.45 | 0.45 | 0.200 | 0.250 | 0.234 | 0.296 |
| 1100L (R) | Sandy Caya | 0.91 | 55 | 6 | 3.2 | 0.260 | 0.326 | 0.270 | 0.340 |
| TIOOL (K) | | | | 0.9 | 0.9 | | | | |
| 4400D (D) | Sandy Cove | 0.88 | 72 | 6 | 3.2 | 0.070 | 0.340 | 0.307 | 0.380 |
| 1100R (R) | | | | 0.9 | 0.9 | 0.270 | 0.340 | 0.307 | 0.360 |
| 1110L (D) | | 1.06 | 59 | 6 | 3.2 | 0.302 | 0.385 | 0.324 | 0.407 |
| 1110L (R) | N/A | | | 0.9 | 0.9 | | | | |
| 1110D (D) | IN/A | 0.97 | 78 | 6 | 3.2 | 0.304 | 0.382 | 0.352 | 0.435 |
| 1110R (R) | | | | 0.9 | 0.9 | | | | 0.435 |
| 1120L (R) | N/A | 1.21 | 68 | 0.4 | 0.4 | 0.360 | 0.461 | 0.410 | 0.510 |
| 1120R (R) | | 1.22 | 69 | 0.4 | 0.4 | 0.360 | 0.466 | 0.414 | 0.516 |

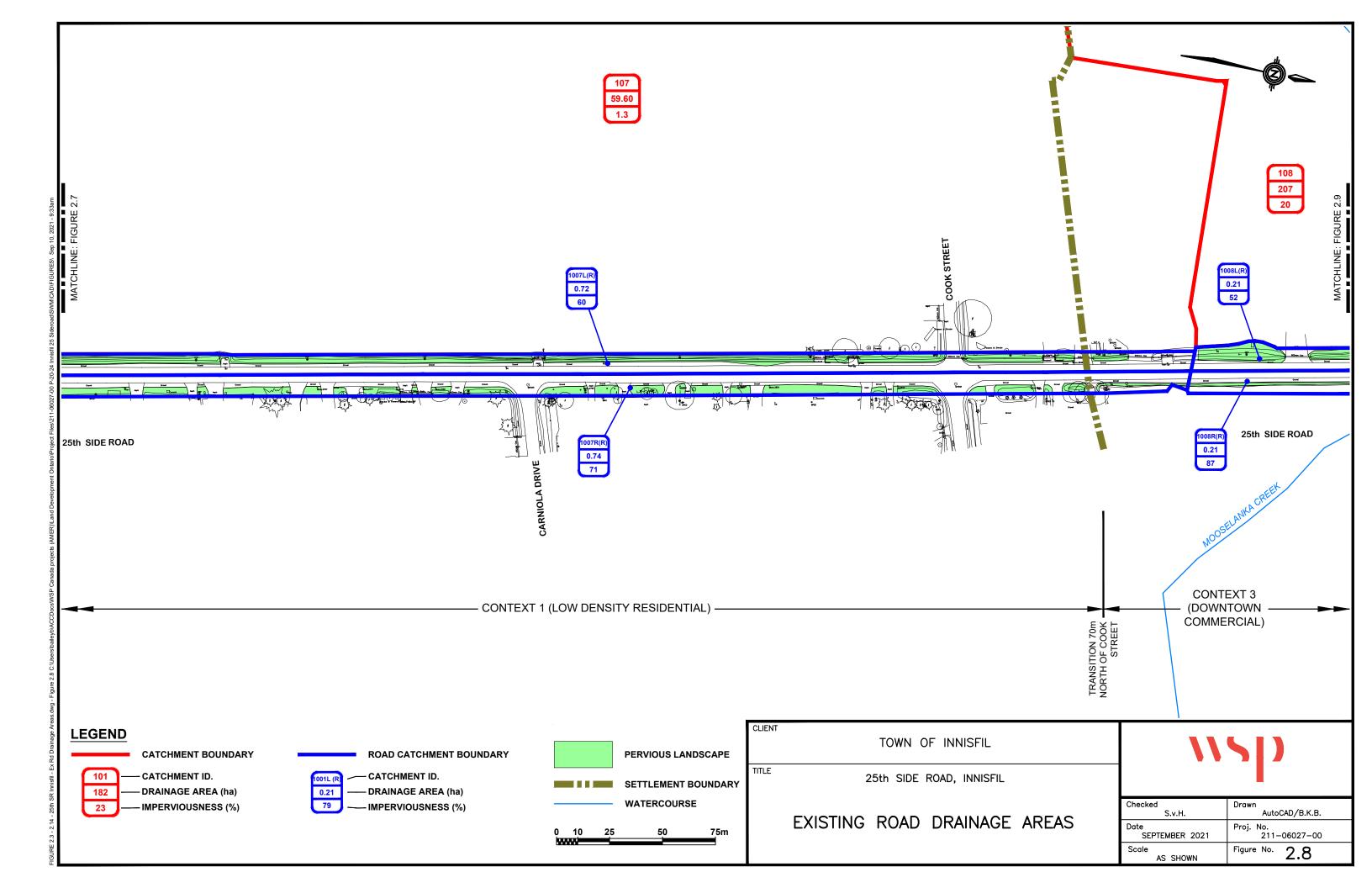


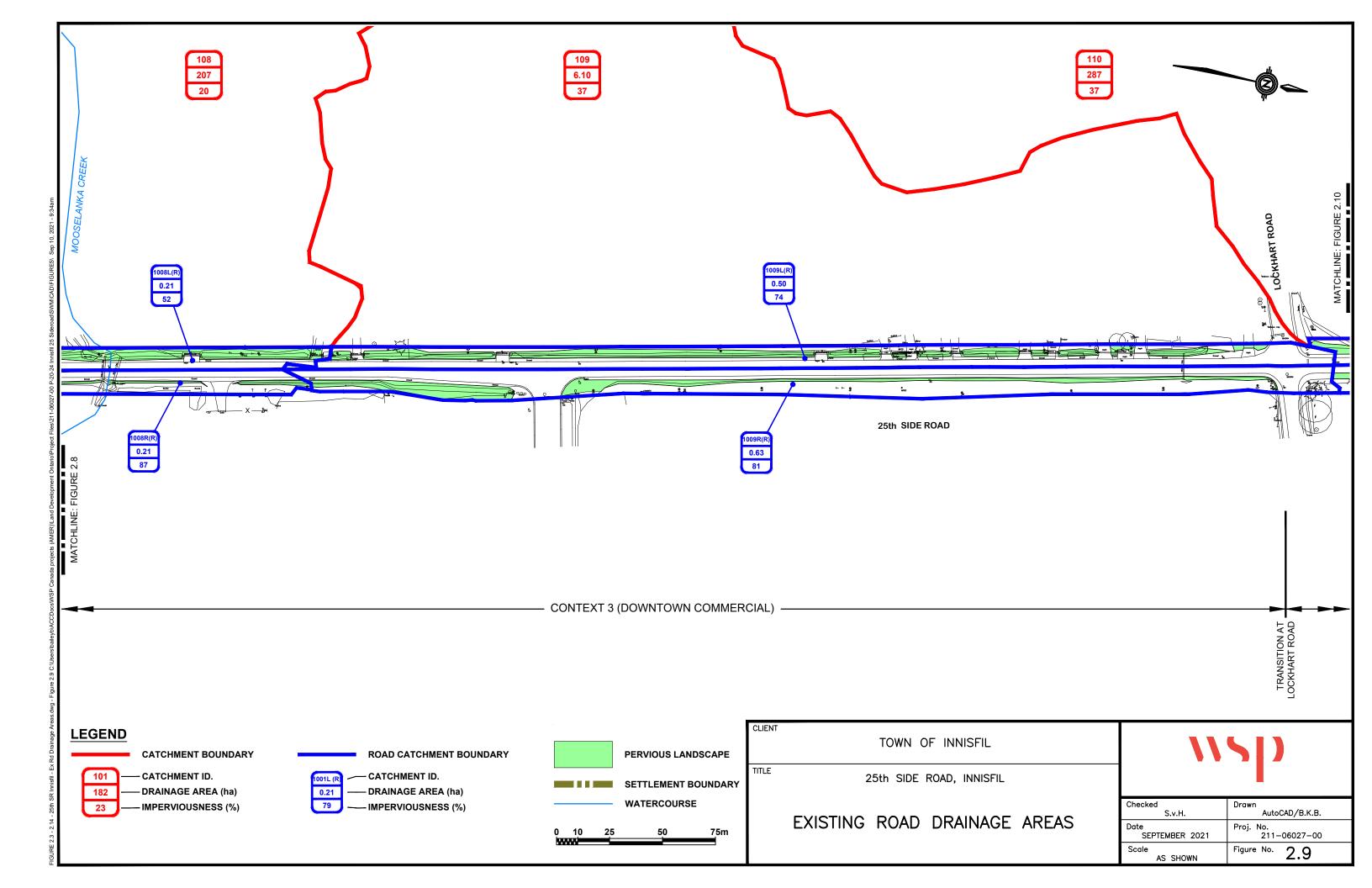


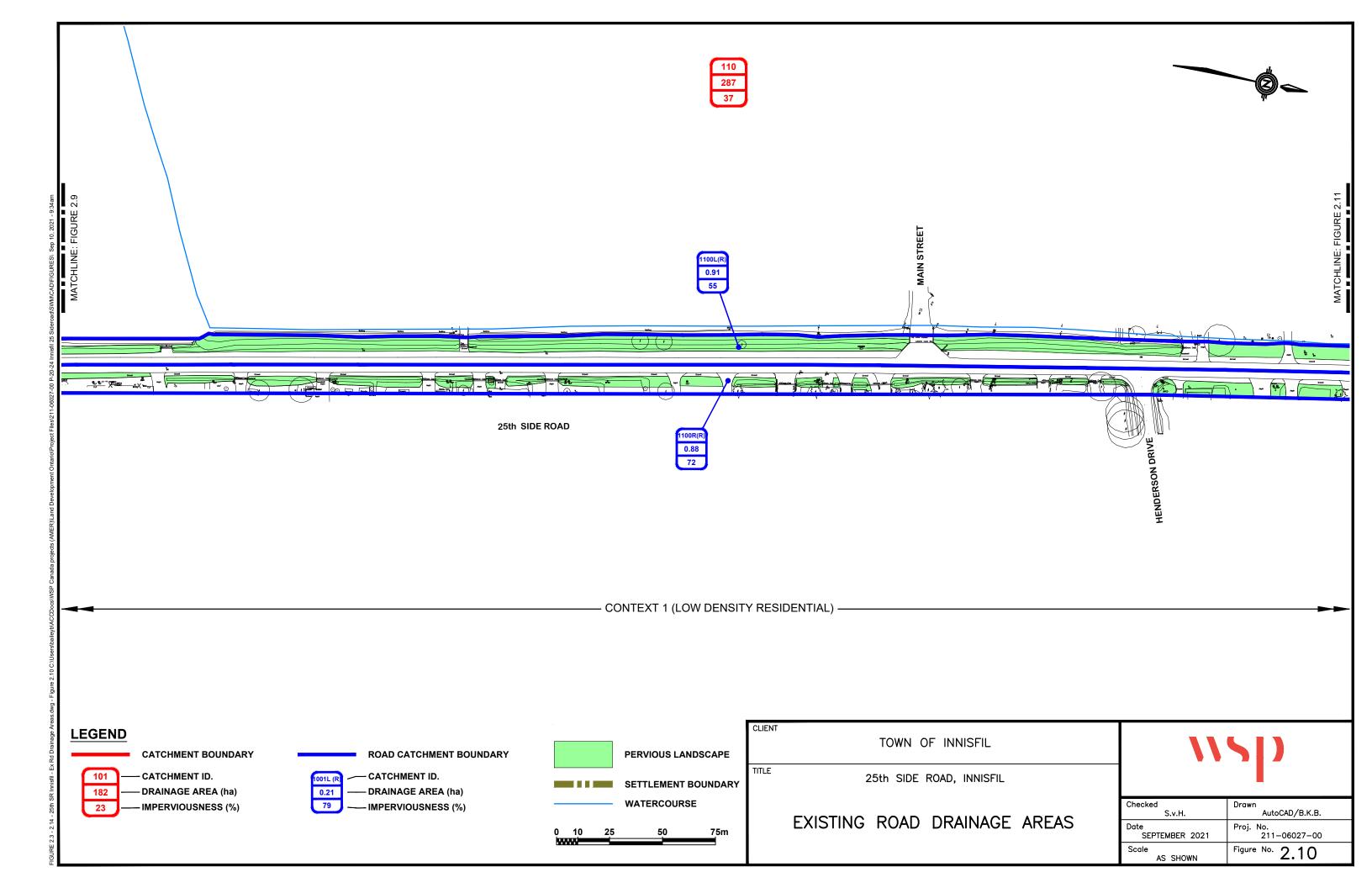


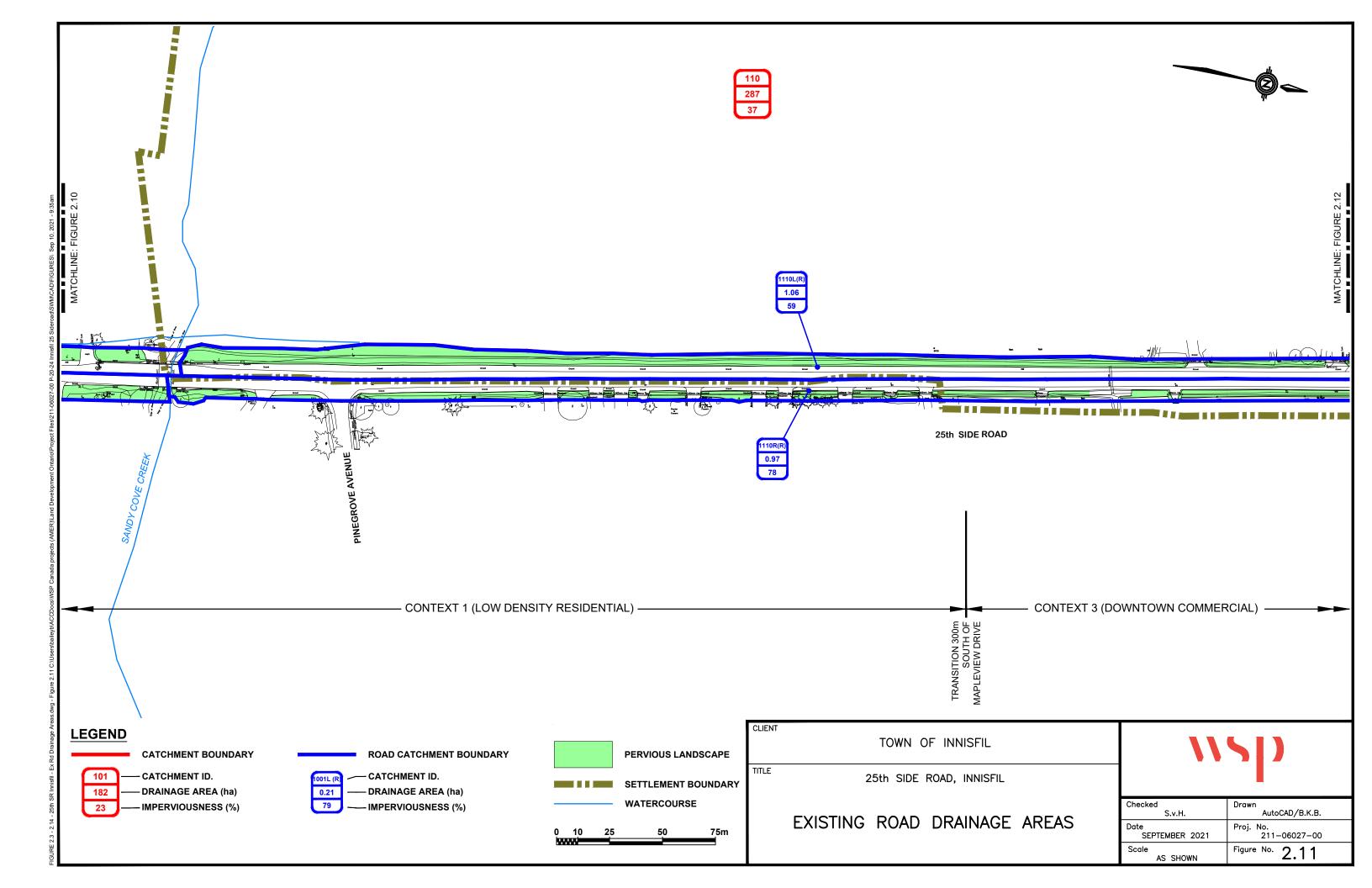


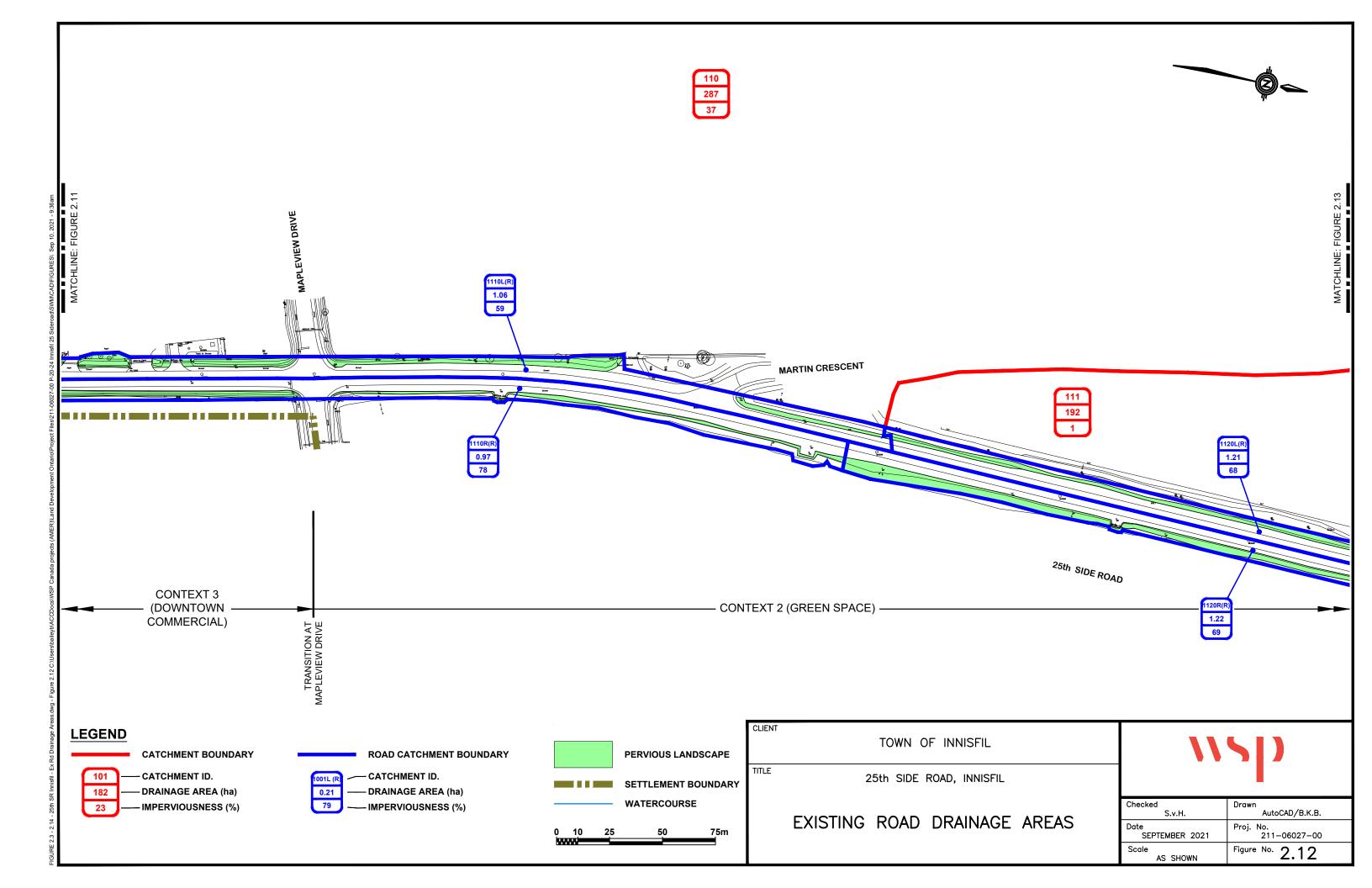


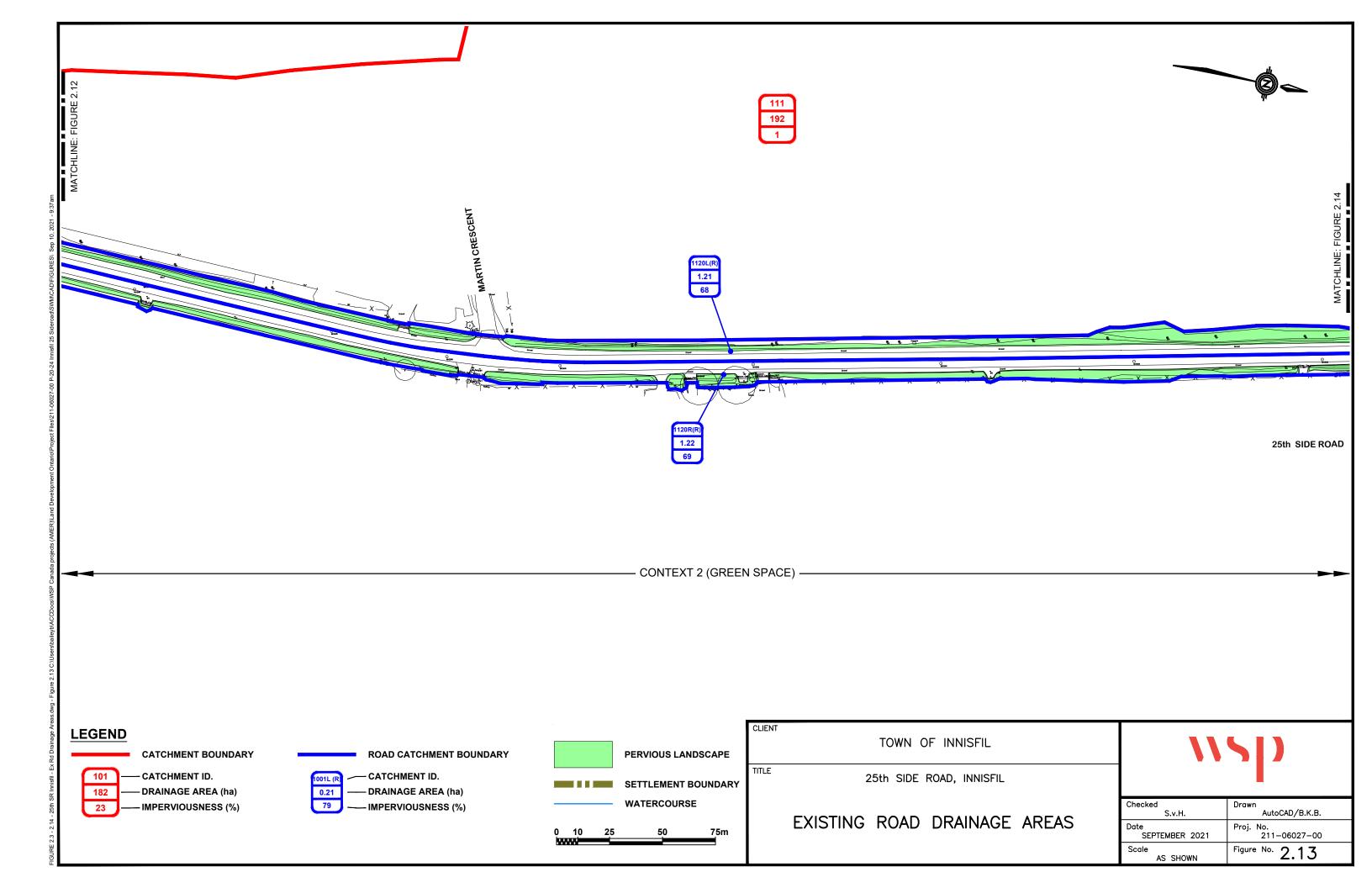


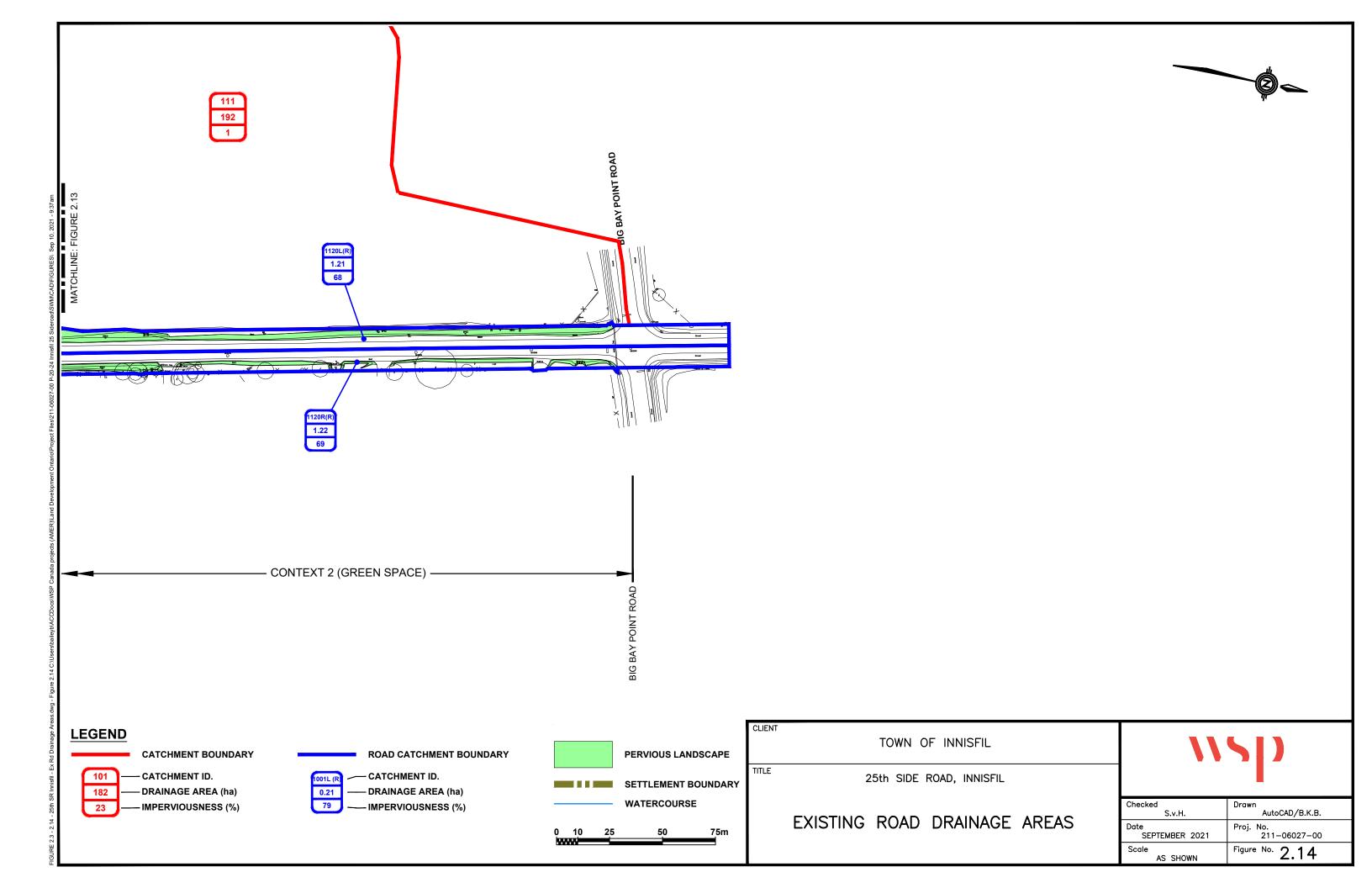












3 POST DEVELOPMENT CONDITIONS

Under post-development conditions, the drainage area for the west and east sides of 25th Side Road were delineated into 12 catchments (i.e., Catchments 2001, to 2012) as shown in **Table 3-1**. Please refer to **Figures 3-1** to **3-5** for the details of the post-development road drainage areas and **Figures 3-6** for the post-development drainage areas plan.

Table 3-1: Post-Development Conditions Road Drainage Areas

| Catchment Name | Catchment Area (ha) | TIMP (%) | XIMP (%) | LID Footprint Area (ha) | Vegetated Area (ha) | Existing Culvert Size | |
|---------------------------------|---------------------------|-------------|-------------|-------------------------------|------------------------|---|--|
| Catchment 2001.1 L Context 3 | 0.100 | 90 | 90 | 0.006 | 0.01 | Evicting Storm Dino | |
| Catchment 2001.1 R Context 3 | 0.099 | 79 | 79 | 0.011 | 0.02 | Existing Storm Pipe | |
| Catchment 2001.2 L Context 1 | 0.11 | 91 | 91 | 0.01 | 0.01 | (1800 mm and 900 mm diameter Existing Culverts) | |
| Catchment 2001.2 R Context 1 | 0.13 | 86 | 86 | 0.02 | 0.02 | | |
| Catchment 2002 L Context 1 | 0.70 | 93 | 93 | 0.05 | 0.08 | (500 mm diameter | |
| Catchment 2002 R Context 1 | 0.80 | 88 | 88 | 0.09 | 0.12 | Existing Culvert) | |
| Catchment 2003 L Context 1 | 0.43 | 90 | 90 | 0.017 | 0.04 | (1100 mm x 1500 mm | |
| Catchment 2003 R Context 1 | 0.47 | 87 | 87 | 0.04 | 0.06 | diameter Existing Culvert) | |
| Catchment 2004 L Context 1 | 0.35 | 89 | 89 | 0.015 | 0.04 | 800 mm diameter | |
| Catchment 2004 R Context 1 | 0.36 | 85 | 85 | 0.05 | 0.05 | Existing Culvert | |
| | | | | | | | |

| | I | | | | | | |
|---------------------------------|---------------------------|-------------|-------------|-------------------------------|------------------------|--|--|
| Catchment Name | Catchment Area (ha) | TIMP (%) | XIMP (%) | LID Footprint Area (ha) | Vegetated Area (ha) | Existing Culvert Size | |
| Catchment 2005 L Context 1 | 0.28 | 90 | 90 | 0.01 | 0.03 | 1200 mm and 800 mm diameters Existing | |
| Catchment 2005 R Context 1 | 0.29 | 78 | 78 | 0.05 | 0.06 | Culverts | |
| Catchment 2006 L Context 1 | 0.65 | 88 | 88 | 0.06 | 0.08 | 500 mm x 700 mm | |
| Catchment 2006 R Context 1 | 0.73 | 80 | 80 | 0.14 | 0.15 | diameter Existing Culverts | |
| Catchment 2007 L Context 1 | 0.58 | 85 | 85 | 0.08 | 0.09 | 800 mm diameter Existing Culvert | |
| Catchment 2007 R Context 1 | 0.64 | 84 | 84 | 0.07 | 0.11 | | |
| Catchment 2008-1 L Context 1 | 0.07 | 84 | 84 | 0.007 | 0.011 | | |
| Catchment 2008-1 R Context 1 | 0.07 | 83 | 83 | 0.006 | 0.012 | 700 mm x 1000 mm diameter Existing Culverts and 900 mm | |
| Catchment 2008-2 L Context 3 | 0.38 | 70 | 70 | 0.07 | 0.117 | diameter Existing Culvert | |
| Catchment 2008-2 R Context 3 | 0.39 | 59 | 59 | 0.08 | 0.160 | | |
| Catchment 2009 L Context 3 | 0.40 | 77 | 77 | 0.06 | 0.093 | 450 mm diameter | |
| Catchment 2009 R Context 3 | 0.39 | 77 | 77 | 0.06 | 0.091 | Existing Culvert | |
| Catchment 2010 L Context 3 | 0.25 | 82 | 82 | 0.05 | 0.04 | | |
| Catchment 2010 R Context 3 | 0.25 | 82 | 82 | 0.01 | 0.04 | Existing Bridge 6 m x 3.2 m | |
| Catchment 2010 L Context 1 | 0.47 | 74 | 74 | 0.06 | 0.12 | | |

| Catchment Name | Catchment Area (ha) | TIMP (%) | XIMP (%) | LID Footprint Area (ha) | Vegetated Area (ha) | Existing Culvert Size | |
|------------------------------------|---------------------------|-------------|-------------|-------------------------------|------------------------|-------------------------------------|--|
| Catchment 2010 R Context 1 | 0.47 | 85 | 85 | 0.03 | 0.07 | | |
| Catchment 2011 L Contexts 3 & 2 | 0.87 | 67 | 67 | 0.21 | 0.28 | 450 mm diameter Existing Culvert | |
| Catchment 2011 R Contexts 3 & 2 | 0.90 | 80 | 80 | 0.10 | 0.18 | | |
| Catchment 2012 L Context 2 | 1.11 | 56 | 56 | 0.49 | 0.49 | 400 mm diameter Existing Culvert | |
| Catchment 2012 R Context 2 | 1.11 | 81 | 81 | 0.21 | 0.21 | | |

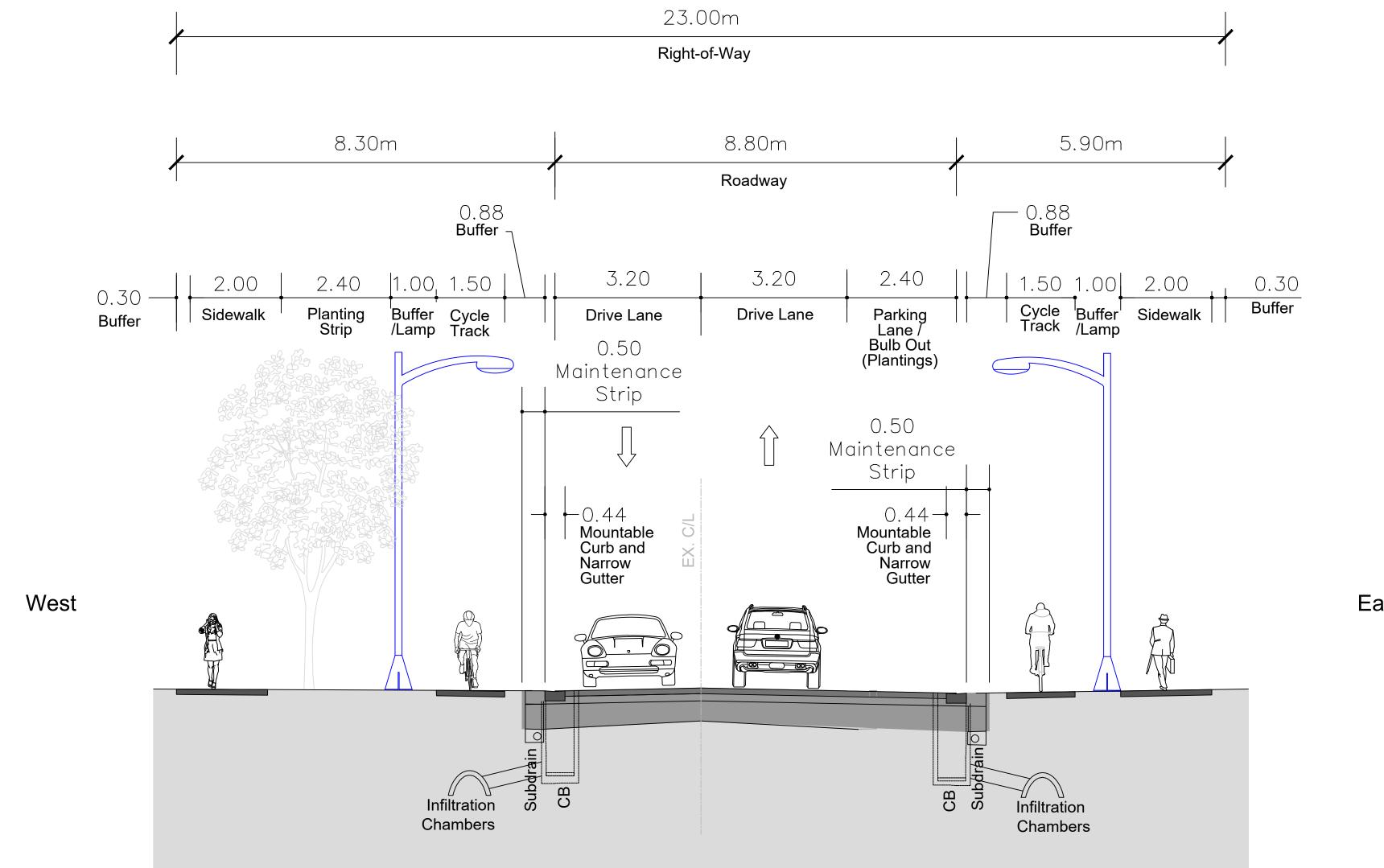
As mentioned previously, it is proposed to provide a preliminary stormwater management plan and a direction for designing a range of LID systems appropriate for the 25th Side Road study area. Typically, LID features are designed to implement the functions of natural drainage systems by attenuating, filtering and infiltrating stormwater runoff as close as possible to where it is generated. With this approach, stormwater runoff can be reduced substantially when coupled with appropriate environmental conditions.

LID systems can be installed in areas where runoff is controlled or uncontrolled to provide additional stormwater quantity and quality control as well as promote infiltration and groundwater recharge. LID opportunities will depend on available space, soil and groundwater conditions. The applicable LID systems within Catchments 2001 to 2012 are:

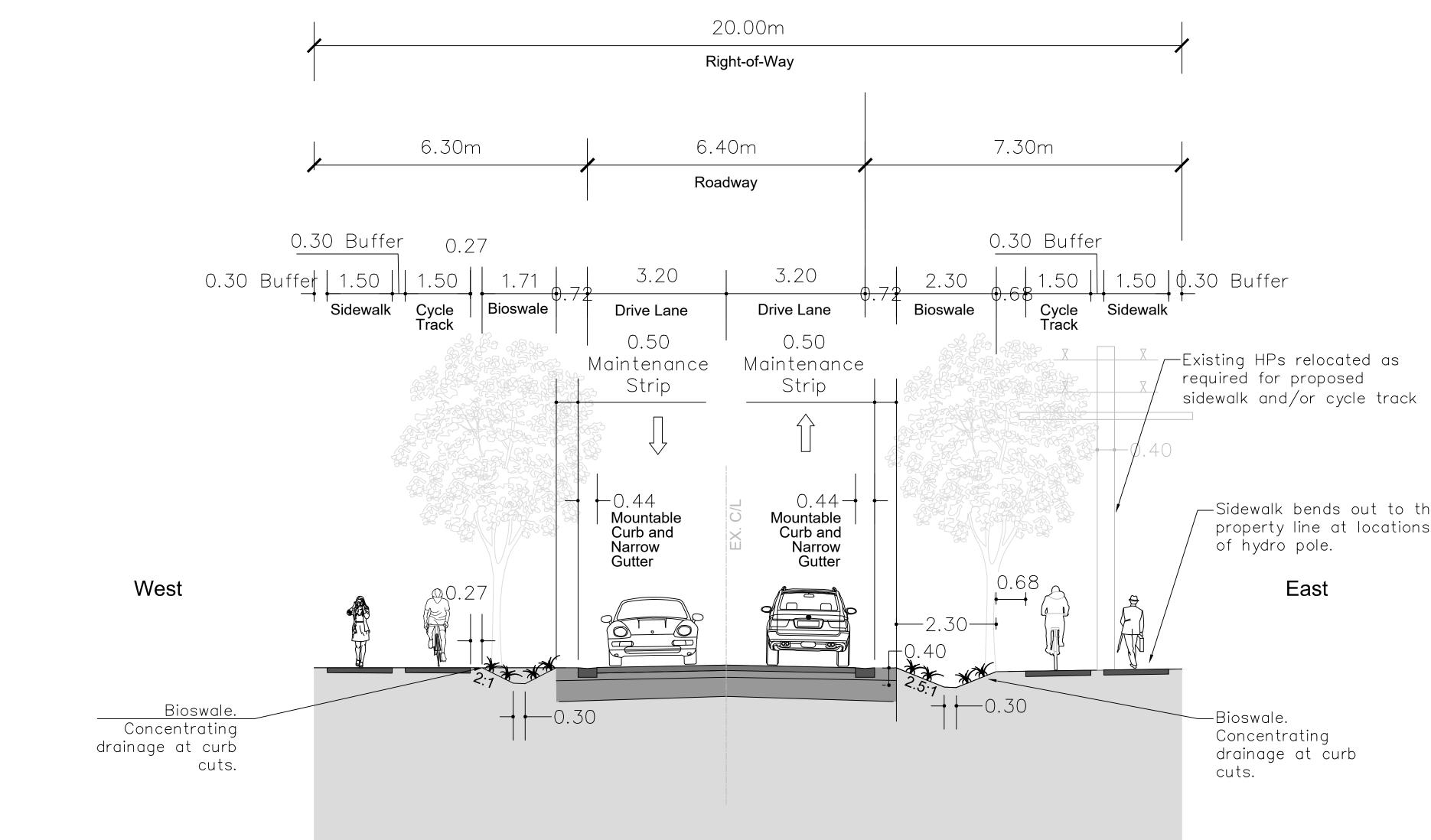
- Bioswale
- Infiltration Chamber

From Innisfill Beach Road to North of Willow Avenue Context 1 and Context 3 25th SideRoad Plan view-2 From North of Willow Avenue to North of Candaras Street RELOCATE TP RELOCATE BELL MANHOLE ADJ. UTILITY RELOCATE TRAFFIC CONTROLLER BOX

TYPICAL CROSS-SECTIONS



From Innisfil Beach Road to 80m North of Innisfil Beach

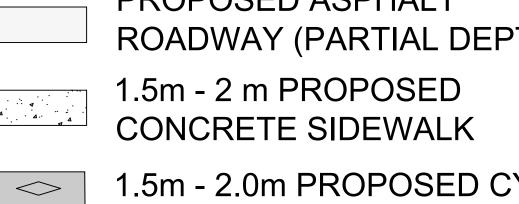


From 80m North of Innisfil Beach to 70m North of Cook Street

TOWN OF INNISFIL 25TH SIDE ROAD

MAY, 2022





PLANTING STRIP

PROPOSED HYDRO POLE

MISC. REMOVALS

2.4m PARKING/LANDSCAPING

EXISTING PROPERTY LINE

← ≈ 1.5m - 2 m PROPOSED CROSS RIDE

2.5 m PROPOSED CROSSWALK

0.3-0.9 m PROPOSED SOD

PROPOSED BIOSWALE

PROPOSED GRAVEL

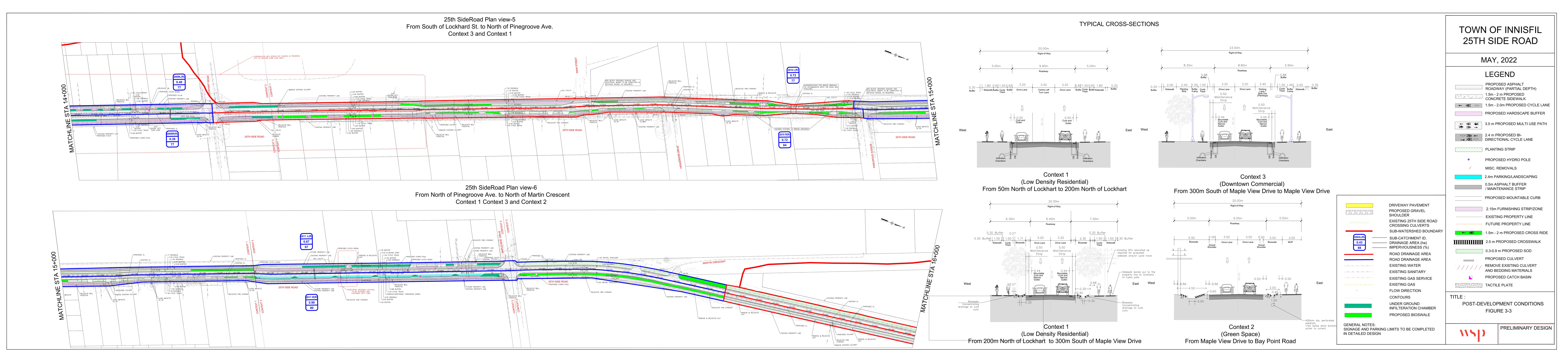
GSRV ... GSRV ... GSRV ... GSRV ...

IN DETAILED DESIGN

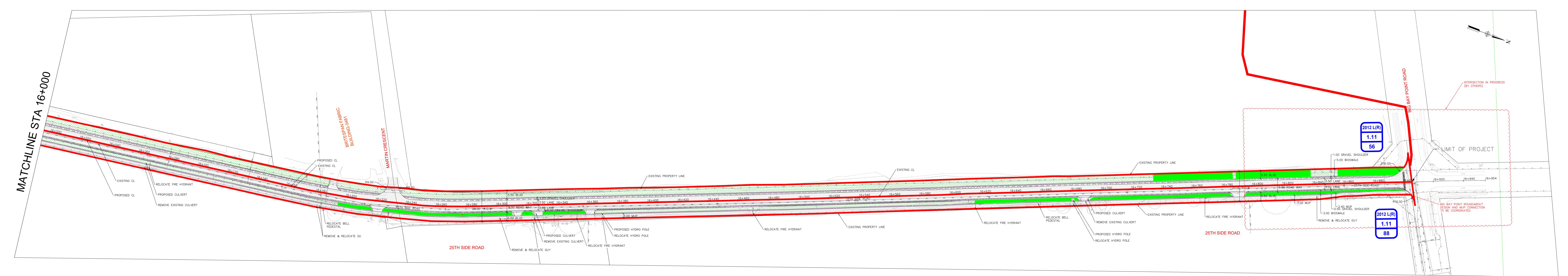
PRELIMINARY DESIGN



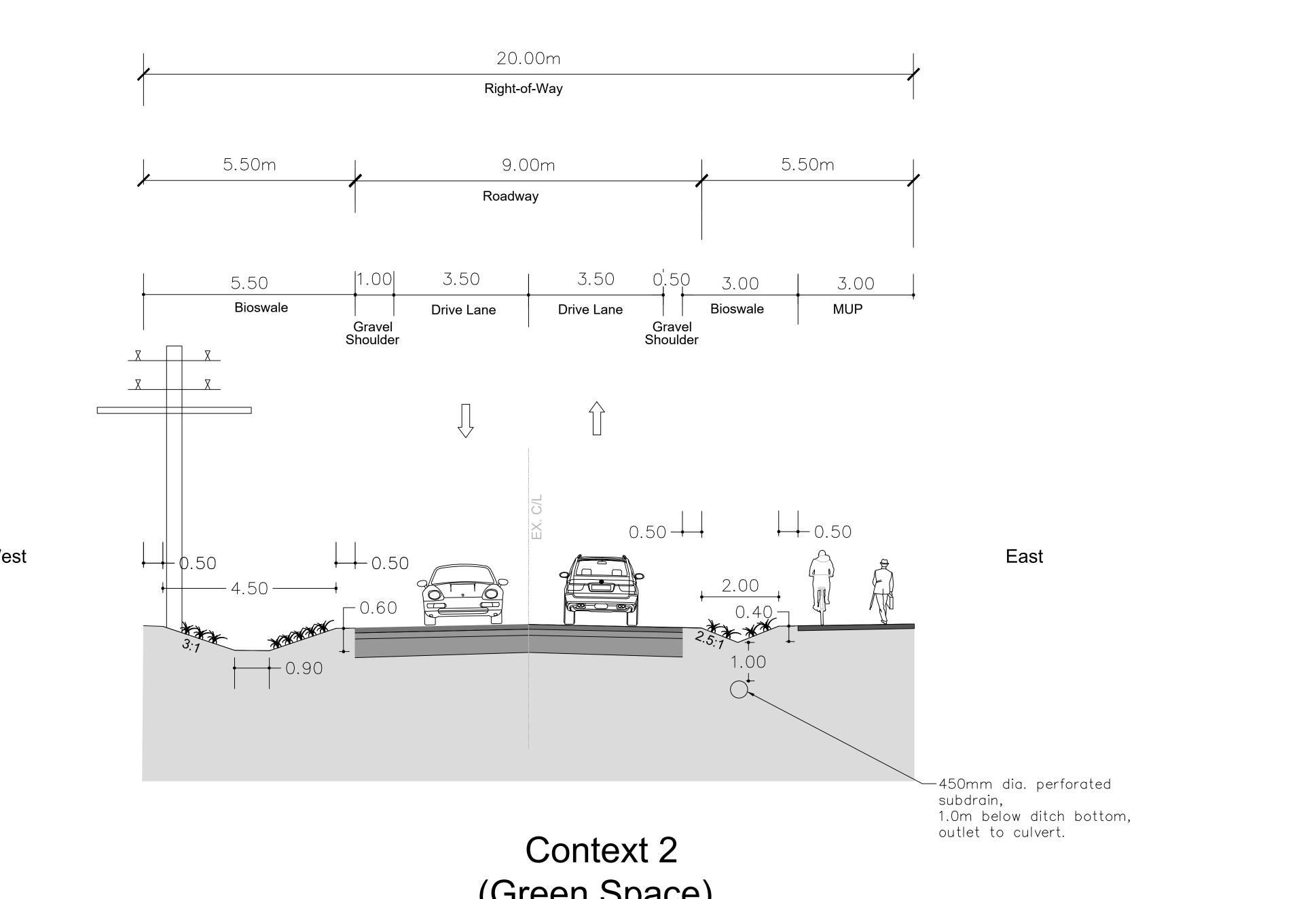
25th SideRoad Plan view-3 TYPICAL CROSS-SECTIONS From North of Candaras Street to North of 10th Line TOWN OF INNISFIL 25TH SIDE ROAD MAY, 2022 6.55m 9.90m 6.55m Roadway LEGEND PROPOSED HYDRO POLE Context 1 MISC. REMOVALS (Low Density Residential) From 80m North of Innisfil Beach to 70m North of Cook Street 2.4m PARKING/LANDSCAPING From 450m South of Lockhart Road to 50m North of Lockhart 25th SideRoad Plan view-4 From North of 10th Line to North of Cook Street Context 1 and Context 3 PROPOSED GRAVEL COORDINATION WITH DESIGN (BY OTHERS) IN PROGRESS. ~ CITY TO CONFIRM CURB LANE WIDTH EXISTING PROPERTY LINE ← ≄ 1.5m - 2 m PROPOSED CROSS RIDE 2.5 m PROPOSED CROSSWALK PROPOSED CATCHBASIN 0.3-0.9 m PROPOSED SOD GSRV ... GSRV ... GSRV ... GSRV ... PROPOSED HYDRO POLE 115] (Downtown Commercial) From 70m North of Cook Street to 450 m South of Lockhart Road



25th SideRoad Plan view-7 From South of Martin Crescent to Big Bay Point Road Context 2



TYPICAL CROSS-SECTIONS



From Maple View Drive to Bay Point Road

TOWN OF INNISFIL 25TH SIDE ROAD

MAY, 2022

PROPOSED ASPHALT ROADWAY (PARTIAL DEPTH)

1.5m - 2 m PROPOSED CONCRETE SIDEWALK

PROPOSED HYDRO POLE

MISC. REMOVALS

2.4m PARKING/LANDSCAPING

0.5m ASPHALT BUFFER
/ MAINTENANCE STRIP

EXISTING PROPERTY LINE

FUTURE PROPERTY LINE

0.3-0.9 m PROPOSED SOD

ROAD DRAINAGE AREA

/ REMOVE EXISTING CULVERT

FLOW DIRECTION

DRIVEWAY PAVEMENT

PROPOSED GRAVEL SHOULDER

- DRAINAGE AREA (ha

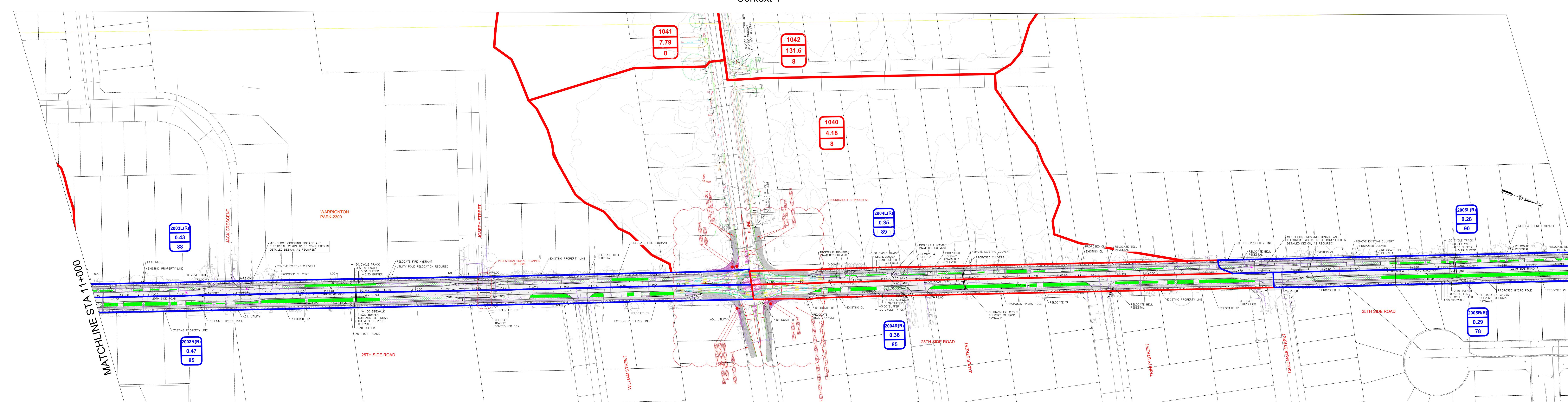
– IMPERVIOUSNESS (%)

EXISTING SANITARY

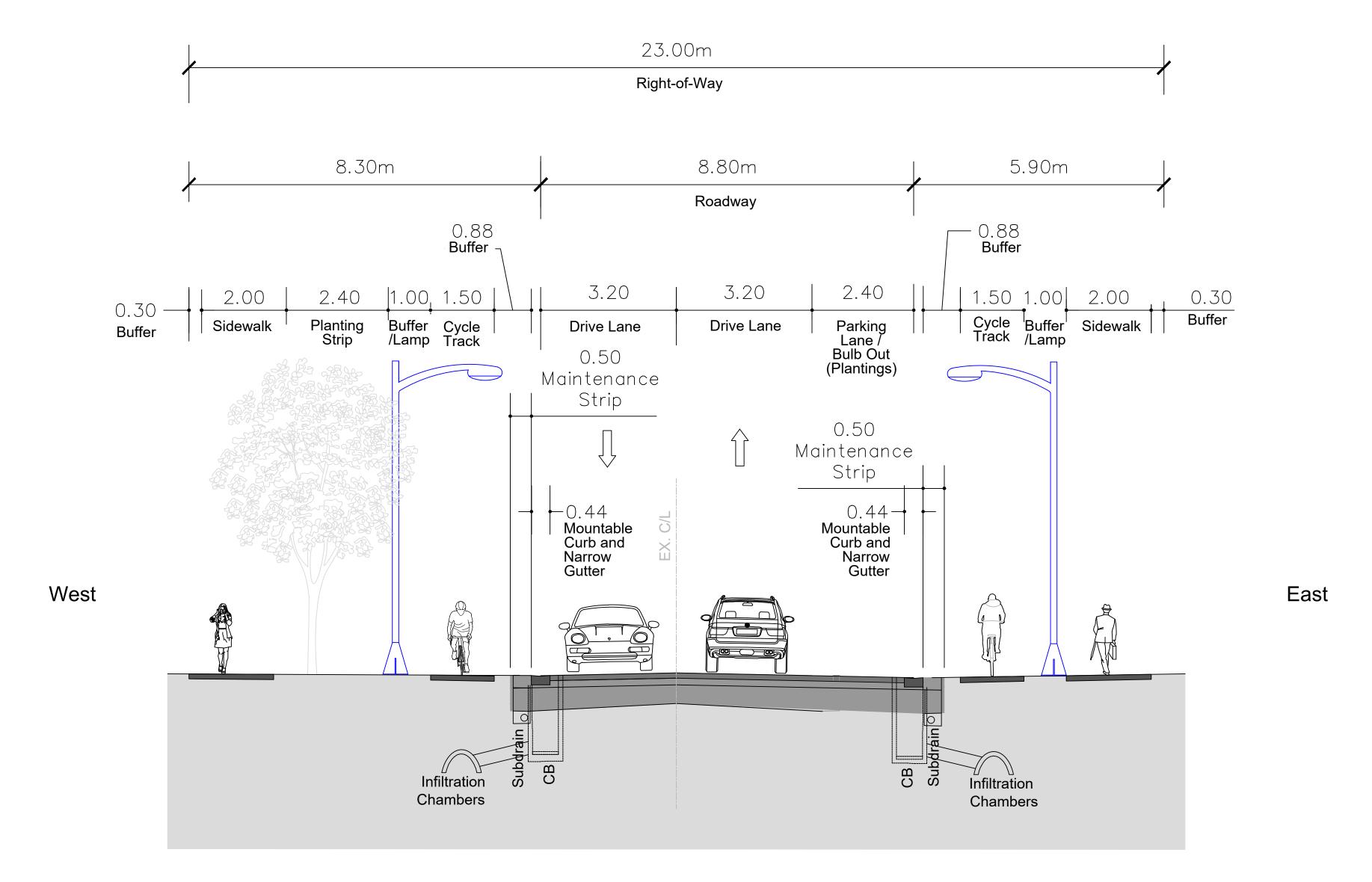
IN DETAILED DESIGN

GSRV GSRV GSRV GSRV GSRV ...

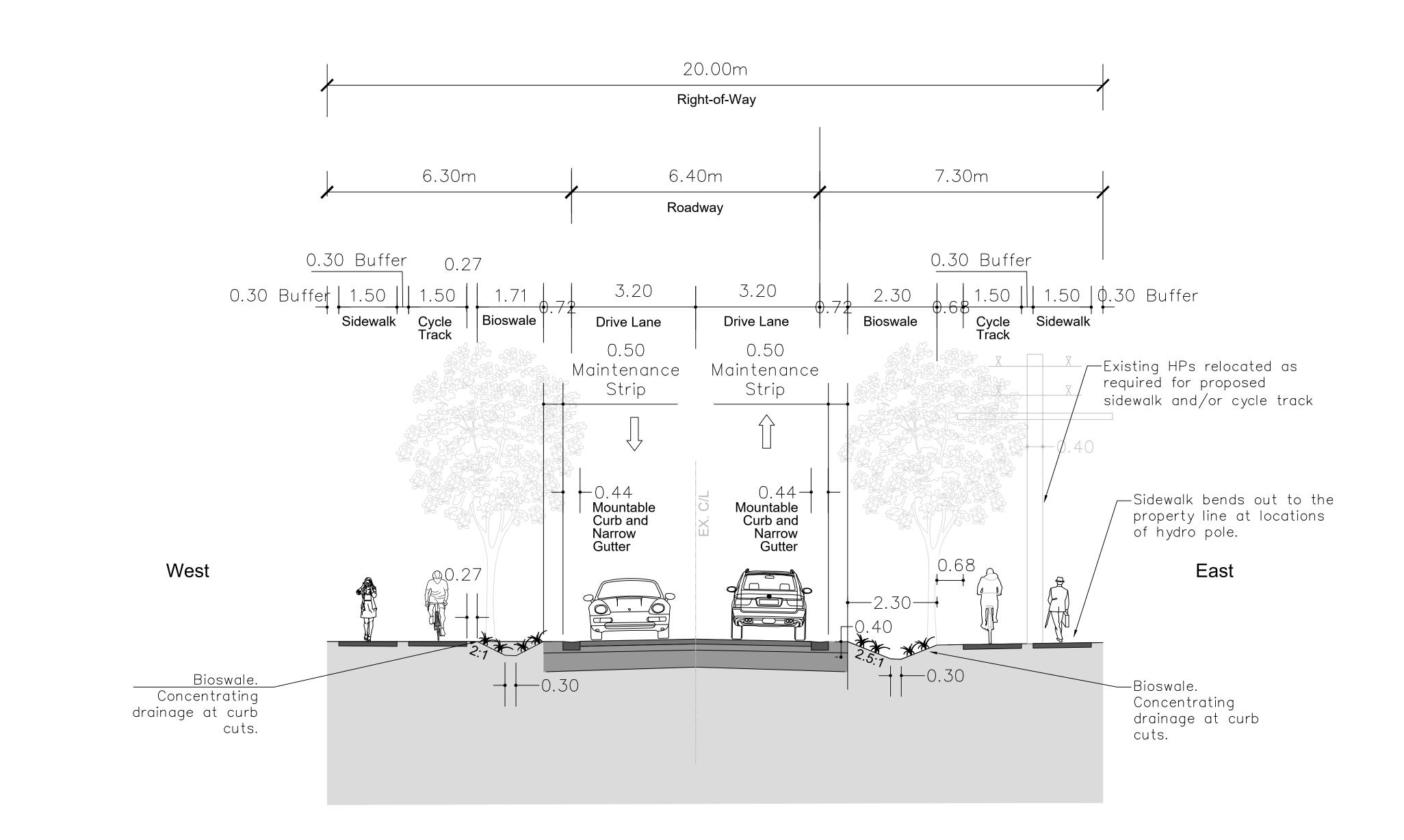
25th SideRoad Plan view-2 From North of Willow Avenue to North of Candaras Street Context 1



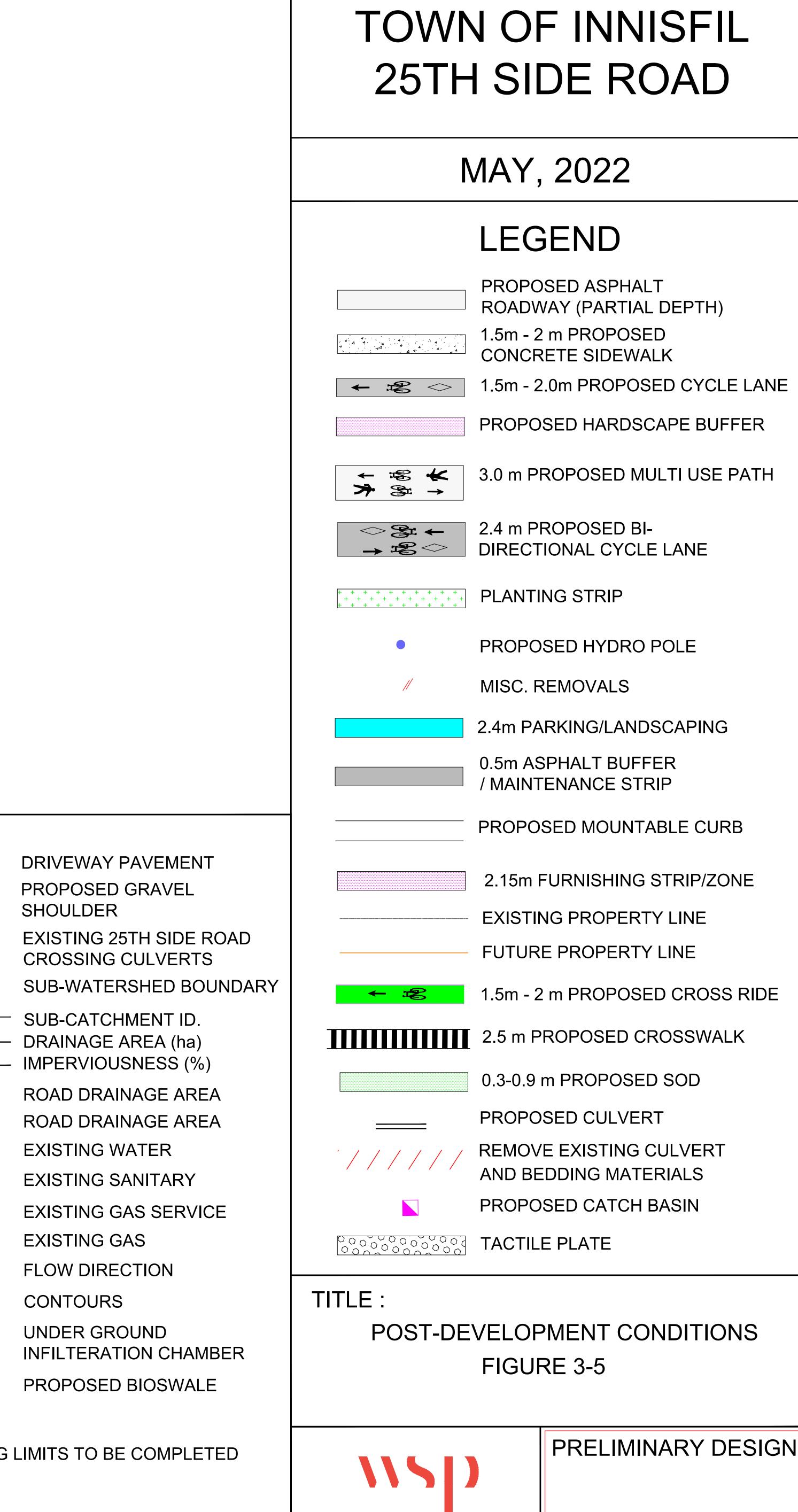
TYPICAL CROSS-SECTIONS



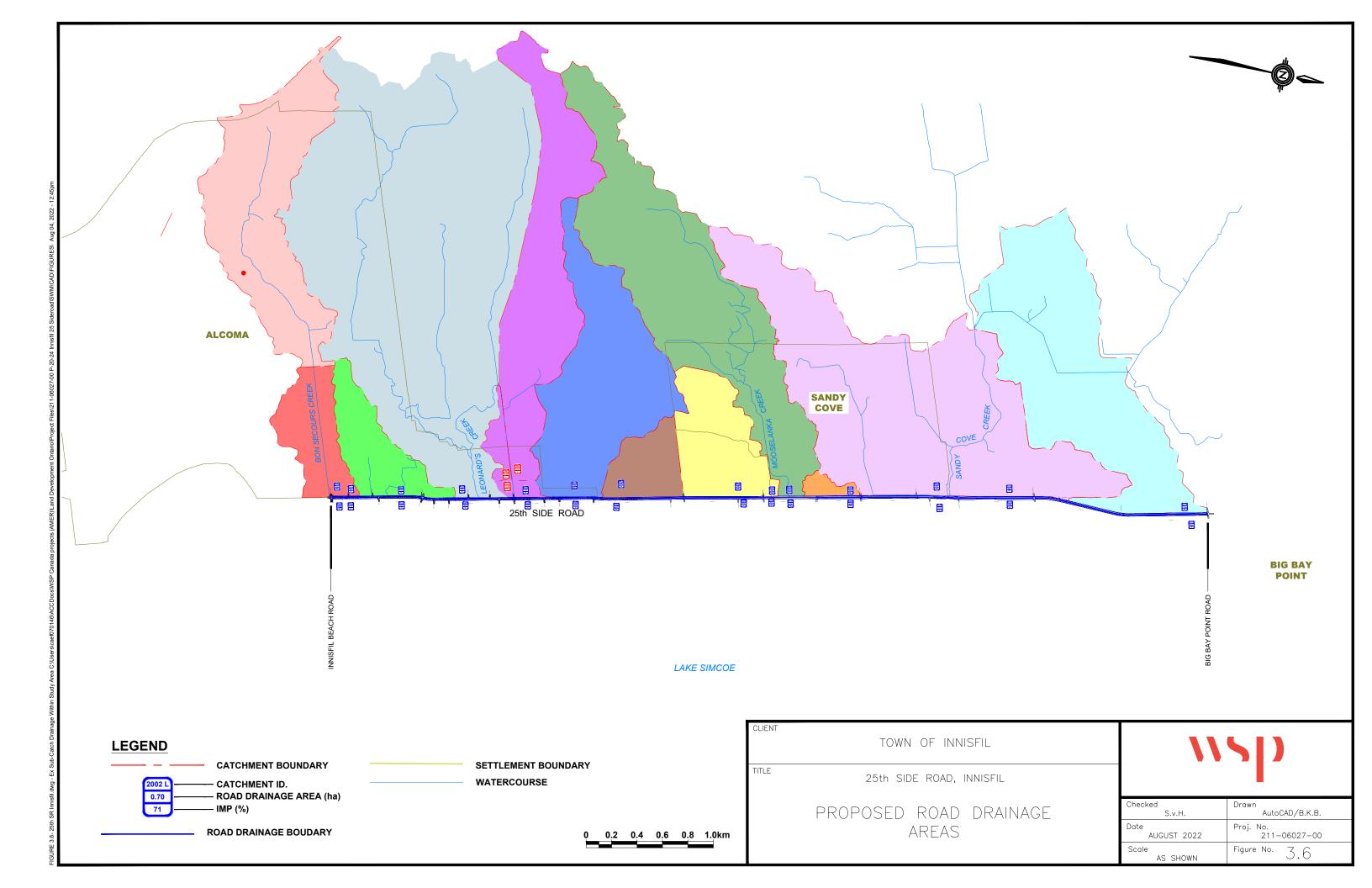
Context 3
(Downtown Commercial)
From Innisfil Beach Road to 80m North of Innisfil Beach



Context 1 (Low Density Residential) From 80m North of Innisfil Beach to 70m North of Cook Street



______GSRV ... GSRV ... GSRV ... GSRV ...



3.1 Bioswales and Underground Infiltration Chambers

3.1.1 Bioswales

Bioswale units are soil filter systems that temporarily store and filter stormwater runoff. These units rely on the engineered soil media placed below the channel invert to provide stormwater runoff reductions and improve water quality.

The proposed bioswale within the subject site contains:

- 1 Filter Media Layer
 - a Sand (0.05 to 2 mm dia.)
 - b Fines
 - c Organic components
- 2 Mulch Layer:

75 mm layer of shredded hard wood on the surface of the filter bed.

3 Storage layer:

Gravel reservoir storage (i.e., granular material should be 50 mm diameter clear stone).

4 Pea gravel layer:

100 mm deep layer of pea gravel (i.e., a 3 to 10 mm diameter clear stone should be placed on top of the coarse gravel storage layer as a choking layer separating it from the overlying filter media bed).

- 5 Underdrain to remove excess water
- 6 Overflow pipe

The depths of the bioswale facilities within the subject site were estimated based on the required storage volumes for stormwater management control, infiltration rate of the native soil, porosity (void space ratio) of the gravel storage layer media and the targeted time period to achieve complete drainage between storm events. The proposed bioswales will have between 1.2 m to 1.5 m depths.

Bioswales should be separated from the seasonally high water table by a minimum of 1 m to ensure groundwater does not intersect the filter bed. Based on the results of the WSP geotechnical report (Section 1.5) groundwater was not encountered and all of the boreholes remained open and dry upon completion. Capped vertical standpipes consisting of an anchored 100 mm to 150 mm diameter perforated pipe with a lockable cap will be installed to the bottom of the bioswale facility to monitor the length of time

required to fully drain between storms. The location of the monitoring pipes will be determined at the detailed design stage. Overflow pipes are proposed within the bioswales to direct the excess runoff to the existing 25th Side Road crossing culverts in the event that the runoff from a storm exceeds the capacity of the bioswales.

Typical ratios of impervious drainage areas to bioswale footprint areas were considered to be between 5:1 to 15:1.

Under post-development conditions road runoff will be discharged into the proposed bioswales. A pre-treatment area consisting of a small trench filled with pea gravel between the edge of pavement and the bioswale is recommended to help prevent clogging of the bioswale facilities by coarse sediment particles before they reach the filter bed.

Image 3-1 and **Image 3-2** show the sketch of the proposed bioswales within Contexts 1 and 2.

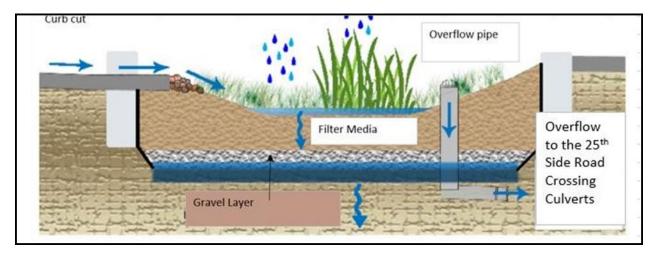


Image 3-1: Context 1 Bioswale Sketch

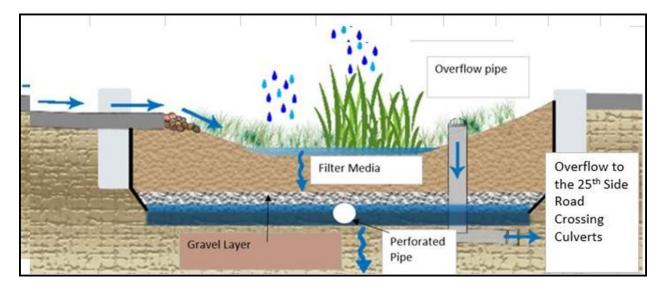


Image 3-2: Context 2 Bioswale Sketch

A detailed sketch of the proposed bioswale unit, the footprint area, size of the overflow pipes, bioswale depths and the estimated drawdown time of the bioswale within each catchment can be located within **Appendix A**.

Bioswales Maintenance

Routine visual inspection and standard maintenance are required for the proposed bioswale systems.

Since the engineering soil bed is constructed to meet the specified infiltration rate, the following policies should be implemented:

- Do not park or drive vehicles across the swale
- Do not mow the vegetation of the bottom of the swale. Mowing of grass/nuisance vegetation near the edges of the channel is acceptable.

Bioswale requires routine inspection and maintenance of the landscaping as well as periodic inspection for less frequent maintenance needs or remedial maintenance. Generally, routine maintenance will be the same as for any other landscaped area, weeding, pruning, and litter removal. Routine operation and maintenance tasks are key to public acceptance of highly visible bioretention units. Periodic inspections after major storm events will determine whether corrective action is necessary to address gradual deterioration or abnormal conditions.

For the first two years following construction the facility should be inspected semiannually and after every major storm event (> 25 mm). Subsequently, inspections should be conducted in the spring each year and after major storm events. While maintenance can be performed by landscaping contractors who are already providing similar landscape maintenance services on the subject site, they will need some additional training on bioretention needs.

This training should focus on elevation differences needed for ponding, mulching requirements, acceptability of ponding after a rainstorm, and fertilizer requirements. The planting plan should be kept for maintenance records and used to help maintenance staff identify which plants are weeds or invasive.

Bioretention maintenance requirements are summarized below.

- Inspect for vegetation density (at least 80% coverage), damage by foot or vehicular traffic, channelization, accumulation of debris, trash and sediment, and structural damage to pre-treatment devices (semi-annually for the first two years, and annually thereafter).
- Regular watering may be required during the first two years until vegetation is established (as needed for the first two years of operation).
- Remove trash and debris from pre-treatment devices (if installed), the bioretention area surfaces and inlets and outlets (at least twice annually, more frequently if desired for aesthetic reasons or if located in an area with high public exposure).
- Remove accumulated sediment from inlets and outlets as needed.
- Trim trees and shrubs as needed.
- Replace dead vegetation, remove invasive growth as needed.
- Repair eroded or sparsely vegetated areas as needed.
- Remove accumulated sediment on the bioretention area surface when dry and exceeds 25 mm depth (PDEP, 2006)
- If gullies are observed along the surface, re-grading and re-vegetating may be required.
- Flush out accumulated sediment with hoses or pressure washers from monitoring wells, underdrains, and overflow outlets annually.
- If visual inspection observes that standing water is present 72 hours after a rainfall event, then the practice may not be infiltrating at the desired rate, triggering further evaluation of the infiltration rate. Schedules may need to be adjusted over time as issues arise. If the monitored infiltration rate falls below the design rate, the practice should be investigated to determine the cause of the reduced rate. Quick, approximate soil texture tests can also be easily incorporated into a visual inspection to help determine whether the soil media might be clogged. If the soil media texture has become more silty or clayey, further investigation is warranted into a potential replacement of the soil media.

3.1.2 Underground Infiltration Chambers

Underground infiltration chambers are constructed below grade and therefore take up little or no space at the surface. The chambers can be installed below a broad range of land uses such as parking areas, lawns, pedestrian plazas, driveways, parks, and sports fields, but should generally be directed away from areas of heavy vehicular loading. They include a range of proprietary manufactured modular structures installed underground, that create large void spaces for the temporary storage of stormwater runoff and allow it to infiltrate into the underlying native soil. Stone reservoirs of the infiltration chamber systems should be filled with uniformly-graded, washed stone that provides 30 to 40% void space. Granular material should be a minimum 50 mm clear stone.

The proposed underground chamber systems within the subject site will have open bottoms, perforated side walls, and underlying granular stone reservoirs.

Capped vertical standpipes consisting of anchored 150 mm diameter perforated pipes with lockable caps will be installed at the bottom of the facilities to provide a means of inspecting and flushing the facilities out as part of routine maintenance. The location of the standpipes will be determined at the detailed design stage.

A non-woven, needle punched, or woven monofilament geotextile fabric will be installed around the stone reservoir of the underground infiltration chambers. The primary function of the geotextile is a separation between two dissimilar soils. When a finergrained soil overlies a coarser grained soil or aggregate layer (e.g., stone reservoir), the geotextile prevents clogging of the void spaces from downward migration of soil particles. When a coarser grained aggregate layer (e.g., stone reservoir) overlies a finer grained native soil, the geotextile prevents slumping from downward migration of the aggregate into the underlying soil. Geotextile material specifications should conform to Ontario Provincial Standard Specification (OPSS) 1860 for Class II geotextile fabrics.

The bottom of the facility should be vertically separated by one meter from the seasonally high water table or top of bedrock elevation. Refer to Section 1.5 for the geotechnical results.

Typical ratios of impervious drainage areas to chamber footprint areas within the subject site were considered to be between 5:1 to 10:1.

Infiltration Chamber Maintenance

During construction, proper care should be taken to prevent sediment from entering the subsurface system, which may include installation of silt fencing and the bypassing of surface runoff around the system until the site is fully stabilized. At a minimum, all site

erosion and sediment protection BMPs should be installed and maintained. Careful removal and disposal of ESC measures once the site is stabilized will prevent occlusion and prevent collected debris from washing into the chamber system. Flush the system thoroughly upon completion.

Chamber system (with infiltration facilities) require regular inspection to ensure they continue to function as designed. Maintenance typically consists of cleaning out leaves, debris and accumulated sediment caught in pre-treatment devices, inlets and outlets annually or as needed. During the first two years of service, inspection and maintenance will be used to determine the pattern and timing of sediment and debris build up. Inspection via monitoring wells shall also be used to determine whether the facility drains within the maximum acceptable length of time (typically 72 hours). Inspection should be carried out within 24 hours following every major storm event (>25 mm single rainfall event where reports of localized flooding occur within the municipality), else semi-annually at a minimum.

- 1 Inspect all observation ports, the inflow and outflow connections, and any pretreatment devices.
- 2 Measure the sediment accumulation within the system
- 3 Record any system backup / backflow, incomplete discharging of system or permanent water remaining in system.

If the time required to fully drain exceeds 72 hours, cleaning may be required to dislodge accumulated debris or sediment blockages.

- 4 Clean out any pre-treatment devices (OGS units, sediment traps / shields, filter system etc.). Follow manufacturer recommendations.
- 5 Remove sediments from all inflow and outflow connections using a vacuum pump, flushing the system with water to further dislodge debris from the chambers.

If after cleaning, the time to fully drain exceeds 72 hours cleanout of the underdrain pipe can be attempted. If slow drainage persists, the system may need removal and replacement of granular material and/or geotextile fabric. The expected lifespan of infiltration practices is not well understood; however, it can be expected that it will vary depending on pre-treatment practice maintenance frequency, and the sediment texture and load coming from the catchment.

Bioswale and Infiltration Chamber Maintenance Costs

Based on the Assessment of Life Cycle Costs for Low Impact Development Stormwater Management Practices report prepared by Toronto and Region Conservation dated April 2013, annual maintenance cost for a bioswale with a footprint area of 130 m² and infiltration chamber with footprint area of 104.7 m² would be \$952 and \$1,212

respectively. Thus the total maintenance cost for bioswale and infiltration chamber system would be \$58,347.9 and \$23,655 respectively. Please refer to **Appendix A** for more details.

Context 1: The design includes 1.5 m of sidewalks and 1.5 m of unidirectional cycle tracks on both sides of the road. A 3.2 m drive lane is proposed in each direction (excluding gutters) and a 0.44 m mountable curb with a narrow gutter is proposed. A 0.5 m maintenance strip to accommodate snow storage and allow overhanging of snow plow blades has also been included. It should be noted that space was dedicated on the west and east side of the road within Context 1 to implement bioswale facilities (i.e., 2 m and 2.3 m respectively), however, due to the presence of underground utilities (Bell Canada, Hydro, gas pipes, water mains and sanitary pipes) the available space to implement bioswale facilities within Context 1 will be smaller than what was shown in the Proposed Context 1 Cross-Section Sketch (Image 3-3).

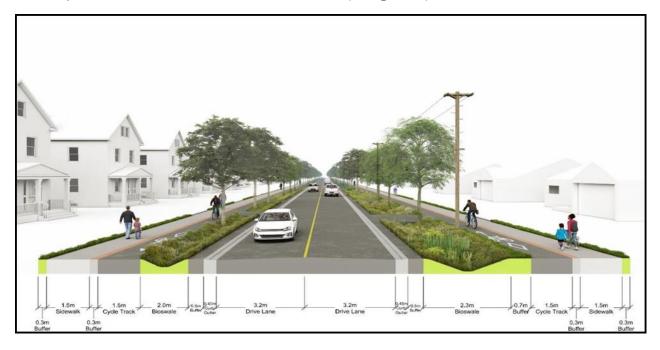


Image 3-3: Proposed Context 1 Cross-Section

The proposed 25th Side Road will be graded on both sides of the road at detail design in such a way as to have sheet flow from the center of the road towards the curbs and from the sidewalks towards the bioswales. Curb cuts are proposed to direct roadway runoff from the center of the road to the proposed bioswales. Sheet flow from sidewalks and Cycle Tracks will be directed to the proposed bioswales as well. In addition, sheet flow from the adjacent neighbouring areas (west side of the road) will be discharged into the proposed bioswale. To provide pre-treatment at the location of curb-cuts between the edge of the pavement and the bioswale facilities small trenches filled with pea

gravel are proposed. The runoff will then be infiltrated into the underlying native soil of the bioswales. As the upstream bioswale planter fills up with runoff, it overflows out and enters to the next downstream planter. Granular check dams will be placed within the bioswale alignments to reduce water velocity. The location and number of the required check dams will be determined at detail design. The check dams will be designed to provide a maximum 0.2 m allowable ponding depths within the proposed bioswales.

Overflow pipes are proposed within the bioswales to direct the excess runoff to the existing 25th Side Road crossing culverts in the event that the runoff from a storm exceeds the capacity of the bioswales. The inlet of the proposed overflow pipes should be placed above the allowable bioswale ponding depths (i.e., 0.2 m). It should be noted that the existing 25th Side Road crossing culverts should be replaced with the recommended culverts in **Table 2-2** to have enough capacity for the 25-year storm events. The proposed crossing culverts should be placed in such a way to direct excess runoff from the proposed bioswales to the existing downstream watercourses.

The proposed bioswales within Catchments 2010 to 2012 will have perforated pipes due to the relatively low infiltration rate of the native soil. Please refer to Post-Development Conditions **Figure 3-1** to **Figure 3-5** for the location of Catchments 2010 to 2012. The proposed bioswales were sized to provide water balance, quality control and runoff reduction for the roadway drainage areas. To meet quality control targets, bioswales were sized to provide 80% TSS removal for the roadway runoff prior to being discharged into the existing 25th Side Road crossing culverts.

The existing 25th Side Road has roadside ditches on both sides of the road. Under post-development conditions, the existing roadside ditch's culverts will be shifted to the location of the proposed bioswales to convey runoff from the adjacent neighbouring areas (west side of the road) towards the 25th Side Road crossing culverts (see Post-Development Conditions Figures for the location of the proposed bioswales within Context 1). Since the ratios of impervious drainage areas to bioswale footprint areas were considered to be 15:1, in addition to roadway drainage areas, the proposed bioswales can retain runoff from small portions of the adjacent neighbouring drainage areas, therefore providing retrofitted stormwater management benefits.

Context 2: The design includes a 3.0 m multi-use pathway on the east side of the roadway and bioswales on both side of the roads. A 3.5 m drive lane is proposed in each direction. **Image 3-4** shows the Cross-Section for Context 2.

The proposed 25th Side Road will be graded at detail design in such a way to have a slope from the center of the road towards the proposed bioswale on both sides of the road. In addition, sheet flows from the 3 m multi-use pathway on the east side of the

roadway and the adjacent neighbouring drainage areas on the west side will be directed into the proposed bioswales. Small trenches filled with pea gravel are proposed between the edge of the pavement and the bioswale facilities to provide pre-treatment. The runoff will then be infiltrated into the underlying native soil of the bioswales. Since the infiltration rate of the native soil is lower than 15 mm/hr, the proposed bioswale within Context 2 will have 200 mm diameter perforated pipes. As the upstream bioswale planter fills up with runoff, it overflows and enters to the next downstream planter.

Check dams are proposed within Context 2 bioswales alignments and will provide a maximum 0.2 m ponding depth. The location and number of the required check dams will be determined at the detailed design stage.

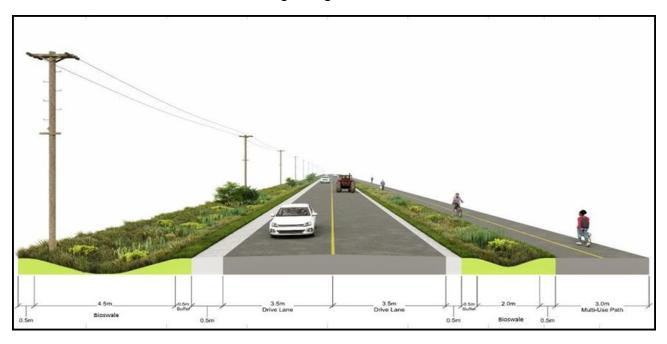


Image 3-4: Context 2 Cross-Section Sketch

Overflow pipes are proposed within the bioswales to direct the excess runoff towards the existing 25th Side Road crossing culverts in the event that the runoff from a storm exceeds the capacity of the bioswales. The inlet of the proposed overflow pipes should be placed above the allowable bioswales ponding depth of 0.2 m. As mentioned previously, the existing 25th Side Road crossing culverts should be replaced with the recommended culverts in **Table 2-2** to have enough capacity for the 25-year storm events. The proposed crossing culverts should be placed in such a way to direct excess runoff from the proposed bioswales to the existing downstream watercourses.

The proposed bioswales were sized to provide water balance, quality control (80% TSS removal) and runoff reduction for the roadway drainage areas prior to being discharged into the existing 25th Side Road crossing culverts.

As mentioned in Context 1, the existing 25th Side Road has roadside ditches on both sides of the road. Under post-development conditions, the existing roadside ditch culverts will be shifted to the location of the proposed bioswales to convey runoff from the adjacent neighbouring areas (west side of the road) towards the 25th Side Road crossing culverts (see Post-Development Conditions Figures for the location of the proposed bioswales within Context 2). Since the ratios of impervious drainage areas to bioswale footprint areas were considered to be 15:1, in addition to roadway drainage areas, the proposed bioswales can retain runoff from small portions of the adjacent neighbouring drainage areas therefore providing stormwater management retrofits.

Context 3: The design includes 2 m of sidewalks and 1.5 m of unidirectional cycle tracks, 0.6 m buffers, and 0.3 m detectable buffer strips on both sides of the road. A 3.2 m drive lane is proposed in each direction. In addition, a 2.4 m parking lane is proposed within the east side of the road. **Image 3-5** shows Context 3 Cross-Section.



Image 3-5: Context 3 Cross-Section Sketch

Opportunities exist to implement underground chamber systems within the overall roadway cross-section.

The proposed 25th Side Road will be graded at detail design to ensure slope from the center of the road and from sidewalks on both sides drain towards the proposed catchbasins. In addition, sheet flow from the adjacent neighbouring areas (west side) will be directed into the proposed catchbasins. The proposed catchbasins will have outlets directed towards the proposed storm pipes and underground chamber systems.

The proposed catchbasin outlets will be placed at different elevations. The first bottom outlet will convey runoff towards the underground chamber systems while the second outlet will convey runoff towards the proposed underground storm pipes. The underground chamber systems flow will then be infiltrated into the underlying native soil at the bottom of the systems.

The proposed underground chamber systems within the subject site were sized to provide water balance, quality control (80% TSS removal) and runoff reduction for the roadway runoff. The underground chamber systems will have perforated pipes and underdrain pipes. In the event that runoff exceeds the capacity of the systems, perforated pipes and underdrain pipes will convey the excess runoff towards proposed storm pipes.

As noted previously the existing 25th Side Road crossing culverts should be replaced with the recommended culverts in **Table 2-2** to have enough capacity for the 25-year storm events. The proposed crossing culverts should be placed in such a way to direct excess runoff from the proposed underground chamber systems and underground storm pipes to the existing downstream Creeks.

Please refer to Post-Development Conditions Figures for the location of the proposed underground chamber systems within Context 3.

Proposed Roundabout

The Town requested WSP to complete a preliminary roundabout design at the 9th Line and 25th Side Road intersection. Supplementary survey and geotechnical works were completed as part of the preliminary roundabout design (Section 1.5.2).

Under existing conditions, runoff generated from 9th Line Road is conveyed by roadside ditches on both sides of the 9th Line Road towards the 25th Side Road existing crossing culvert (see **Figure 2.5** for the existing 800 mm diameter crossing culvert location). In addition, runoff generated from the existing Catchment 104 is discharged into the existing roadside ditches on both sides of 9th Line Road prior to being discharged into the existing 800 mm diameter crossing culvert on the west side of 25th Side Road. Under post-development conditions, no major changes are made for the existing 800 mm diameter crossing culvert tributary drainage areas (Catchment 104 existing and Catchments, Catchments 2004 L & R). As such, the provided culvert capacity analysis in **Section 2.1.1** would be applicable under the proposed development of the roundabout at the intersection of 9th Line Road. To provide culvert capacity analysis for the existing 9th Line Road crossing culverts, Catchment 104 was delineated into three catchments (Catchment 1040, 1041, and 1042). Based on the topography survey plan for the study area, at the intersection of 9th Line and Wallace Avenue, runoff from the

east side of 9th Line Road is conveyed to the west side of 9th Line Road via an existing 500 mm diameter crossing culvert prior to being discharged into an existing 900 mm diameter culvert within the west side of the 9th Line Road ditch (See Figure 3-5). To estimate runoff rates towards the existing 500 mm and 900 mm diameters crossing culverts, a Visual OTTHYMO (VO6.1) model was simulated for the 10-year 4-hour Chicago and 12-hour SCS Type II design storms for Catchments 1041 and 1042. The modelling results are provided in **Table 3-2**.

Based on the modelling results, the existing 500 mm diameter crossing culvert has sufficient capacity to convey the 10-year design flow. However, it is recommended to replace the existing 900 mm diameter roadside ditch culvert on the west side of 9th Line Road with a 1050 mm diameter pipe. Please refer to **Figure 3-5** for the location of Catchments 1040, 1041 and 1042 and the proposed 1050 mm diameter culvert pipe.

Table 3-2: Full Capacity of the Existing Culverts (9th Line Road)

| Vame | rse | Ex. C | ulvert | 2 hr | 2 hr | r ago | ago | acity | Required Culvert |
|----------------|---------------------|----------------|------------------|------------------------------------|---------------------------------|-------------------------------------|--------------------------------------|----------------------------|---|
| Catchment Name | Watercourse Name | Span /d (m) | Height /d (m) | 25- year 1; SCS II (m³/s) | 100- year 1 SCS II (m³/s) | 25- year 4- hr Chicago (m³/s) | 100- year 4- hr Chicago (m³/s) | Culvert Capacity (m³/s) | size to pass 25- year flow (m) |
| 104 | | 0. | .8 | 2.47 | 3.63 | 1.83 | 2.68 | 0.66 | 2.4 x 1.50 |
| | Leonard's Creek | | | 10- year 12 hr SCS II (m³/s) | | 10- year | Storm (m³/s) | Culvert Capacity (m³/s) | Required Culvert size to pass 10- year flow (m) |
| 1041 | | 0. | .5 | 0.0 | 96 | 0. | 07 | 0.53 | 0.5 |
| 1042 | | 0. | .9 | 1.0 | 63 | 3 1.19 | | 1.39 | 1.05 |

Under post-development conditions the proposed LID facilities within Catchments 2004 and 2004 R will provide quality, quantity and water balance control for Catchment 2004 drainage area. As mentioned in **Section 2.1.1** (**Table 2-2**) the existing 800 mm diameter 25th Side Road crossing culvert should be replaced with a 2.4 m x 1.5 m box culvert.

3.1.3 Post-Development Conditions Hydrologic Model

A Visual OTTHYMO (VO6.1) model was simulated to estimate the post-development peak flow rates for Catchments 2001 to 2012. Peak flow rates for the 4-hour Chicago and 12-hour SCS Type II design storms were determined for the 2-year to 100-year return periods. The post-development hydrologic model uses the same catchment delineation as the existing conditions model. The catchment parameters have been altered to reflect proposed conditions of the site. The details of the Visual OTTHYMO modelling results are provided in **Appendix C**.

3.2 Volume Control

As mentioned in **Section 1.3.1.1**, LSRCA criteria require linear redevelopment projects on sites without restrictions that create 0.5 or greater hectares of new and/or fully reconstructed impervious surfaces, shall capture and retain / treat on site, the larger of the following:

- 1 The runoff from a 12.5 mm event from the fully reconstructed impervious surface and newly constructed impervious area.
- 2 The runoff from a 25 mm event from the net increase in impervious area on the site.

Table 3-3: Volume to be Retained on Site

| Criteria | Proposed Road Drainage Area (ha) | Imp (%) | Fully Reconstructed Impervious Areas (ha) | Net Increase in Impervious Area (ha) | Required Volume (m³) |
|--|--|------------|---|---|-------------------------|
| 12.5 mm from the fully reconstructed area | 15.29 | 82 | 12.54 | - | 1,567.5 |
| 25 mm from net increase in impervious area | 15.29 | 63 | - | 2.17 | 542.5 |

From the above table, the volume control criteria is based on 12.5 mm of runoff from the fully reconstructed area. The 12.5 mm rainfall depth retention on site will be achieved by implementing the proposed bioswales and underground infiltration chambers within the roadway drainage areas. **Table 3-4** shows the LID units required storage volumes and total provided storage volumes to meet LSRCA Volume Control criterion for the study area. It should be noted that the depth of the proposed catchbasins is not included within Context 3 LID units' depth.

Table 3-4: Storage Requirements for Volume Control

| Catchment Name | LID Footprint Area (ha) | Total Depth of LID Units (m) | Required Storage Volume to Retain 12.5 mm Rainfall Depth (m³) | Total LID Units Provided Storage Volume (m³) |
|---------------------------------|----------------------------------|---------------------------------------|---|---|
| Catchment 2001-1 L Context 3 | 0.006 | *1.2 | 11.2 | 27.7 |
| Catchment 2001-1 R Context 3 | 0.011 | *0.7 | 9.8 | 31 |
| Catchment 2001-2 L Context 1 | 0.01 | 1.9 | 13.1 | 39 |
| Catchment 2001-2 R Context 1 | 0.01 | 1.2 | 15.6 | 30.9 |
| Catchment 2002 L Context 1 | 0.04 | 1.2 | 82.0 | 254.6 |

| Catchment Name | LID Footprint Area (ha) | Total Depth of LID Units (m) | Required Storage Volume to Retain 12.5 mm Rainfall Depth (m³) | Total LID Units Provided Storage Volume (m³) |
|---------------------------------|----------------------------------|---------------------------------------|---|---|
| Catchment 2002 R Context 1 | 0.04 | 1.2 | 94.5 | 268.9 |
| Catchment 2003 L Context 1 | 0.02 | 2.3 | 48.2 | 166 |
| Catchment 2003 R Context 1 | 0.04 | 1.2 | 50.9 | 228 |
| Catchment 2004 L Context 1 | 0.015 | 1.6 | 38.9 | 111 |
| Catchment 2004 R Context 1 | 0.05 | 1.2 | 38.4 | 269 |
| Catchment 2005 L Context 1 | 0.008 | 1.5 | 31.4 | 64 |
| Catchment 2005 R Context 1 | 0.03 | 1.2 | 28.3 | 185 |
| Catchment 2006 L Context 1 | 0.05 | 1.2 | 71.2 | 291 |
| Catchment 2006 R Context 1 | 0.03 | 1.9 | 72.9 | 240 |
| Catchment 2007 L Context 1 | 0.06 | 1.2 | 61.7 | 358 |
| Catchment 2007 R Context 1 | 0.64 | 1.2 | 66.8 | 400 |
| Catchment 2008-1 L Context 1 | 0.01 | 1.6 | 7.1 | 45 |
| Catchment 2008-2 L Context 3 | 0.04 | *1.0 | 33.3 | 173 |
| Catchment 20081 R Context 1 | 0.006 | 1.3 | 7.6 | 36 |
| Catchment 20082 R Context 3 | 0.04 | *1.0 | 28.3 | 172 |
| Catchment 2009 L Context 3 | 0.032 | *0.50 | 38.4 | 63 |
| Catchment 2009 R Context 3 | 0.037 | *0.50 | 37.4 | 67 |
| Catchment 20101 L Context 3 | 0.022 | *0.50 | 25.6 | 43 |

| Catchment Name | LID Footprint Area (ha) | Total Depth of LID Units (m) | Required Storage Volume to Retain 12.5 mm Rainfall Depth (m³) | Total LID Units Provided Storage Volume (m³) |
|------------------------------------|----------------------------------|---------------------------------------|---|---|
| Catchment 20102 L Context 1 | 0.033 | 1.2 | 43.8 | 191 |
| Catchment 20101 R Context 3 | 0.011 | 1.3 | 25.6 | 140 |
| Catchment 20102 R Context 1 | 0.024 | 1.5 | 76.1 | 152 |
| Catchment 2011 L Contexts 3&,2 | 0.053 | 1.2 | 93.3 | 258 |
| Catchment 2011 R Contexts 2 & 3 | 0.056 | 1.2 | 95.2 | 268 |
| Catchment 2012 L Context 2 | 0.0693 | 1.2 | 77.5 | 314 |
| Catchment 2012 R Context 2 | 0.077 | 1.3 | 129.1 | 388 |
| Total | | | | 5,285.0 |

3.3 Quality Control

Section 1.3.1.1 identified the required suspended solids removal treatment as Enhanced Protection Level (Level 1) which corresponds to a long-term average removal of 80% of suspended solids.

Table 3-5 shows the required storage volumes within the proposed LID units to remove the 80% of suspended solids from the roadway drainage areas.

The MOE (now MECP) SWM Manual (Table 3.2) was used to estimate water quality storage volume requirements for roadway drainage areas.

Table 3-5: Required Storage Volume to meet the 80% TTS Removal

| Catchment Name | Area (ha) | lmp (%) | | Infiltration lume | TSS Removal (%) |
|---------------------------------|--------------|------------|-------|----------------------|-----------------------|
| | (2227) | | (m³) | (m³/ha) | |
| Catchment 2001-1 L Context 3 | 0.10 | 90 | 5.37 | 53.67 | 80.00 |
| Catchment 2001-1 R Context 3 | 0.10 | 79 | 3.78 | 38.15 | 80.00 |
| Catchment 2001-2 L Context 1 | 0.11 | 95 | 7.67 | 69.73 | 80.00 |
| Catchment 2001-2 R Context 1 | 0.13 | 96 | 1.25 | 72.31 | 80.00 |
| Catchment 2002 L Context 1 | 0.70 | 94 | 46.39 | 66.27 | 80.00 |
| Catchment 2002 R Context 1 | 0.80 | 95 | 54.83 | 68.54 | 80.00 |
| Catchment 2003 L Context 1 | 0.43 | 90 | 23.08 | 53.67 | 80.00 |
| Catchment 2003 R Context 1 | 0.47 | 87 | 21.07 | 44.84 | 80.00 |
| Catchment 2004 L Context 1 | 0.35 | 89 | 18.06 | 51.60 | 80.00 |
| Catchment 2004 R Context 1 | 0.36 | 85 | 14.85 | 41.26 | 80.00 |
| Catchment 2005 L Context 1 | 0.28 | 90 | 15.03 | 53.67 | 80.00 |
| Catchment 2005 R Context 1 | 0.29 | 78 | 10.93 | 37.69 | 80.00 |
| Catchment 2006 L Context 1 | 0.65 | 88 | 31.11 | 47.86 | 80.00 |
| Catchment 2006 R Context 1 | 0.73 | 80 | 27.95 | 38.28 | 80.00 |
| Catchment 2007 L Context 1 | 0.58 | 85 | 23.40 | 40.35 | 80.00 |
| Catchment 2007 R Context 1 | 0.64 | 84 | 22.81 | 35.64 | 80.00 |
| Catchment 2008-1 L Context 1 | 0.07 | 84 | 2.54 | 37.87 | 80.00 |
| Catchment 2008-2 L Context 3 | 0.38 | 70 | 13.34 | 34.84 | 80.00 |

| Catchment Name | Area (ha) | Imp (%) | | Infiltration lume | TSS Removal (%) |
|-----------------------------------|--------------|------------|-------|----------------------|-----------------------|
| | | | (m³) | (m³/ha) | |
| Catchment 2008-1 R Context 1 | 0.07 | 83 | 2.55 | 34.86 | 80.00 |
| Catchment 2008-2 R Context 3 | 0.39 | 59 | 12.13 | 31.33 | 80.00 |
| Catchment 2009 L Context 3 | 0.40 | 77 | 14.92 | 37.29 | 80.00 |
| Catchment 2009 R Context 3 | 0.39 | 77 | 14.53 | 37.26 | 80.00 |
| Catchment 2010-1 L Context 3 | 0.25 | 82 | 9.75 | 39.00 | 80.00 |
| Catchment 2010-2 L Context 1 | 0.47 | 74 | 17.15 | 36.49 | 80.00 |
| Catchment2010-1 R Context 3 | 0.25 | 82 | 9.75 | 39.00 | 80.00 |
| Catchment 2010-2 R Context 1 | 0.47 | 86 | 18.93 | 40.28 | 80.00 |
| Catchment 2011 L Context 2 & 3 | 0.87 | 86 | 29.58 | 34.00 | 80.00 |
| Catchment 2011R Context 2 & 3 | 0.90 | 85 | 35.89 | 39.88 | 80.00 |
| Catchment 2012 L Context 2 | 1.11 | 56 | 33.67 | 30.33 | 80.00 |
| Catchment 2012 R Context 2 | 1.11 | 93 | 47.37 | 42.68 | 80.00 |
| Total | | | 589.7 | | |

As shown in **Table 3-5**, a total storage volume of 589.7 m³ is required within LID units to provide 80% TSS removal for the roadway drainage areas. **Section 3.2** identified the LID systems having a total storage volume of 5,285 m³, of which 1,568 m³ is required to meet the LSRCA Volume Control criterion. Please refer to **Table 3-4** for the required storage volume to retain the 12.5 mm of rainfall depth on site. Based on the results, the proposed LID will have sufficient storage volumes to satisfy quality control requirements.

Section 1.3.1.1 noted that LSRCA initiated the Lake Simcoe Phosphorus Offsetting Policy (LSPOP) in 2017, which requires that all new development must control 100% of the phosphorus from leaving their property. This is referred to as the Zero Export

Target. Under this policy, any remaining phosphorus load that cannot be controlled would trigger the need for an offset to achieve a net zero target. As per Section 4.4.3 of the (LSPOP), in situations where the phosphorus load cannot be met a cash-in-lieu amount payable to the LSRCA shall be used in the retrofit if existing stormwater discharges elsewhere in a subwatershed or in adjacent subwatersheds.

Therefore, WSP conducted a phosphorus loading analysis for the subject site using the MECP Lake Simcoe Phosphorus Loading Development Tool. Detailed loading calculations can be found in **Appendix A**.

Pre-Development Phosphorus Loads

Pre-development conditions were simulated by applying land use types:

- 'Hay-Pasture' for the pervious portions of the road drainage areas
- Low Residential Development' for the remaining impervious areas of the road

The results determined the pre-development annual phosphorus loading of 14.10 kg/year for the subject site.

Post-Development Phosphorus Loads – No LID Features

Post-development conditions were simulated by applying a land use types:

- High Residential Intensity Development' for the pervious portions of the road drainage areas
- 'Hay-Pasture' for the pervious portions of the road drainage areas

The post-development annual phosphorus loading results were estimated to be 16.55 kg/year.

Post-Development Phosphorus Loads – LID Features

As mentioned previously, the proposed development with mitigation measures includes two low impact development facilities:

- Bioretention, which provides an overall phosphorus removal rate of 100%
- Infiltration Trench, which provides an overall phosphorus removal rate of 80%

With the proposed BMPs, the post-development phosphorus load results for the subject site are estimated to be 2.78 kg/year.

Therefore, a cash-in-lieu fee for the subject site is estimated to be \$248,256 as the Zero Export Target is not achieved. Using the offsetting ratio of 2.5, the offsetting cost of \$35,000/kg/year and an additional 15% administration fee outlined in Section 4.4.3 of the LSPOP.

3.4 Water Balance

The site is required to demonstrate that the pre-development infiltration volume will be maintained under post-development conditions.

The Thornthwaite and Mather methodology has been used for the pre- and post-development water balance analysis. The 1981 to 2010 Climate Normals data has been used to estimate the average annual precipitation of 932.9 mm/year for the subject site. The potential evaporation rate and water surplus have been estimated to be 598.2 mm/year and 334.7 mm/year respectively. Based on the preliminary water balance analysis, pre and post-development yearly infiltration volumes of 18,936 m³ and 11,315 m³ have been estimated for the subject site, respectively. Therefore, under un-mitigated post-development conditions, a yearly reduction in infiltration volume of 7,621 m³ is expected.

As mentioned in **Section 3.1**, two Low-Impact Development measures are proposed for the subject site to address the water balance of the proposed site exceeding the predevelopment water balance characteristics.

Based on the results of the research study in the Low Impact Development Stormwater Management Planning and Design Guide, a 70% runoff reduction will occur by installing the bioswale units without underdrains. In addition, a 60% runoff reduction will occur by implementing underground infiltration chamber systems (see **Appendix B** for more details). Thus, a yearly infiltration rate of 49,808 m³ was estimated for the subject site which will mitigate the previously identified increase in runoff and address the water balance requirements.

Table 3-6: Comparison of Water Balance Under Pre, Post and Post-Development with Mitigation Measures

| Hydrologic Cycle Components | Pre- Development Condition Volumes (m³) | Post- Development Condition Volumes (m³) | Post-Development Conditions Volumes with Mitigation Measures (m³) |
|--------------------------------|---|--|---|
| Infiltration | 18,936 | 11,315 | 49,808 |
| Evapotranspiration | 28,451 | 24,176 | 48,625 |
| Runoff | 95,253 | 107,149 | 44,198 |
| Precipitation | 142,640 | 142,640 | 142,640 |

3.5 Quality Control

The post-development peak flow rates should be controlled to the corresponding predevelopment peak flow rates for 2 to 100-year storm events. a Visual OTTHYMO Model (VO6.1) was used to estimate the minimum required storage volumes to meet quantity control targets for the roadway drainage areas.

The LID units within the study area are proposed to provide the required storage volumes for the LSRCA Volume Control criterion, quantity control and quality control requirements. **Table 3-4** (**Section 3.2**) shows the total provided storage volume within the LID units.

The required storage volumes to meet the LSRCA Volume Control criterion and quality control targets have been provided in **Table 3-3** (**Section 3.2**) and **Table 3-4** (**Section 3.3**) respectively. As shown in **Table 3-3** and **Table 3-4**, the LID units will have available storage volume for quantity control requirements as well. As such, the Visual OTTHYMO modeling results were used to confirm the available storage volumes within the proposed LID units will satisfy the minimum quantity control storage volume requirements for the roadway drainage areas. Control flow devices will be sized at the detailed design stage. The results are summarized in **Table 3-7** and **Table 3-8**. Please refer to **Appendix C** for more details.

Table 3-7: Quantity Control Required Storage Volumes (12-hr SCS II)

| Catchment Name | Pre- development Flow 12-hr SCS II (m³/s) | Post- development Flow 12- hr SCS II (m³/s) | Required Storage Volume (m³) | Available Storage Volume for Quantity Control (m³) |
|------------------------------------|---|---|---------------------------------------|---|
| Catchment 2001 L Contexts 1 & 3 | 0.083 | 0.085 | 25 | 29.2 |
| Catchment 2001 R Contexts 1&3 | 0.091 | 0.092 | 27 | 31.5 |
| Catchment 2002 L Context 1 | 0.282 | 0.285 | 40 | 126.1 |
| Catchment 2002 R Context 1 | 0.324 | 0.321 | N/A | 119.5 |
| Catchment 2003 L Context 1 | 0.142 | 0.175 | 94 | 94.5 |
| Catchment 2003 R Context 1 | 0.154 | 0.191 | 102 | 156.5 |

| Catchment Name | Pre- development Flow 12-hr SCS II (m³/s) | Post- development Flow 12- hr SCS II (m³/s) | Required Storage Volume (m³) | Available Storage Volume for Quantity Control (m³) |
|----------------------------------|---|---|---------------------------------------|---|
| Catchment 2004 L Context 1 | 0.135 | 0.142 | 51 | 54.1 |
| Catchment 2004 R Context 1 | 0.148 | 0.146 | N/A | 215.7 |
| Catchment 2005 L Context 1 | 0.138 | 0.114 | N/A | 17.5 |
| Catchment 2005 R Context 1 | 0.133 | 0.115 | N/A | 146.2 |
| Catchment 2006 L Context 1 | 0.241 | 0.263 | 99 | 188.6 |
| Catchment 2006 R Context 1 | 0.243 | 0.289 | 135 | 139.2 |
| Catchment 2007 L Context 1 | 0.263 | 0.234 | N/A | 272.9 |
| Catchment 2007 R Context 1 | 0.285 | 0.256 | N/A | 310.0 |
| Catchment 2008 L Contexts 1&3 | 0.075 | 0.175 | 162 | 162.3 |
| Catchment 2008 R Contexts 1&3 | 0.085 | 0.171 | 141 | 157.6 |
| Catchment 2009 L Context 1 | 0.195 | 0.157 | N/A | 9.6 |
| Catchment 2009 R Context 1 | 0.25 | 0.25 | N/A | 15.4 |
| Catchment 2010 L Contexts 1&3 | 0.326 | 0.284 | N/A | 138.6 |
| Catchment 2010 R Contexts 1&3 | 0.34 | 0.38 | 159 | 161.8 |
| Catchment 2011 L Contexts 2&3 | 0.385 | 0.331 | N/A | 134.8 |
| Catchment 2011 R Contexts 2&3 | 0.382 | 0.356 | N/A | 136.7 |
| Catchment 2012 L Context 2 | 0.461 | 0.398 | N/A | 202.4 |
| Catchment 2012 R Context 2 | 0.466 | 0.44 | N/A | 212.0 |

| Catchment Name | Pre- development Flow 12-hr SCS II (m³/s) | Post- development Flow 12- hr SCS II (m³/s) | Required Storage Volume (m³) | Available Storage Volume for Quantity Control (m³) |
|-----------------------------------|---|---|---------------------------------------|---|
| Catchment 2010-1 R Context 3 | 0.34 | 0.38 | 159 | 161.8 |
| Catchment 2010-2 R Context 1 | 0.385 | 0.331 | N/A | 134.8 |
| Catchment 2011 L Context 2 & 3 | 0.382 | 0.356 | N/A | 136.7 |
| Catchment 2011R Context 2 & 3 | 0.461 | 0.398 | N/A | 202.4 |
| Catchment 2012 L Context 2 | 0.466 | 0.44 | N/A | 212.0 |
| Catchment 2012 R Context 2 | 0.34 | 0.38 | 159 | 161.8 |

Table 3-8: Quantity Control Required Storage Volumes (4-hr Chicago Storm)

| Catchment Name | Pre- development Flow 12-hr SCS II (m³/s) | Post- development Flow 12- hr SCS II (m³/s) | Required Storage Volume (m³) | Available Storage Volume for Quantity Control (m³) |
|------------------------------------|---|---|---------------------------------------|---|
| Catchment 2001 L Contexts 1 & 3 | 0.098 | 0.102 | 25 | 29.2 |
| Catchment 2001 R Contexts 1&3 | 0.107 | 0.109 | 24 | 31.5 |
| Catchment 2002 L Context 1 | 0.314 | 0.339 | 83 | 126.1 |
| Catchment 2002 R Context 1 | 0.366 | 0.381 | 84 | 119.5 |
| Catchment 2003 L Context 1 | 0.159 | 0.209 | 80 | 94.5 |
| Catchment 2003 R Context 1 | 0.182 | 0.226 | 79 | 156.5 |
| Catchment 2004 L Context 1 | 0.149 | 0.17 | 51 | 54.1 |
| Catchment 2004 R Context 1 | 0.167 | 0.172 | 38 | 215.7 |
| Catchment 2005 L Context 1 | 0.155 | 0.136 | N/A | 17.5 |

| Catchment Name | Pre- development Flow 12-hr SCS II (m³/s) | Post- development Flow 12- hr SCS II (m³/s) | Required Storage Volume (m³) | Available Storage Volume for Quantity Control (m³) |
|------------------------------------|---|---|---------------------------------------|---|
| Catchment 2005 R Context 1 | 0.142 | 0.135 | 91 | 146.2 |
| Catchment 2006 L Context 1 | 0.269 | 0.31 | 91 | 188.6 |
| Catchment 2006 R Context 1 | 0.26 | 0.332 | 114 | 139.2 |
| Catchment 2007 L Context 1 | 0.28 | 0.277 | 50 | 272.9 |
| Catchment 2007 R Context 1 | 0.319 | 0.304 | N/A | 310.0 |
| Catchment 2008 L Contexts 1 & 3 | 0.078 | 0.197 | 122 | 162.3 |
| Catchment 2008 R Contexts 1 & 3 | 0.101 | 0.184 | 90 | 157.6 |
| Catchment 2009 L Context 1 | 0.22 | 0.179 | N/A | 9.6 |
| Catchment 2009 R Context 1 | 0.296 | 0.296 | N/A | 15.4 |
| Catchment 2010 L Contexts 1 & 3 | 0.34 | 0.325 | N/A | 138.6 |
| Catchment 2010 R Contexts 1 & 3 | 0.38 | 0.449 | 140 | 161.8 |
| Catchment 2011 L Contexts 2 & 3 | 0.407 | 0.364 | N/A | 134.8 |
| Catchment 2011 R Contexts 2 & 3 | 0.435 | 0.109 | N/A | 136.7 |
| Catchment 2012 L Context 2 | 0.508 | 0.417 | N/A | 202.4 |
| Catchment 2012 R Context 2 | 0.516 | 0.506 | N/A | 212.0 |

4 CONCLUSION

A stormwater management plan has been prepared to support the proposed 25th Side Road reconstruction project in The Town of Innisfil. The key points are summarized below.

Bioswale and underground infiltration chamber systems are proposed to provide LSRCA Volume Control requirements, water quantity, water quality and water balance storage volume requirements for the road drainage areas. The depths of the LID units within the subject site were estimated based on the required storage volumes for stormwater management control, infiltration rate of the native soil, porosity (void space ratio) of the gravel storage layer media and the targeted time period to achieve complete drainage between storm events. The geotechnical report provided by WSP dated April 2022 indicated groundwater was not encountered during the investigation, and all of the boreholes remained open and dry upon completion. Thus, the proposed LID systems will have a 1 m separation from seasonal groundwater levels.

Culvert Capacity Analysis

The capacity of the existing culverts along 25th Side Road are significantly lower than the peak flows from the 25-year and 100-year design storm events. The existing culverts should be replaced under proposed conditions.

Volume Control

Runoff from a 12.5 mm event from the fully reconstructed road impervious surface will be retained on site by utilizing LID units.

Quality Control

The site is required to target a long-term removal of 80% total suspended solids (TSS) on an annual loading basis. LID units were sized to satisfy the required 80% TSS removal based on the MOE (now MECP) SWM Manual (Table 3.2) water quality storage volume requirements.

The pre- and post-development annual phosphorus loading of 14.10 kg/year and 16.55 kg/year were estimated for the subject site. Under post-development conditions with mitigation measures, an annual phosphorus loading of 2.78 kg/year was estimated. Thus, a required cash-in-lieu fee for the subject site is estimated to be \$248,256.

Water Balance

The site is required to demonstrate that the pre-development infiltration volume will be maintained under post-development conditions. The results of the preliminary water balance analysis reveal pre- and post-development yearly infiltration rates of 18,936 m³ and 11,315 m³ which is equal to a yearly reduction of 7,621 m³ under post-development conditions. Under post-development conditions with mitigation measures, an infiltration rate of 49,808 m³ is estimated. Therefore, the water balance control target will be met by applying the LID units within the subject site.

Quantity Control

The post-development peak flow rates should be controlled to the corresponding pre-development peak flow rates for 2 to 100-year storm events. a Visual OTTHYMO Model (VO6.1) was used to estimate the minimum required storage volumes within the LID units to meet quantity control targets for the roadway drainage areas. Based on the modeling results the provided storage volumes within the LID units will satisfy the quantity control targets for the study area.

Utility Constrains

One of the typical constraints of implementing a Green Infrastructure Project is the presence of underground utilities and particularly, the provision of adequate access to utility lines for maintenance. Although adequate space between the edge of the proposed LID units and the alignment of the existing utilities (i.e., Bell Canada, gas line, sanitary, water main, storm pipes, etc.) has been provided for the subject site (1 m space), a Subsurface Utility Engineering (SUE) process should be completed to find the depth and exact location of the existing utilities. There is a known utility constraint within Catchment 2007. To restrict the movement of water into the existing underlying sanitary pipes, utility protection measures should be performed.

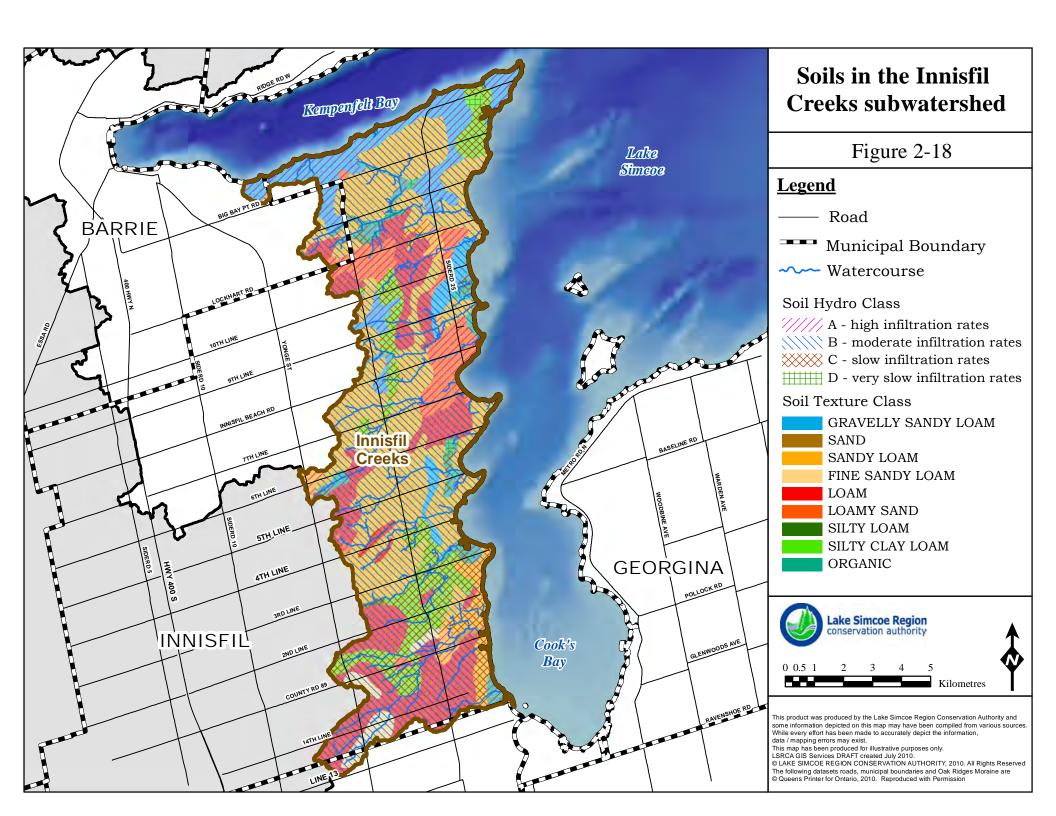
Protection measures may include soil or engineer fill with impermeable liner or an insulating wrap.

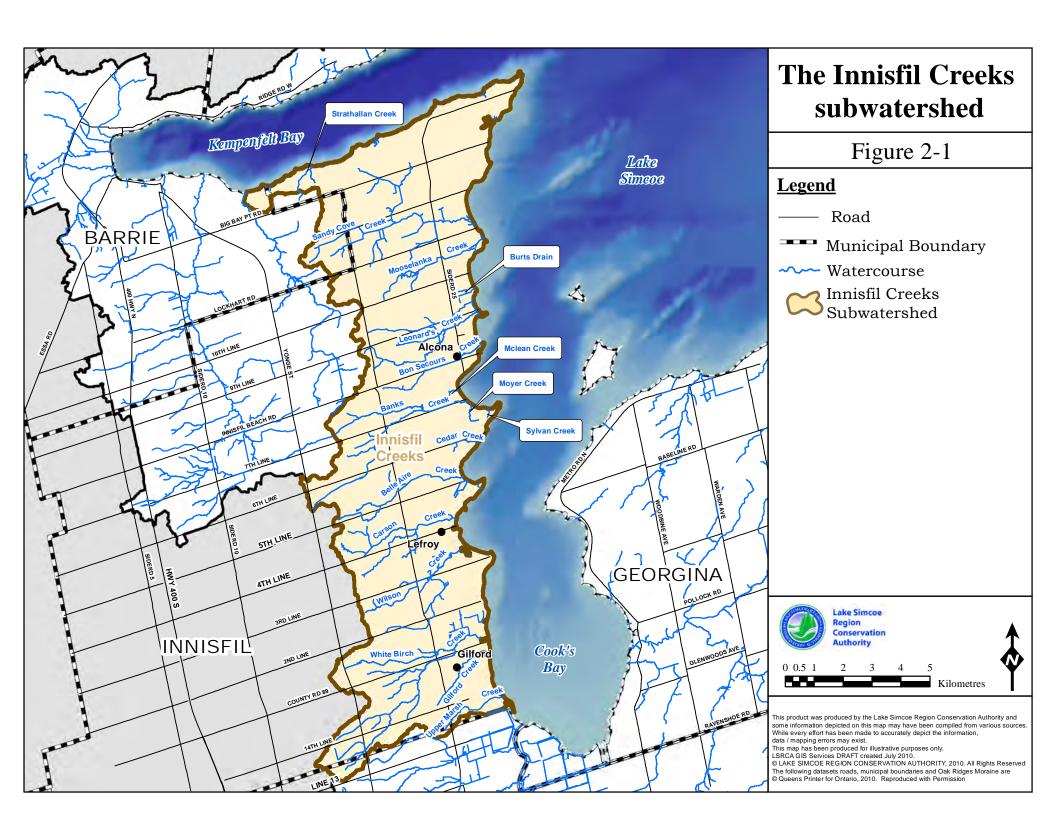
This report has demonstrated that the proposed strategy will address stormwater management related impacts from the project and meet the intent of the Town of Innisfil and Lake Simcoe Region Conservation Authority.

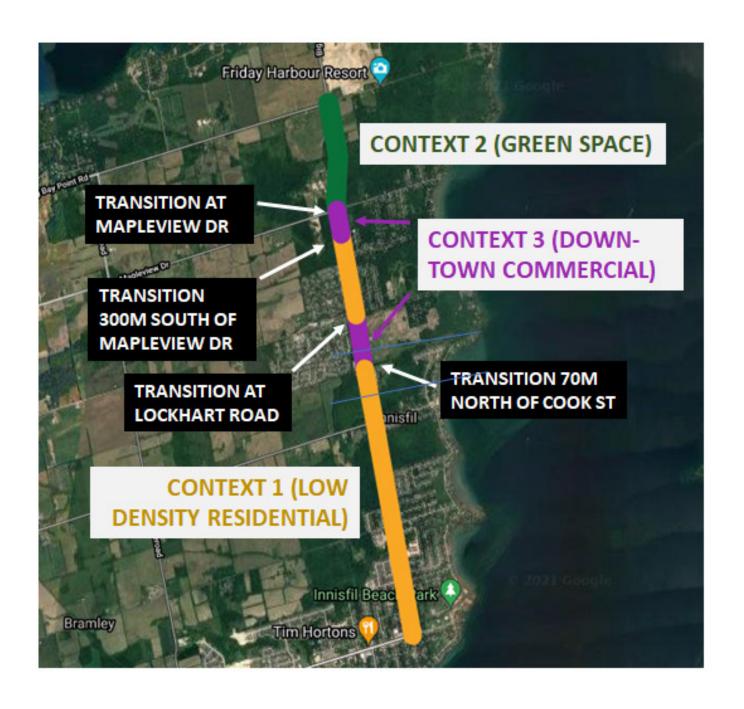
APPENDIX

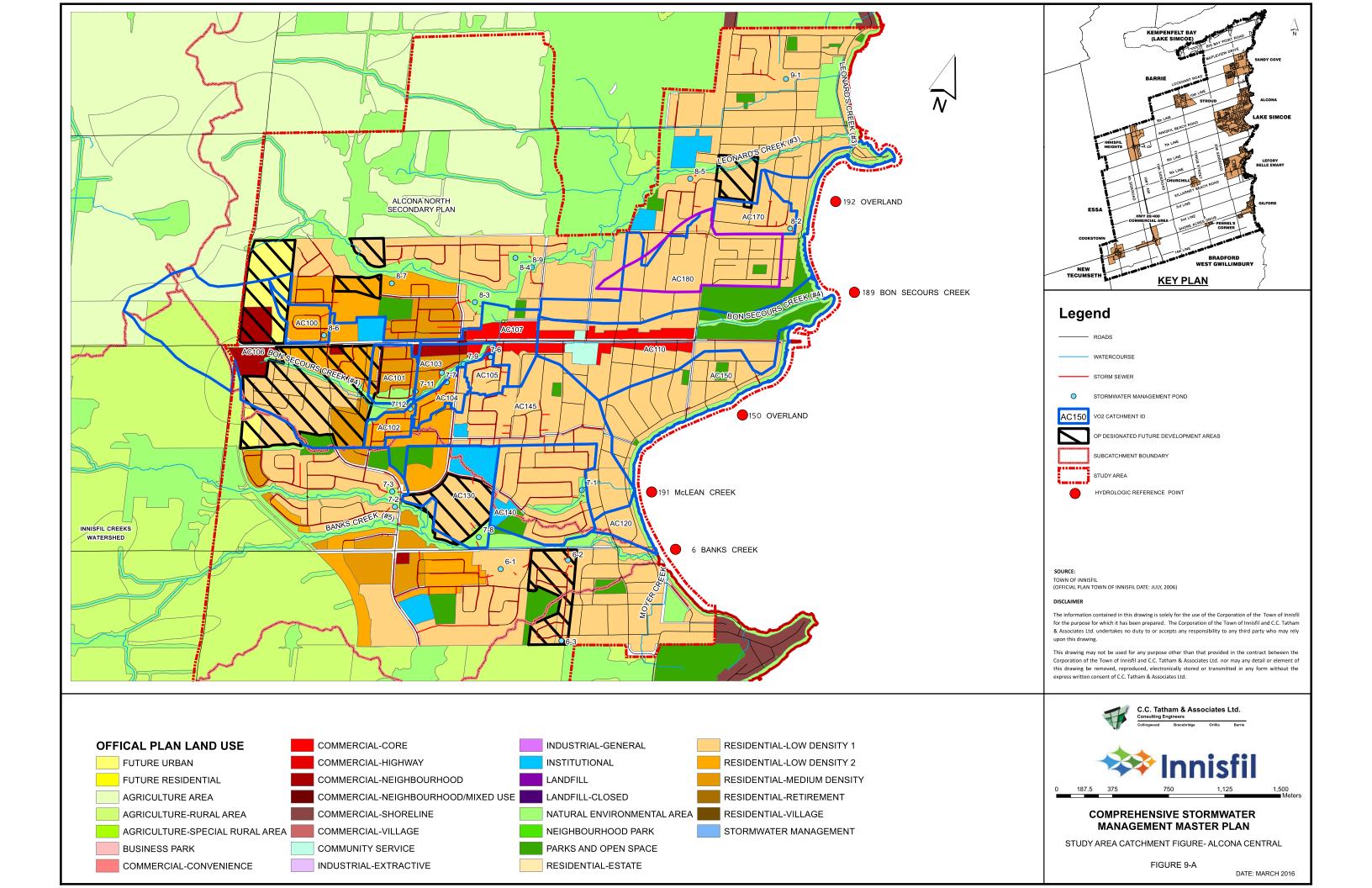
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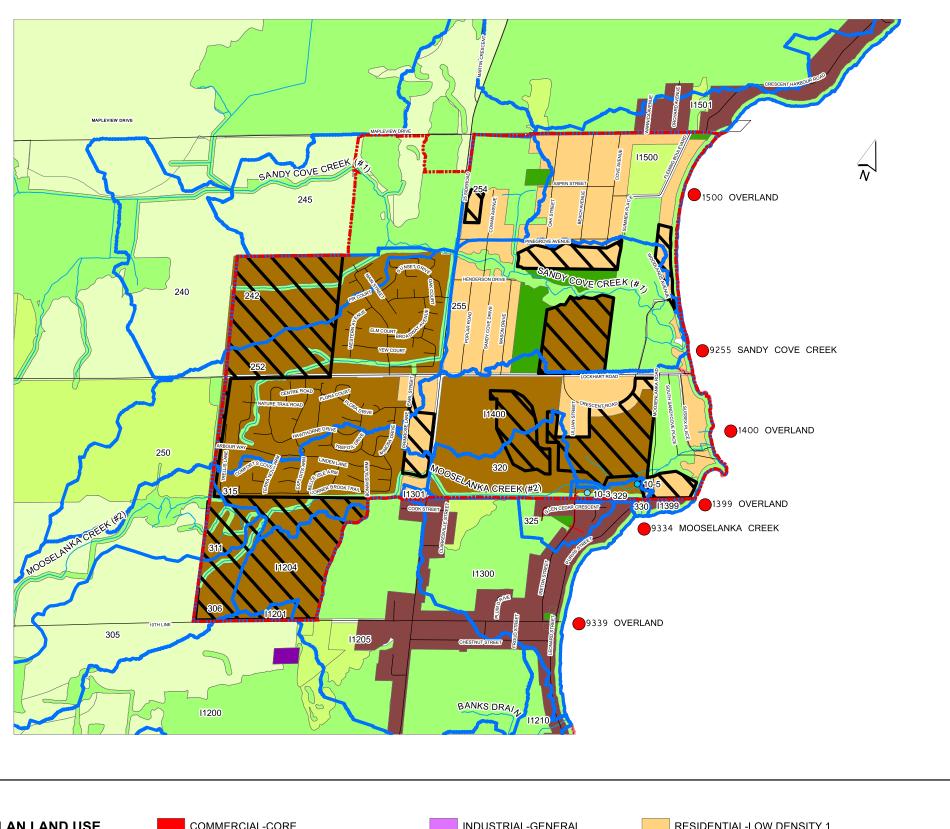
Background Information

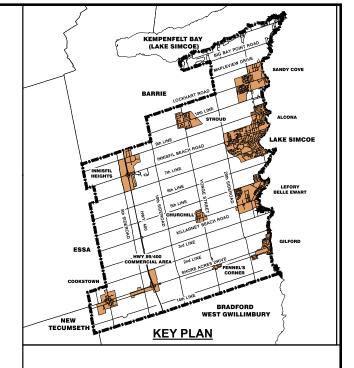












Legend

---- ROADS

WATERCOURSE

— STORM SEWER

STORMWATER MANAGEMENT POND

320 V02 CATCHMENT BOUNDARY

OP DESIGNATED FUTURE DEVELOPMENT AREAS

SUBCATCHMENT BOUNDARY

STUDY AREA

HYDROLOGIC REFERENCE POINT

TOWN OF INNISFIL (OFFICIAL PLAN TOWN OF INNISFIL DATE: JULY, 2006)

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MANAGEMENT MASTER PLAN

STUDY AREA CATCHMENT FIGURE SANDY COVE

FIGURE 9-F

DATE: MARCH 2016

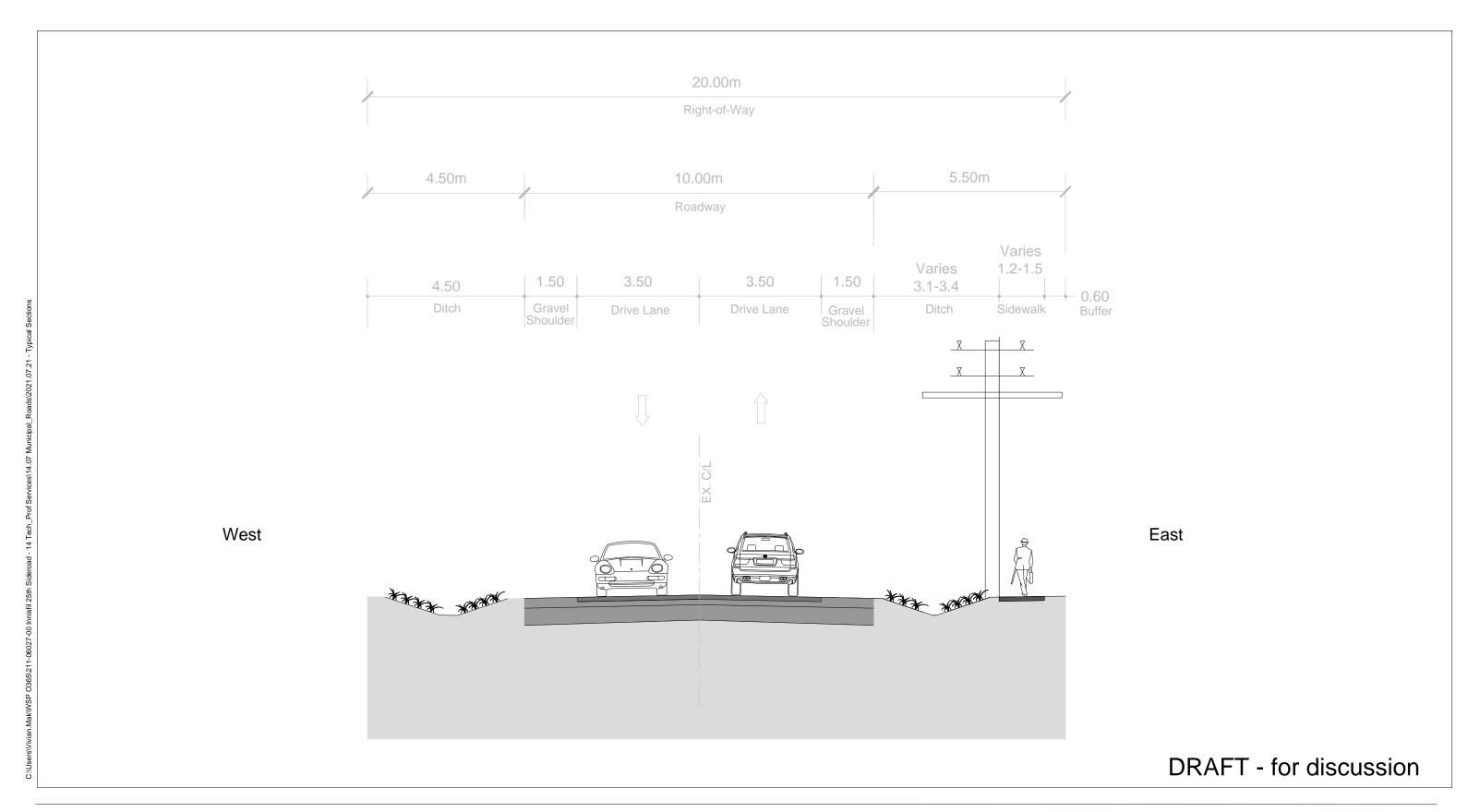


Figure 1A
25th Side Road - Low Density Residential - Existing Condition (south of Rose Lane)
Innisfil 25th Side Road



Innisfil_CrossSection_20210826.dwg_Context 1 - Ex A

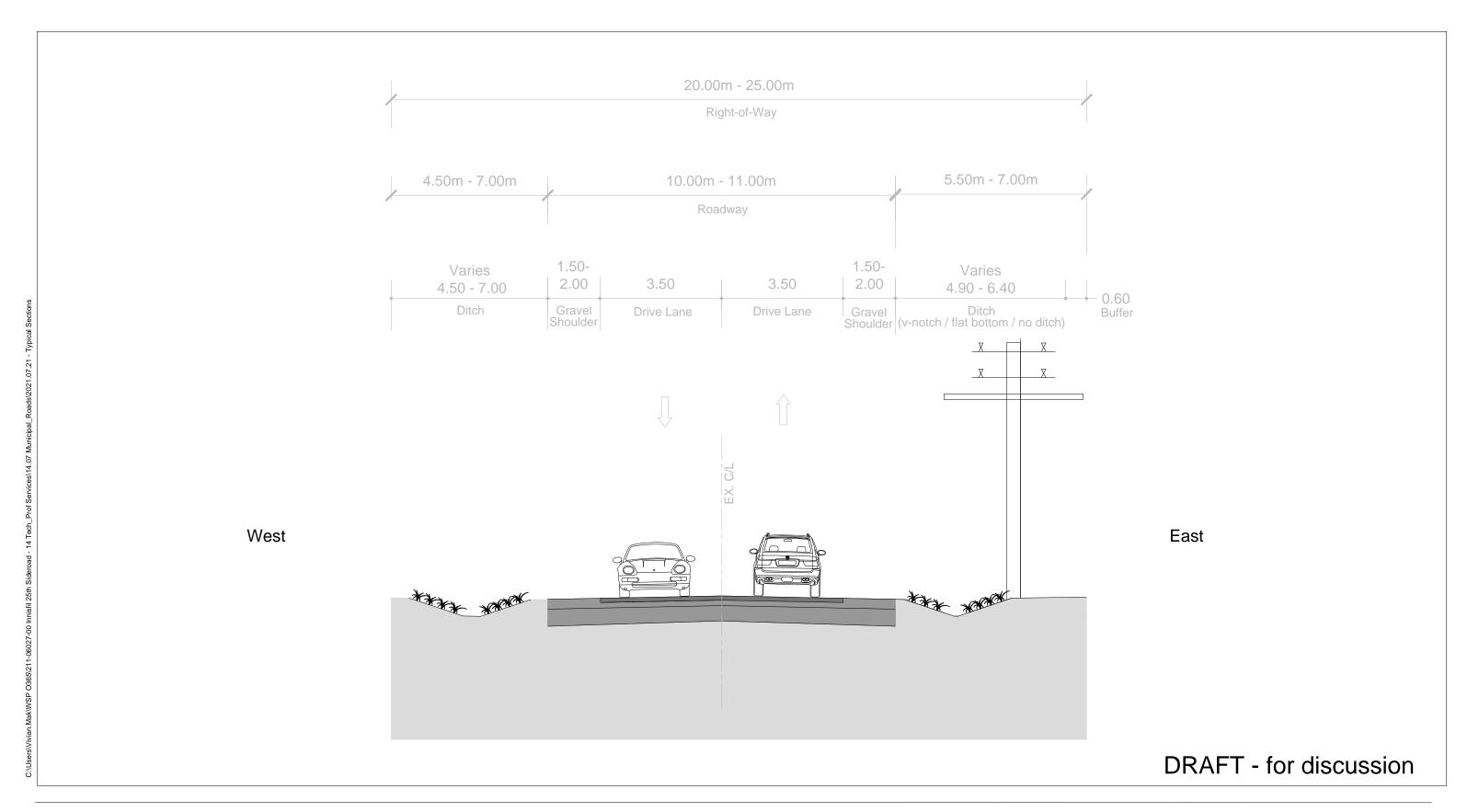


Figure 1B 25th Side Road - Low Density Residential - Existing Condition (north of Rose Lane) Innisfil 25th Side Road



Innisfil_CrossSection_20210826.dwg_Context 1 - Ex B

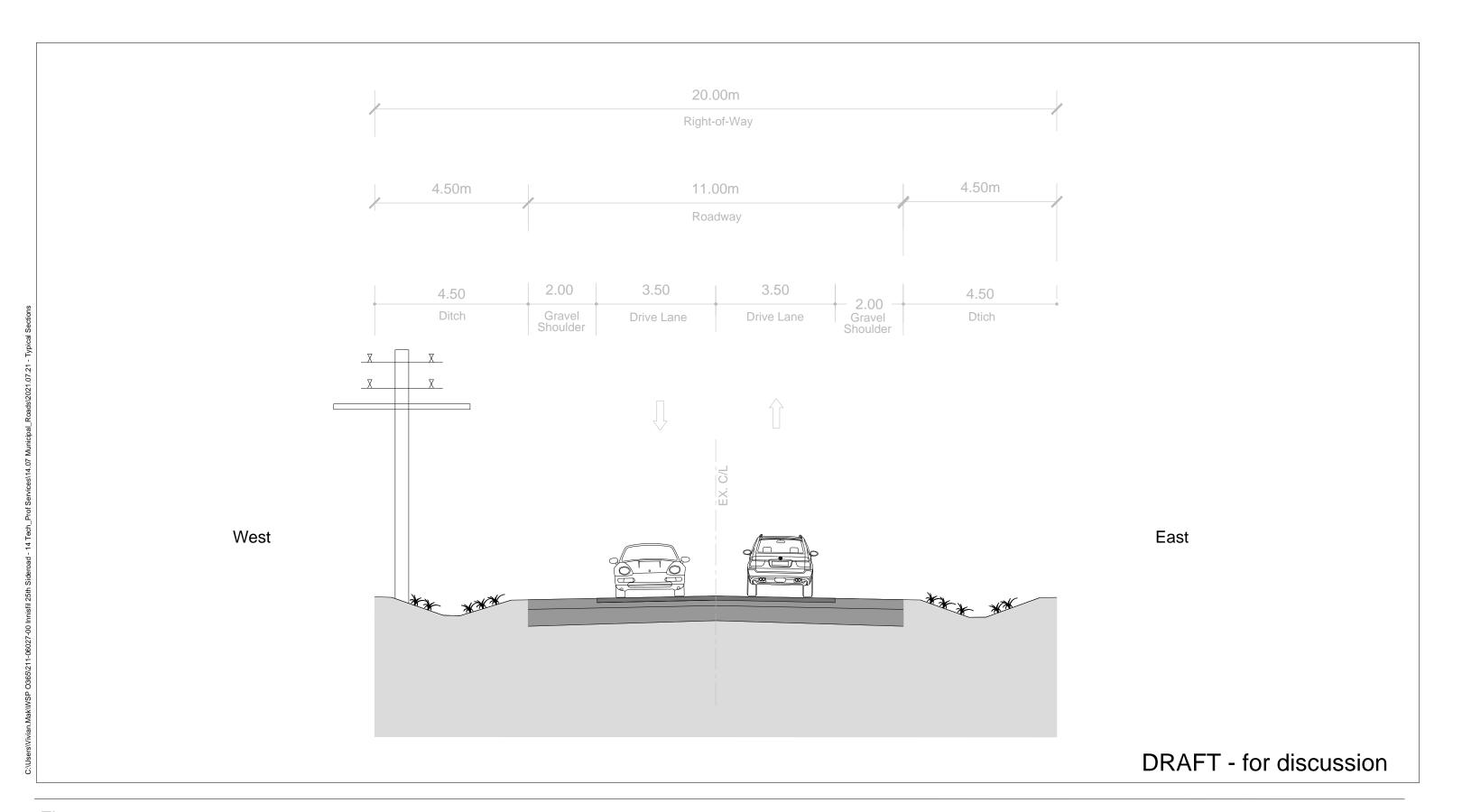


Figure 5 25th Side Road - Green Space - Existing Condition Innisfil 25th Side Road



Innisfil_CrossSection_20210826.dwg_Context 2 - Ex

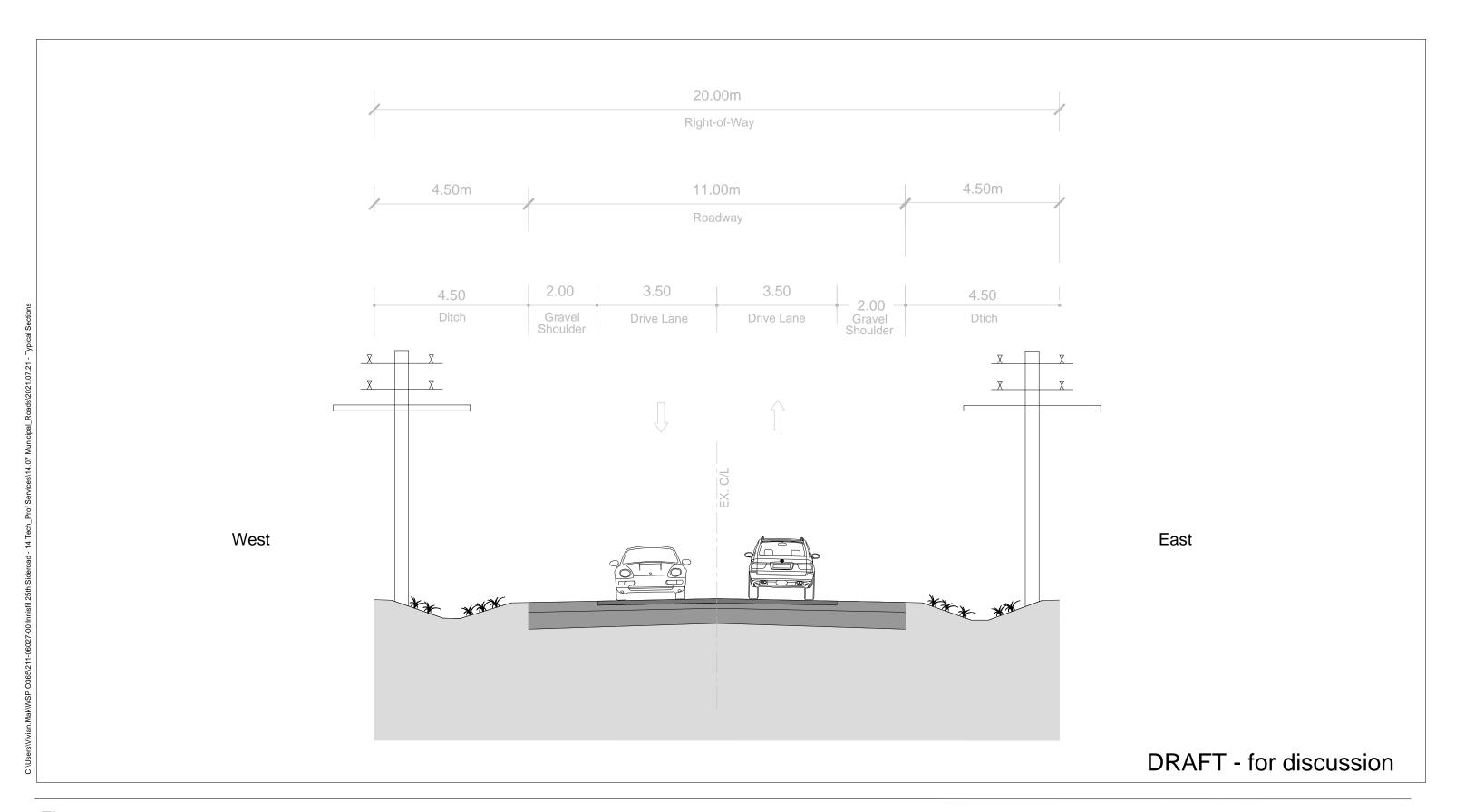
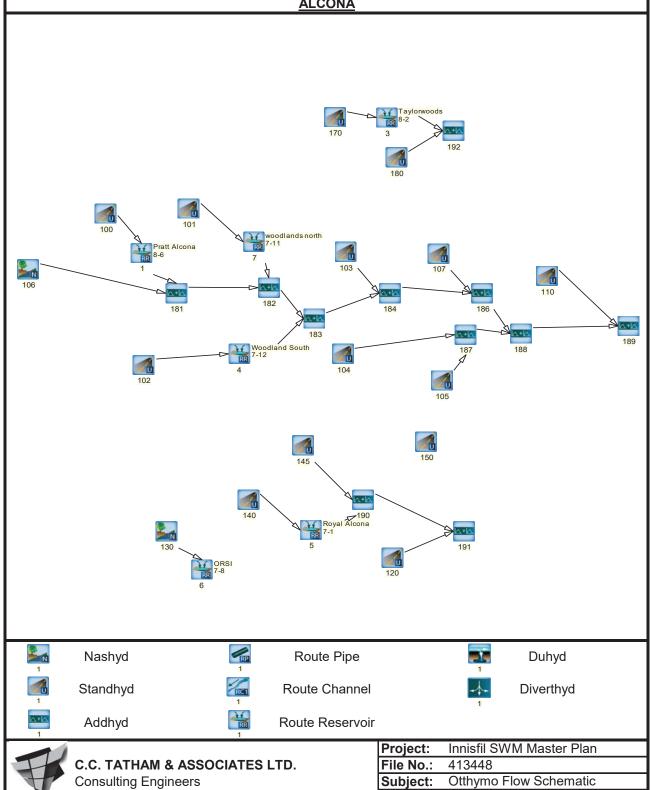


Figure 9
25th Side Road - Downtown Commercial - Existing Condition
Innisfil 25th Side Road



INNISFIL COMPREHENSIVE STORMWATER MANAGEMENT MASTERPLAN EXISTING CONDITIONS ALCONA



Date:

Jun-14

Figure:



Assessment of Life Cycle Costs for Low Impact Development Stormwater Management Practices



ASSESSMENT OF LIFE CYCLE COSTS FOR LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT PRACTICES

Final Report

Prepared by:

Toronto and Region Conservation
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under the

Sustainable Technologies Evaluation Program

April 2013

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PUBLICATION INFORMATION

This research was undertaken collaboratively between the Toronto and Region Conservation Authority's (TRCA) Sustainable Technologies Evaluation Program (project leads: Tim Van Seters, Lisa Rocha, Christy Graham) and the University of Toronto, Civil Engineering Department (project leads: Mariko Uda and Chris Kennedy).

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THE SUSTAINABLE TECHNOLOGIES EVALUATION PROGRAM

The Sustainable Technologies Evaluation Program (STEP) is a multi-agency program, led by the Toronto and Region Conservation Authority (TRCA). The program helps to provide the data and analytical tools necessary to support broader implementation of sustainable technologies and practices within a Canadian context. The main program objectives are to:

- monitor and evaluate clean water, air and energy technologies;
- · assess barriers and opportunities for implementing technologies;
- · develop supporting tools, guidelines and policies; and
- promote broader use of effective technologies through research, education and advocacy.

Technologies evaluated under STEP are not limited to physical products or devices; they may also include preventative measures, alternative urban site designs, and other innovative practices that help create more sustainable and liveable communities.

ACKNOWLEDGEMENTS

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- Government of Canada's Great Lakes Sustainability Fund
- City of Toronto
- Regional Municipality of York
- Regional Municipality of Peel
- National Science and Research Council Industrial Postgraduate Scholarship

Final Report Page iii

EXECUTIVE SUMMARY

This project evaluates the capital and life cycle costs of Low Impact Development (LID) practices over a 50 year time horizon based on a detailed assessment of local input costs, maintenance requirements, rehabilitation costs and design scenarios relevant to Canadian climates. The LID practices evaluated include bioretention cells, permeable pavement, infiltration trenches and chambers, enhanced swales, rainwater harvesting and green roofs. Dry swales and perforated pipe systems were considered to be similar to bioretention and infiltration trenches, respectively, and therefore were not evaluated as separate practices. The savings from LID approaches associated with improved aesthetics, air quality, community livability and other public benefits were not assessed, as these savings are best evaluated in relation to specific case study examples.

A robust and replicable methodology was used to compile capital and life cycle costs for the LID practices evaluated in this project. Model designs were developed for up to 3 typical variations of each LID practice assuming a 2000 m² paved and/or roof drainage area. An RSMeans database, widely used for construction and maintenance cost estimation, was used as the basis for most of the costing. Where RSMeans cost data were not available, costs were derived from other sources (e.g. supplier quotes, experienced construction managers). Maintenance and rehabilitation schedules for each practice were assessed based on local guidance manuals and literature sources.

Model LID practice design costs evaluated in this study indicated that bioretention, infiltration chambers, infiltration trenches and enhanced swales are some of the least expensive practices to implement when only the practice cost itself is considered. The practice of rainwater harvesting provides additional savings by reducing the cost of potable water supplies. Permeable pavements are comparably more expensive than most other practices, but in many instances these costs would be offset to some extent by a reduction in the need to pave the drainage area, since the pavements serve both as a parking surface and stormwater treatment practice. The practice also does not require as much land as some other practices, making it particularly well suited to retrofit contexts. Green roofs are the most expensive practice as they are installed in less accessible locations and need to be carefully engineered to protect the integrity of the building envelope. This practice is often selected because of its aesthetic, biodiversity and energy saving benefits, as well as its overall contribution to green building rating schemes, the value of which were not considered in the cost assessment provided in this study.

An analysis of different treatment scenarios for an asphalt parking lot revealed that LID practices had comparable life cycle costs to conventional treatment using an oil grit separator (OGS). Incorporating the stormwater treatment benefits of the practices into the analysis showed that LID practice life cycle costs were between 35 and 77% less than conventional OGS treatment.

A spreadsheet decision support tool based on the cost calculations gathered during this study was developed to assist industry professionals calculate the initial capital and life cycle costs of site specific LID practice designs. The tool provides users with a more comprehensive understanding of all relevant costs, facilitates cost comparisons, and allows users to optimize proposed designs based on both performance and cost. The tool is available free of charge on the Toronto and Region Conservation's Sustainable Technologies Evaluation Program website.

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1.0 INTRODUCTION

1.1 Background

Over the past several years, the practice of stormwater management in Ontario has shifted from an approach focused narrowly on centralized water quality treatment and peak flow control towards a broader, more decentralized approach oriented towards maintaining or re-establishing the pre-development hydrologic regime. This new approach utilizes a series of decentralized micro controls at or near the source of drainage networks to supplement conventional detention facilities. Alterations to the pre-development urban water cycle are minimized through site planning techniques and measures aimed at infiltrating, filtering, evaporating and detaining runoff, as well as preventing pollution. In Ontario and some parts of the United States, this approach is commonly referred to as Low Impact Development (LID), and includes measures such as green roofs, permeable pavement, bioretention, infiltration trenches, swales and alternative site design strategies.

Within the Greater Toronto Area, the results of several years of watershed monitoring and modeling, published in documents such as the Toronto and Region Conservation's (TRCA) Watershed Plans for the Rouge (2007), Humber (2008) and Don (2009) Rivers have concluded that this shift towards Low Impact Development is essential to protect watershed health and improve the resilience of watercourses to the hydrologic impacts associated with climate change. In July 2010 TRCA and Credit Valley Conservation (CVC) released the *Low Impact Development Stormwater Management Planning and Design Guide* (hereafter referred to as *LID Guide*) to assist local developers, consultants, municipalities and landowners to better understand, plan and implement LID stormwater management practices. The *LID Guide* provides a wealth of information on the planning, selection, and design of LID, and helps to streamline the design and review process to encourage widespread adoption of these technologies. Uncertainties remain, however, about the capital and long terms costs associated with these technologies relative to conventional end-of-pipe approaches.

While there are software tools and literature that provide detailed cost data for LID practices, particularly with respect to the capital costs of materials and labour, many of these resources (e.g. WERF, 2009; Olson et al, 2010) are based on markets in the U.S. or other countries, and are therefore not directly applicable to local conditions. These resources also often use designs that are either no longer considered best practice, or are not in accordance with cold climate design adaptations commonly used in Ontario. Life cycle costs provided in this report are directly applicable to Ontario because they are derived, to the extent possible, from local sources and based on design specifications provided in the *LID Guide*, which incorporates design modifications and maintenance considerations relevant to local geologic and climatic conditions.

In addition to research on the capital and long term operation and maintenance costs of LID, there are also several studies that attempt to quantify the value of LID based on the full range of costs and benefits to the individual site owner, the community and broader public. One such

study, conducted by the USEPA in 2007 reported lower total costs for 11 of 12 green infrastructure projects relative to conventional grey infrastructure. Savings were often realized due to reduced costs for site grading and preparation, stormwater drainage infrastructure, curbs and gutters, site paving and downstream stormwater treatment. Other studies have attempted to monetize the broader public benefits of the practices (e.g. Odefey et al, 2012; Buckley et al, 2012a, 2012b; Marbek, 2010). These include avoided costs associated with reduced runoff and water quality (e.g. reduced frequency of combined sewer overflows, lower stream erosion rates) as well as benefits related to energy, air quality, climate change, urban heat island, habitat improvements and aesthetics. These studies have shown that LID approaches can lead to significant long term fiscal savings for local governments.

1.2 Project Objectives

The purpose of this project is to evaluate the capital and life cycle costs of LID practices over a 50 year time horizon based on a detailed assessment of local input costs, maintenance requirements and specific design scenarios presented in the *LID Guide*. The following practices are evaluated:

- Bioretention cells
- Permeable Interlocking Concrete Pavement
- Infiltration trenches
- Infiltration chambers
- Enhanced swales
- Rainwater harvesting, and
- Green roofs

Dry swales and perforated pipe systems were considered to be similar to bioretention and infiltration trenches, respectively, and therefore were not costed out as separate practices. The savings from LID approaches associated with improved aesthetics, air quality, community livability and other public benefits were not assessed, as these are best evaluated in relation to specific case study examples.

A spreadsheet decision support tool based on the cost calculations gathered during this study was developed to assist industry professionals calculate the initial capital and life cycle costs of site specific LID practice designs. The tool provides users with a more comprehensive understanding of all relevant costs, facilitates cost comparisons, and allows users to optimize proposed designs based on both performance and cost. The tool is available free of charge on the Toronto and Region Conservation's Sustainable Technologies Evaluation Program website.

2.0 LIFE CYCLE COSTING METHODOLOGY

2.1 Costing Methodology

The following steps were followed to develop detailed costs of all the LID measures.

2.1.1 Preparation of Model Designs

Model designs were developed for up to 3 typical variations of each LID practice assuming a 2000 m² paved and/or roof drainage area. The conceptual designs were developed for costing purposes based on design guidelines provided in the *LID Guide* (TRCA and CVC, 2010). This information was supplemented with other guidelines, literature references and professional advice when additional information was needed. Several conceptual designs were based on existing applications of the practices within the GTA.

The process and steps involved in construction of the practices were obtained from the *LID guide*, a review of regulatory requirements, and other references as needed. This step in the costing process describes the construction sequence, construction methods, and details of additional tasks required prior to undertaking construction (e.g. soil testing).

2.1.2 Construction Costing

All material, delivery, labour, equipment (rental, operating, operator), hauling and disposal costs were included in the cost spreadsheet. The RSMeans database (Toronto, 2010) was used as the basis for most of the costing. This standard database used widely for construction cost estimation provides detailed unit material (including delivery), labour and equipment costs. The costs in RSMeans marked "O&P" were used, which are the installing contractor's price including their overhead and profit. It was assumed there would be no general contractor for the construction project. Standard Union labour costs were used, which are about 18% higher than Open Shop labour costs. Note that the RSMeans costs do not include sales tax.

Where data were not available in RSMeans, costs were solicited from other sources (*e.g.* suppliers, experienced construction managers). These costs were often Open Shop labour rates and did not include sales tax. For rainwater harvesting, costs were obtained from an existing tool developed in 2010 through a partnership between University of Guelph, TRCA and Connect the Drops (STEP, 2011). The costs in the tool were also based on RSMeans 2010, and were cross

If a general contractor were used, there would be an average 10% markup as well as general contractor main office overhead & profit (RSMeans)

² Standard union costs are 16% more than open shop costs for a light truck driver, and 19% more for a light equipment operator as well as for a common building labourer (RSMeans, 2010 US average). Therefore on average 18% higher.

checked and supplemented as needed to ensure consistency with the methodology used in this study.

In compiling the cost data it was assumed that the practice was being constructed as part of a larger new development, and therefore mobilization/demobilization costs were not included unless a particular piece of equipment (e.g. crane for green roof) would not normally have been present on the site. Also, it was assumed that excavated soil could be dumped elsewhere on site.

Costs that would have been incurred whether or not the LID was being constructed were normally not included (*e.g.*, for rainwater harvesting, the pipes collecting runoff from the roof were not included because they would be required regardless). One exception is for green roofs, where the cost of the roof with and without the roof membrane was assessed.

For all LIDs, the following overhead costs were assumed:

- Construction management (4.5%),
- Design (2.5%), small tools (0.5%),
- Clean up (0.3%).

These are at the low end of the cost range suggested by RSMeans. Also, no contingency costs were included.

In rare instances, suitable costing data could not be found, in which case costs were estimated based on other data or costs from similar equipment or task. All assumptions and sources of data were documented.

2.1.3 Establishing Maintenance and Rehabilitation Requirements and Costs

Maintenance tasks and frequencies were determined based on the *LID guide* and other references where necessary. Assessment of the life span of the practices was based on literature where available, but in cases where there was conflicting information, a judgment was made based on a 'weight of evidence' approach. Assumptions on practice life spans are provided in each case to provide readers with a basis for interpretation of results.

The costs of maintenance and rehabilitation were determined using the same approach as for the construction costing. One difference, however, was that (de)mobilization of equipment was included as equipment would not already be on site. Design costs were not included in the rehabilitation or replacement costs as it was assumed that the original LID practice design would be used to inform this work.

2.1.4 Life Cycle Cost Calculation

Once all capital, maintenance and rehabilitation costs were determined, the lifecycle cost for each model design was calculated based on an evaluation period of 50 years, which is typical of the time span over which infrastructure decisions are made. The approach used was similar to that in the *Best Management Practice and Low Impact Development Whole Life Cost Models* developed by the Water Environment Research Foundation (2009). WERF's analysis includes any rehabilitation required within the 50 year period. At the end of 50 years, the LID is considered to have no salvage value, and no extra value is attributed to the additional lifespan expected for the LID beyond the 50 year mark.

The present value of the cost of each LID model design was calculated as follows:

PV = design and construction cost + PV of maintenance + PV of rehabilitation

The following present value formula was used to obtain the present value of the future cost:

$$PV = FC/(1 + r)^{n}$$

where,

PV = present value in \$

FC = future cost in \$

r = discount rate

n = year of future cost

Discount rates of 0, 3, and 5% were considered. Inflation was assumed to be 0%.

In addition to the 50-year analysis, a 25-year analysis was conducted. This was done to eliminate the impact on cost of any major rehabilitation that occurs in later years. Note that for the 50-year analysis, major maintenance activities that would normally be done at the 50 year mark were not included as the LID was assumed to retire after 50 years. For the 25-year analysis, however, these major maintenance activities were included at year 25 as it was expected that the LID would continue to be used.

In addition to the Net Present Values, the *annual average maintenance cost* and the *rehabilitation cost* were determined. The *annual average maintenance cost* does not include rehabilitation and as such represents an average of regular maintenance activities over the 50 year time period. The *rehabilitation cost* includes not only the cost of the actual rehabilitation but also of the consequent changes in maintenance activities. Thus the cost of the actual rehabilitation (not including maintenance activities) were added and maintenance tasks were removed³, added⁴ or

³ When a rehab occurs, some maintenance activities are no longer needed in that year (e.g., no need to repair small leak in green roof membrane).

⁴ When a rehab occurs, some additional maintenance activities are required (e.g. watering green roof).

shifted⁵ in time as a result of the rehabilitation. The total cost of maintenance plus rehabilitation over 50 years was then summed. The difference between this sum and the total maintenance cost over 50 years in the scenario where no rehabilitation was required was calculated. This difference was the *rehabilitation cost*.

2.1.5 Comparison to Literature

A literature review was conducted for each LID to compare the construction and maintenance costs established in this study to other sources. The literature review was not meant to be comprehensive, as there are limited cost data available on LID practices, and those that are available are not necessarily applicable to local conditions. Thus the literature reviews consisted of comparisons to only a few references. Since different studies included different design assumptions, not all of which were clearly described, a straightforward comparison to our results was difficult to achieve.

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When a rehab occurs, some maintenance activities may be shifted to later years (e.g. do not have to repair small leak in green roof membrane for next 10 years).

3.0 CAPITAL AND LIFE CYCLE COSTS

3.1 Bioretention

Bioretention uses the natural properties of soils, plants and associated microbial activity to infiltrate water and remove pollutants from stormwater runoff. It can be designed in various ways but the most common form consists of a shallow, excavated depression with layers of stone, prepared soil mix, mulch and specially selected native vegetation that is tolerant to road salt and periodic inundation. They remove pollutants from runoff through filtration by soil media and uptake by plant roots, and reduce runoff volume through evapotranspiration. The practice provides aesthetic benefits and can easily be modified to fit a wide variety of space and drainage contexts, making it one of the more common LID practices for reducing runoff volumes and achieving groundwater recharge targets on development sites.

Bioretention can be designed with full, partial or no infiltration depending on the underlying soil permeability and objectives of the project. Partial infiltration systems with underdrains are recommended where the underlying native soil has a permeability of less than 15 mm/h. In areas with contaminated native soils, or high groundwater tables, the practice may be designed with no infiltration, in which case it would contribute to lower runoff volumes entirely through temporary storage and evapotranspiration.

3.1.1 Model Scenarios and Designs

Full infiltration

Bioretention areas designed for full infiltration do not have underdrains, and are installed where the native soils are relatively permeable (>15 mm/h). In the simple design used for costing (see Figure 3.1), runoff from a 2000 m² parking lot drains into a 130 m² system through curb inlets spaced 6 m apart with splash pads to dissipate the energy of the flowing water. The drainage area is roughly 15 times greater than the footprint of the facility, which is the maximum allowed in the *LID Guide*. Pre-treatment is provided through the splash pads and 75 mm mulch layer, which captures fine sediment and debris, and helps maintain the integrity of the filter media by preventing fines from migrating into the filter media. An overflow is provided to convey runoff from storms large enough to fill the system, which in this case would be equivalent to a 37 mm rain event. Two monitoring wells were added to facilitate inspection and eventual maintenance of the system.

Partial infiltration

The partial infiltration system shown in Figure 3.2 is similar to the full infiltration system, but includes a raised underdrain and granular storage reservoir, which increases the depth of the system from 1.28 in the full infiltration example, to just over 2 m. The depth of granular material

below the underdrain was sized to store and infiltrate runoff from a 25 mm event over the drainage area, not including moisture retention in the overlying soils. The additional granular material, underdrain and clean out pipes all add to the cost of this scenario relative to full infiltration.

No infiltration

The no infiltration design is the least common, and is implemented only where there are constraints to infiltration. The granular reservoir in the no infiltration model design is 40 cm shallower than the partial infiltration model design, and it includes an impermeable liner (Figure 3.3). It functions largely as a filtration system for water quality improvement, with some reduction of runoff through evapotranspiration by plants.

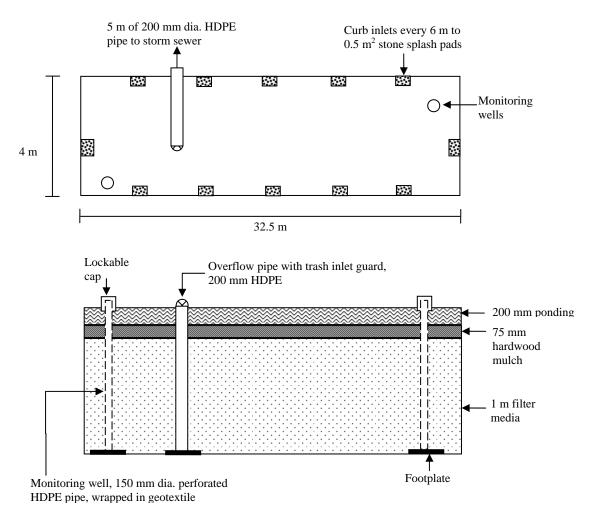
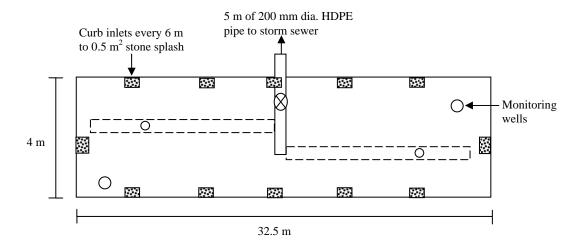


Figure 3.1: Bioretention full infiltration design. Plan view (top) and cross section (bottom)



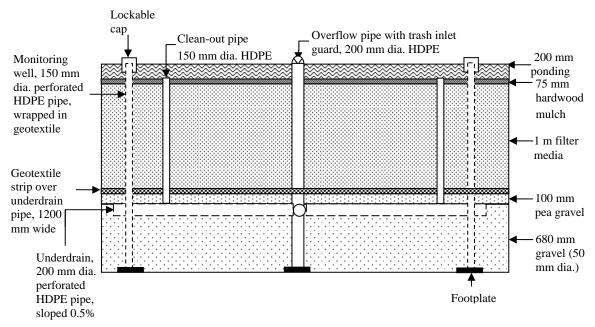
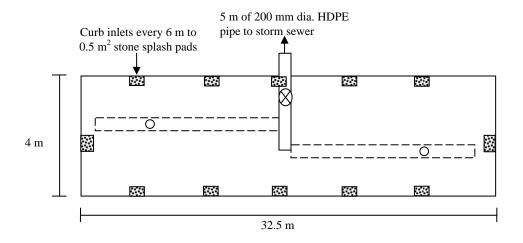


Figure 3.2: Bioretention partial infiltration design. Plan view (top); cross section (bottom)



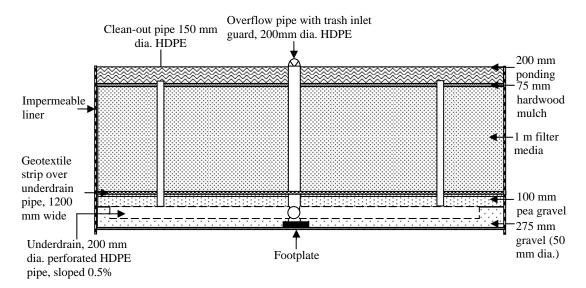


Figure 3.3: Bioretention no infiltration design. Plan view (top); cross section (bottom)

3.1.2 Capital Costs

The major capital cost categories for bioretention are shown in Table 3.1. A detailed breakdown of costs is provided in Appendix A. Full infiltration bioretention systems are considerably cheaper than partial or no infiltration designs because they do not require underdrains or granular storage reservoirs, and are shallower and therefore cheaper to excavate and construct. The no infiltration system has the highest material and installation costs because of the impermeable liner, but planning and site preparation is less expensive because there is no requirement for digging soil pits and infiltration testing which, when conducted according to specifications in the *LID Guide*, can account for over 8% of total costs in the other scenarios. In practice, soil infiltration capacity is often estimated more cheaply using soil texture and/or a more limited number of infiltration tests.

Table 3.1: Bioretention capital costs (130 m²)

| Input Parameters | Full Infiltration | Partial Infiltration | No Infiltration |
|-----------------------------|-------------------|----------------------|-----------------|
| Planning & Site Preparation | \$6,652 | \$7,955 | \$4,048 |
| Excavation | \$2,087 | \$3,160 | \$2,551 |
| Materials & Installation | \$23,234 | \$30,361 | \$32,429 |
| Total | \$31,973 | \$41,476 | \$39,028 |

3.1.3 Life Cycle Costs

As mentioned in the previous chapter, life cycle costs were calculated based on three different discount rates. Net present values based on a discount rate of 5% are shown in Table 3.2. There are few data on the operation and maintenance of bioretention areas because only recently have they started to become more widely implemented. However, it was assumed that if the bioretention area was routinely maintained, it would need major rehabilitation only once in 25 years, at a cost of roughly \$6345. This rehabilitation cost includes replacement of the filter media, re-mulching and replanting. Average costs of regular maintenance and landscaping are similar over the entire 50 year time period (\$945 to \$952). The exceptions are higher costs for watering and inspection in the early phases of plant establishment initially and after rehabilitation, and cleaning of underdrain pipes once every 10 years. Variation in present values is largely explained by differences in capital costs, as the maintenance and rehabilitation of the different scenarios was similar.

Table 3.2: Bioretention life cycle costs (130 m²)

| | Full Infiltration | Partial Infiltration | No Infiltration |
|---------------------------------|--------------------|------------------------|-----------------|
| Input Parameters | | | |
| Life span | 25 years | 25 years | 25 years |
| Capital cost | \$31,973 | \$41,476 | \$39,028 |
| Rehabilitation cost at 25 years | \$7,504 | \$7,504 | \$7,504 |
| Annual maintenance | \$945 | \$952 | \$952 |
| Present Value including capit | al, maintenance an | d rehabilitation costs | |
| NPV at 50 years | | | |
| if i = 0 % | \$86,716 | \$96,604 | \$94,156 |
| if i = 3 % | \$60,471 | \$70,146 | \$67,698 |
| if i = 5 % | \$52,183 | \$61,798 | \$59,350 |
| NPV at 25 years | | | |
| if i = 0 % | \$56,266 | \$65,923 | \$63,475 |
| if i = 3 % | \$49,228 | \$58,831 | \$56,383 |
| if i = 5 % | \$46,129 | \$55,709 | \$53,261 |

Note: i = discount rate

3.2 Permeable Pavement

Permeable pavements allow water to permeate through the surface or paver joints into a granular reservoir where water either infiltrates into the native soil and/or is released to a surface water body through a perforated underdrain. Various types of permeable pavements are available, including porous asphalt, pervious concrete, plastic grid pavers, and interlocking concrete permeable pavements (PICP). The PICP product was selected for costing in this project because it is currently the most common type used in Ontario, and the maintenance costs are well understood. As with bioretention, these pavements can be designed for full, partial or no infiltration and have been used to treat stormwater draining from an impervious pavement. In the scenarios described below, it is assumed that a 60 m x 16.7 m impermeable asphalt drains onto an equal sized area of permeable pavers. A concrete curb extending to the native soil separates the two types of pavements.

3.2.1 Model Scenarios and Designs

Full infiltration

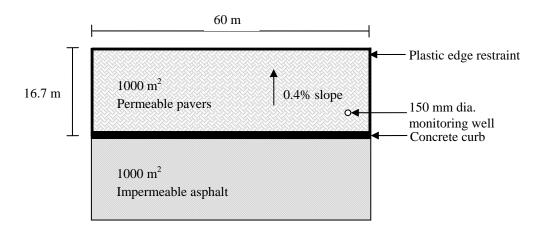
The pavement can be designed for full infiltration if the underlying subsoil has a permeability of 15 mm/h or greater (after compaction). The base granular reservoir without underdrains is 350 mm deep, and is capable of storing runoff from a 61 mm rain event over the catchment area (Figure 3.4). Plastic edge restraints are used to prevent slumping of pavers along the edges and a monitoring well is included for inspection purposes.

Partial infiltration

A partial infiltration system is used where the post compaction permeability of the native subsoil is less than 15 mm/h. The system has the same depth as the full infiltration system, but an underdrain is included to ensure full drainage between rain events (Figure 3.5). The perforated pipe in this case is raised roughly 50 mm above the native subsoil to allow for some infiltration. Since the depth below the underdrain is only capable of storing runoff from a 9 mm event, a flow restrictor is sometimes included to retain water in the base above the perforated underdrain, and thereby promote greater infiltration. Since these restrictors are optional and relatively inexpensive, the cost of this feature has not been included.

No infiltration

No infiltration systems are applied when infiltration is not desirable. In this case, the pavement structure would help to filter contaminants but runoff would not be reduced. The primary additional feature is the impermeable liner that surrounds the pavement base and sides (Figure 3.6)



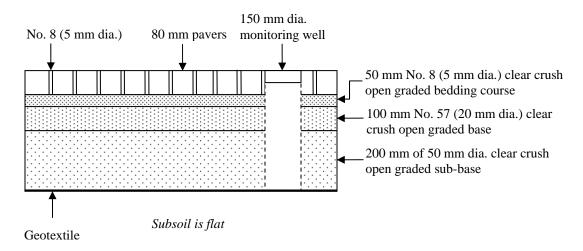
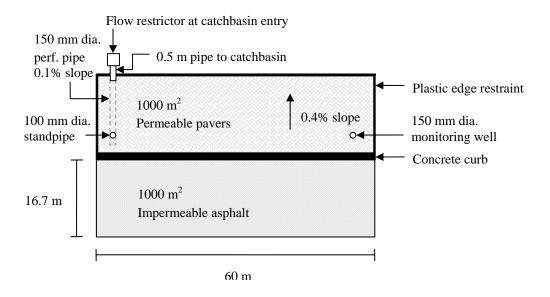


Figure 3.4: Permeable pavement full infiltration design. Plan view (top); cross section (bottom)



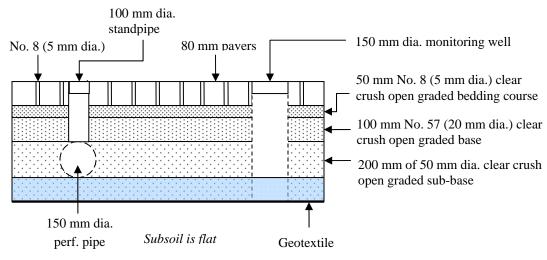
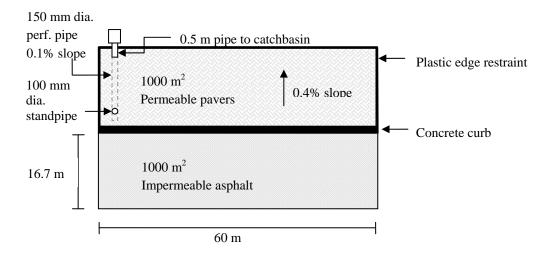


Figure 3.5: Permeable pavement partial infiltration design. Plan view (top); cross section (bottom)



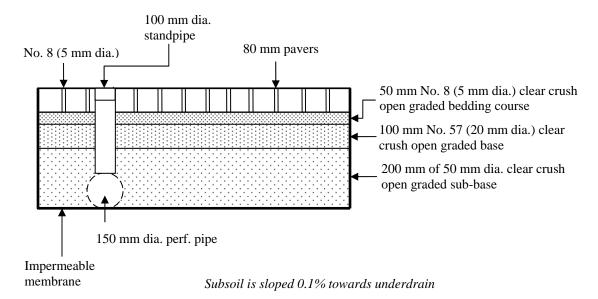


Figure 3.6: Permeable pavement no infiltration design. Plan view (top); cross section (bottom)

3.2.2 Capital Costs

General cost categories and totals for the three permeable pavement designs and a conventional asphalt (for comparison) are presented in Table 3.3. Detailed costs are provided in Appendix A. The presence of an underdrain made little difference in the overall cost. However, the addition of the impermeable liner in the 'no infiltration' scenario increased the cost considerably, even though test pits and infiltration measurements were not required (Table 3.3).

| Table 6.6. Termeable pavement and conventional aspiral capital costs (1000 m.) | Table 3.3: | Permeable pavement and conventional asphalt ca | apital costs (1 | 000 m^2) |
|--|-------------------|--|-----------------|---------------------|
|--|-------------------|--|-----------------|---------------------|

| | Permeable Interlocking Concrete Pavements | | | |
|--------------------------------|---|-------------------------|--------------------|----------|
| Input Parameters | Full Infiltration | Partial Infiltration | No Infiltration | Asphalt |
| Planning & Site Preparation | \$12,537 | \$12,659 | \$10,514 | \$4,714 |
| Excavation | \$5,584 | \$5,584 | \$5,584 | \$4,870 |
| Materials & Installation | \$80,192 | \$81,409 | \$94,055 | \$36,769 |
| Total | \$98,313 | \$99,652 | \$110,153 | \$46,353 |

The asphalt was assumed to be 50 mm thick and constructed over a 300 mm crusher run granular base. The total cost of asphalt was just less than half the price of permeable pavement for an equivalent area.

At this cost, the entire parking lot with 1000 m² of asphalt draining onto 1000 m² of a partial infiltration permeable pavement would be roughly \$146,000. By comparison, the cost of a parking lot with a partial infiltration bioretention system and an asphalt drainage area would be \$134,182 (2000 m² of asphalt + 130 m² bioretention). Although the capital cost of the bioretention stormwater control system is lower, the system requires 130 m² of additional space.

3.2.3 Life Cycle Costs

The life cycle costs for permeable pavements and asphalt are presented in Table 3.4. The paver costs are based on the assumption that the pavers would need to be replaced in 30 years, and that annual inspections, replacement of selected pavers, and periodic cleaning would cost on average \$433 to \$436. The cost of replacement is less than the initial installation cost because the base granular materials can be largely re-used, and there are no excavation costs. The asphalt costs assume a 25 year life cycle assuming it is well maintained, with annual patching and crack sealing costs of \$1000 and seal coating every three years at a cost of \$3580. Asphalt pavements that are not maintained in this fashion would have a shorter life.

At the 25 year period of evaluation, neither the permeable pavement nor asphalt would have been replaced. Higher permeable pavement present value costs over this time period largely reflect the higher initial capital costs. The present value cost differences narrow considerably over the 50 year evaluation period as the higher asphalt maintenance costs accumulate, particularly at low discount rates.

Table 3.4: Permeable pavement and conventional asphalt life cycle costs (1000 m²)

| Permeable Interlocking Concrete P | | | e Pavements | | |
|---|-------------------|-------------------------|--------------------|-----------|--|
| Input Parameters | Full Infiltration | Partial Infiltration | No Infiltration | Asphalt | |
| Life span | 30 years | 30 years | 30 years | 25 years | |
| Capital cost | \$98,313 | \$99,652 | \$110,153 | \$46,353 | |
| Replacement cost at 30 years (25 years for asphalt) | \$72,990 | \$7,990 | \$72,990 | \$26,951 | |
| Annual maintenance | \$433 | \$436 | \$436 | \$2,146 | |
| Present Value including capital, maintenance and rehabilitation costs | | | | | |
| NPV at 50 years | | | | | |
| if i = 0 % | \$192,970 | \$194,462 | \$204,963 | \$180,584 | |
| if i = 3 % | \$139,552 | \$140,968 | \$151,469 | \$113,887 | |
| if i = 5 % | \$123,081 | \$124,472 | \$134,973 | \$92,812 | |
| NPV at 25 years | | | | | |
| if i = 0 % | \$109,146 | \$110,562 | \$121,063 | \$99,993 | |
| if i = 3 % | \$105,796 | \$107,185 | \$117,686 | \$83,382 | |
| if i = 5 % | \$104,325 | \$105,703 | \$116,204 | \$76,117 | |

Note: i = discount rate

3.3 Infiltration Trenches

Infiltration trenches consist of rectangular excavations filled with clean stone granular material. Runoff from the road or roof enters the system through a perforated pipe that conveys water to the trench where it can infiltrate into the subsoil. Pretreatment is required for road runoff. Unlike permeable pavement and bioretention, infiltration trenches and chambers are typically located under paved or landscaped areas. These practices are often used in tight spaces where surface areas are either not available or are designated for other uses.

3.3.1 Model Scenarios and Designs

Infiltration trenches are often designed similarly on low and high permeability soils because runoff is controlled at the entry point to the system, typically via a weir in a manhole or concrete chamber, allowing water to bypass the system when the trench or chamber system is full. Thus, the scenarios in this case do not include partial, full and no infiltration, but are instead divided according to the type of runoff received. Relatively clean runoff from roofs require considerably less pretreatment than runoff from roads. The addition of pre-treatment devices for road drainage can add considerably to the cost of the system.

Roof Runoff

In this scenario, runoff drains into a 2 x 51 m trench via a control manhole from a 2000 m^2 industrial or commercial roof (Figure 3.7). The footprint of the facility is approximately $1/20^{th}$ the

size of the roof. The system is 1.62 m deep (Figure 3.8) with the capacity to store runoff from a 29 mm rain event. Additional storage is available in the contributing storm sewer pipes. The invert of the overflow is located at 1.2 m below the surface to protect against frost. Other than a sump in the manhole, which allows for some settling of larger solids, there is no pre-treatment. Monitoring wells are provided to facilitate inspections.

Road and Roof Runoff

This scenario is identical to the previous one, but the drainage area consists of roof (500 m²) and road runoff (1500 m²), with pretreatment via a hydrodynamic separator for the road runoff portion (Figure 3.9 and 3.10). The roof runoff portion flows directly to the control manhole without pretreatment. If the road and roof runoff were combined in the same sewer, the hydrodynamic separator would need to be larger.

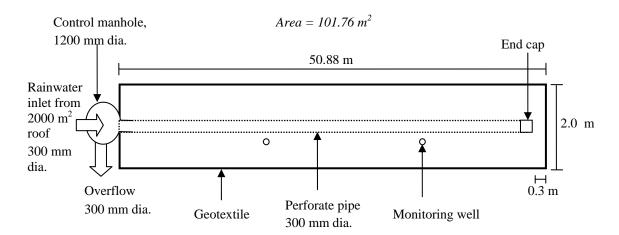


Figure 3.7: Plan view of the infiltration trench receiving roof runoff only

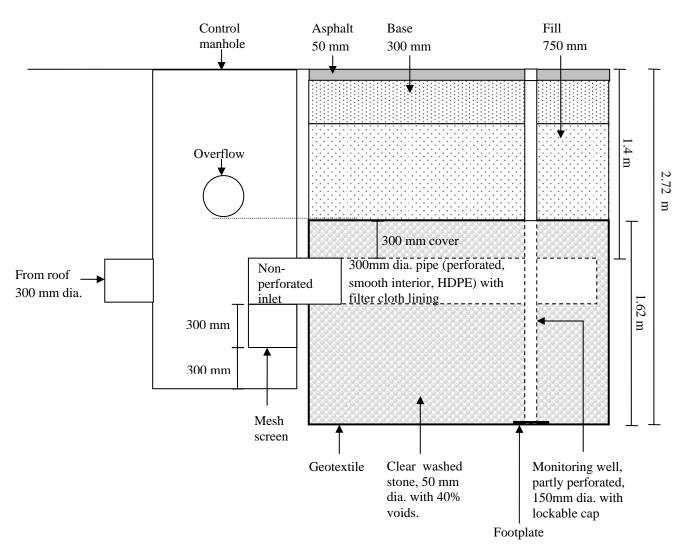


Figure 3.8: Cross section of infiltration trench receiving roof runoff only.

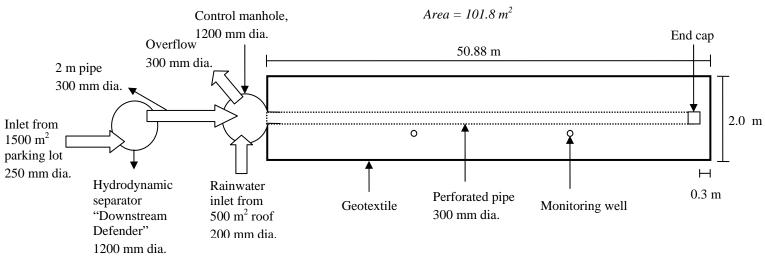


Figure 3.9: Plan view of the infiltration trench receiving road (1500 m²) and roof runoff (500 m²)

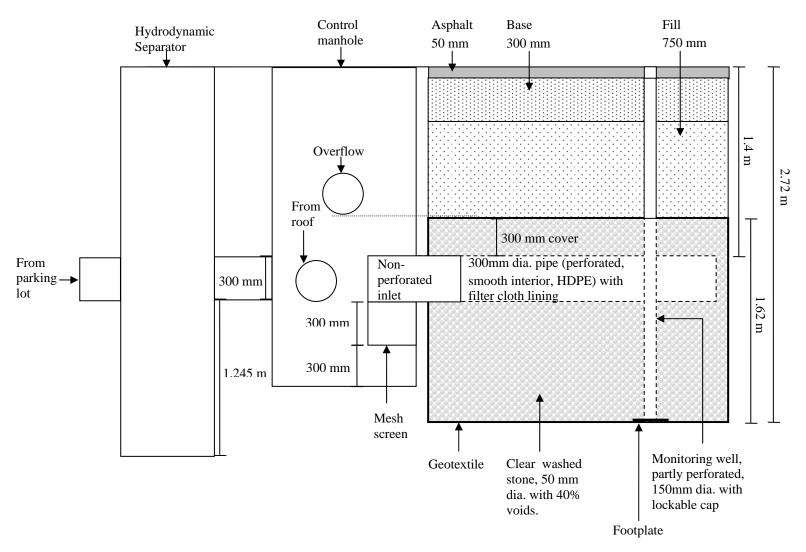


Figure 3.10: Cross section of the infiltration trench receiving road (1500 m²) and roof runoff (500 m²)

3.3.2 Capital Costs

The capital costs presented in Table 3.5 and Appendix A shows the road runoff scenario with pretreatment to be 63% more expensive than the roof runoff scenario due to the requirement for expensive pre-treatment via an Oil Grit Separator in the road runoff scenario. These results indicate that if only a portion of the runoff from a site is infiltrated, it is clearly cheaper to prioritize roof runoff for this purpose.

Table 3.5: Infiltration trench capital costs

| Input Parameters | Roof Only | Road & Roof |
|-----------------------------|-----------|-------------|
| Planning & Site Preparation | \$7,436 | \$9,068 |
| Excavation | \$2,642 | \$2,642 |
| Materials & Installation | \$17,498 | \$33,824 |
| Total | \$27,575 | \$45,534 |

3.3.3 Life Cycle Costs

Studies have shown that infiltration trenches can continue to function well over long time periods (e.g. JF Sabourin and Associates, 2008). Hence it was assumed that, with adequate maintenance, replacement or major rehabilitation would not be required over the 50 year evaluation period. The road runoff scenario was considerably more expensive to maintain than the roof runoff scenario because the hydrodynamic separator requires regular inspections and vacuum removal of sediments. Also, the inner filter cloth held in place by expandable rings would need to be pulled out and changed every 8 years. Incorporating these higher maintenance costs increased the long term cost of the road runoff scenario to a 50 year present value equal to more than double that of the roof runoff scenario.

Table 3.6: Infiltration trench life cycle costs

| | Roof Only | Road & Roof |
|-------------------------|------------------------|--------------------------|
| Input Parameters | | |
| Life span | 50+ years | 50+ years |
| Capital cost | \$27,575 | \$45,534 |
| Replacement cost | n/a | n/a |
| Annual maintenance | \$74 | \$1,277 |
| Present Value including | capital, maintenance a | and rehabilitation costs |
| NPV at 50 years | | |
| if i = 0 % | \$31,250 | \$109,384 |
| if i = 3 % | \$29,432 | \$77,810 |
| if i = 5 % | \$28,873 | \$68,090 |
| NPV at 25 years | | |
| if i = 0 % | \$29,375 | \$77,134 |
| if i = 3 % | \$28,808 | \$67,127 |
| if i = 5 % | \$28,561 | \$62,760 |

Note: i = discount rate

3.4 Infiltration Chambers

A number of proprietary manufactured modular chambers are available as an alternative to infiltration trenches. These large open perforated structures create temporary storage of stormwater for infiltration (Figure 3.11). The chamber sections can be installed individually or in series in large trench formations. Since the chambers are empty, they are able to store more water than a stone filled trench over the same area.

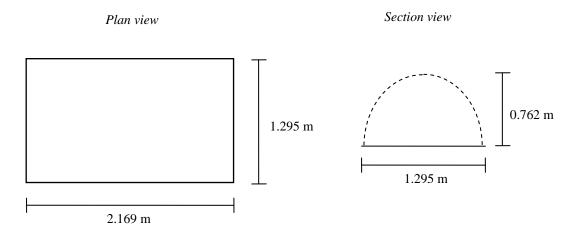


Figure 3.11: Sections of corrugated wall chambers

3.4.1 Model Scenarios and Designs

The two model scenarios are similar to those described earlier for infiltration trenches. The first scenario is for roof runoff, the second for a combination of roof and road runoff. As with trenches, the primary difference between the scenarios is the need for pretreatment in the road runoff scenario, which is accomplished by using an appropriately sized hydrodynamic separator.

Roof runoff

The footprint of the chamber is similar to the trench discussed in the previous section (1/20th of the drainage area), but the depth is 0.55 m shallower (Figure 3.12) because the empty chambers have the capacity to store a larger volume of water. Even with the shallower depth, however, the chambers have the capacity to store roughly one third more stormwater than the trench. The control manhole with weir is designed the same way as the trench to permit direct comparisons between the two practices.

Road and roof runoff

As with trenches, the drainage area is comprised of 25% roof and 75% road. A hydrodynamic separator is included to provide pre-treatment for the road runoff portion. Roof runoff is directed to the control manhole in the same manner as the previous scenario, since the cleaner roof water requires less pre-treatment.

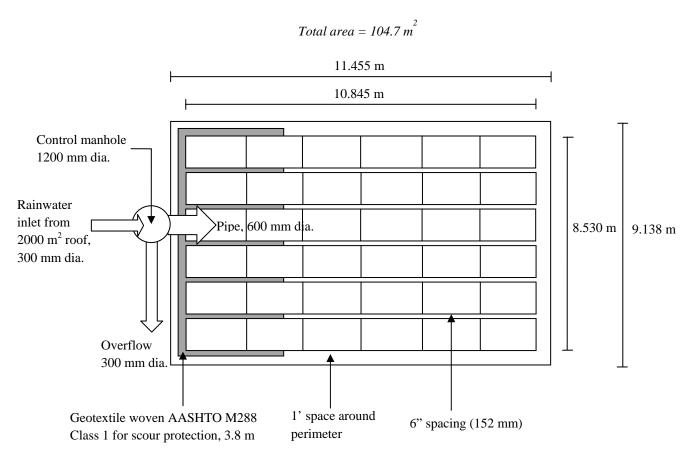


Figure 3.12: Plan view of infiltration chambers receiving roof runoff only

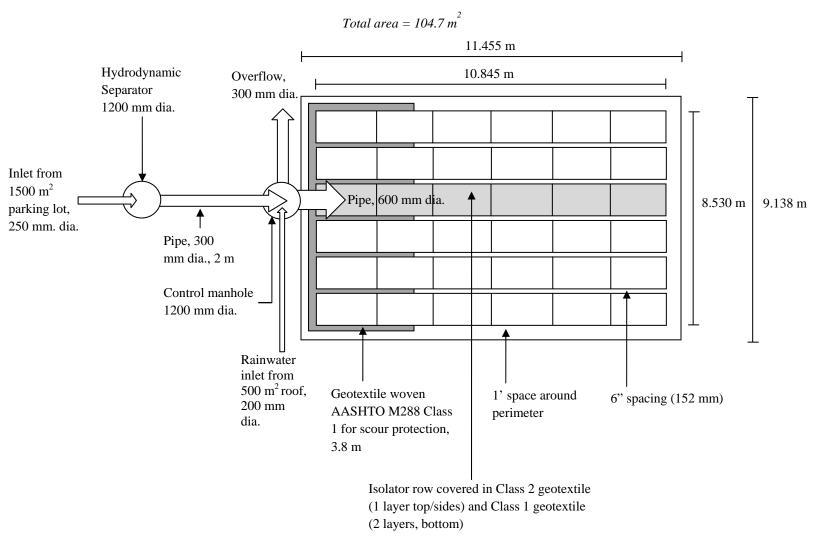


Figure 3.13: Plan view for infiltration chambers receiving road (1500 m²) and roof runoff (500 m²)

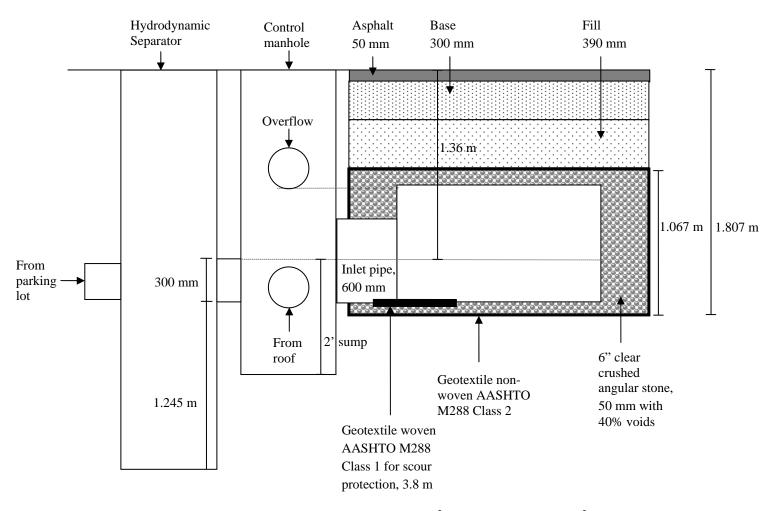


Figure 3.14: Cross section of infiltration chambers receiving road (1500 m²) and roof runoff (500 m²)

3.4.2 Capital Costs

The capital cost of the road/roof runoff scenario was 70% more than that of the roof runoff scenario because the former required expensive pre-treatment via a hydrodynamic separator (Figure 3.13). Chamber materials are more expensive than clear stone, but savings on perforated pipes and other installation expenses resulted in the two practices having very similar material and installation costs. Overall, the infiltration chamber costs were only slightly higher than the infiltration trench costs discussed in the previous section. The benefit of chambers, however, is that these provide considerably more storage per unit area than a simple gravel filled trench.

Table 3.7: Infiltration chambers capital costs

| Input Parameters | Roof Only | Road & Roof |
|-----------------------------|-----------|-------------|
| Planning & Site Preparation | \$5,723 | \$7,373 |
| Excavation | \$2,141 | \$2,141 |
| Materials and Installation | \$17,683 | \$34,192 |
| Total | \$25,547 | \$43,706 |

3.4.3 Life Cycle Costs

The underground chambers were expected to last at least 50 years if they were adequately maintained, and therefore replacement costs were not applied. Costs of maintenance were very low for the roof runoff scenario because maintenance activities were limited to cleaning out the control manhole once per year. The hydrodynamic separators in the road/roof runoff scenario required inspection, cleanout and sediment disposal, which resulted in an average annual maintenance cost of \$1,212. Overall net present value costs for the road/roof runoff scenario were well over double that of the roof runoff scenario. Maintenance costs for the trenches and chamber system were expected to be the same, hence NPV differences between the two practices were a result of differences in the initial capital cost alone.

Table 3.8: Infiltration chambers life cycle costs

| | Roof Runoff | Road and Roof Runoff |
|-----------------------------|--------------------|--------------------------|
| Input Parameters | | |
| Life span | 50+ years | 50+ years |
| Capital cost | \$25,547 | \$43,706 |
| Replacement cost | na | na |
| Annual maintenance | \$74 | \$1,212 |
| Present Value including cap | oital, maintenance | and rehabilitation costs |
| NPV at 50 years | | |
| if i = 0 % | \$29,222 | \$104,306 |
| if i = 3 % | \$27,404 | \$74,269 |
| if i = 5 % | \$26,845 | \$65,038 |
| NPV at 25 years | | |
| if i = 0 % | \$27,347 | \$73,406 |
| if i = 3 % | \$26,780 | \$64,008 |
| if i = 5 % | \$26,533 | \$59,909 |

Note: i = discount rate

3.5 Enhanced Grass Swales

Enhanced swales are designed to detain, infiltrate and convey flows to the storm sewer system or directly to the receiving water. Check dams help slow and filter water to enhance sedimentation, soil infiltration and evapotranspiration by plants and/or grasses. Unlike dry swales, they do not incorporate an engineered soil media mix and optional underdrain. Therefore, this practice does not usually provide the same runoff reduction and water quality benefits as a dry swale or bioretention system.

Swales and open channels are often used adjacent to roadways. They can also be used along the perimeter of parking lots and other impervious drainage areas. Swales can be planted with grass or other herbaceous plants, with rainwater entering either through curb cuts or as sheet flows.

3.5.1 Model Design and Scenarios

In the model scenario, runoff enters the swale as sheetflow through curb cut inlets. The swale is planted with grass and check dams are provided at 30 m intervals. Check dams can be made of different materials. The cost of three options were evaluated – concrete curbs, compost filter socks, and rocks. The swale footprint is one tenth the size of the drainage area. Culverts are used to convey water below driveways or sidewalks, and a culvert at the downstream end of the swale conveys water to the conventional sewer system.

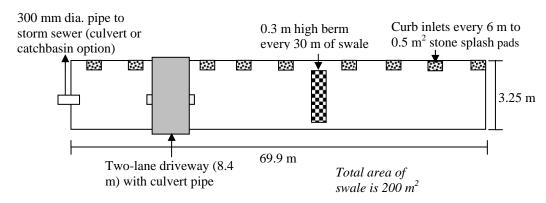


Figure 3.15: Plan view of enhanced grass swale. Drainage area is 2000 m²

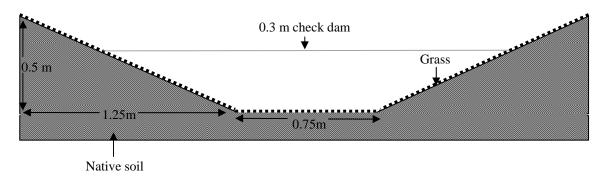


Figure 3.16: Cross section of enhanced grass swale

3.5.2 Capital Costs

Enhanced swales are one of the least expensive stormwater practices because they do not require significant excavation, and include pipes only at driveway or road crossings, and at the downstream connection to the storm sewer system. The curbs and curb cuts added significantly to the overall cost (see Appendix A). These are not necessary in swale designs where runoff enters the swale as sheet flow across its full length. Parking wheel stops or bollards can be used to prevent vehicle damage to the swale. Removal of the curbs and gutters from the model design would save approximately \$5500. There was only a minor difference in cost between the different check dam options.

Table 3.9: Enhanced grass swale capital costs

| Input Parameters | Curb check dam | Filter sock check dam | Rock check dam |
|-----------------------------|----------------|-----------------------|-------------------|
| Planning & Site Preparation | \$5,726 | \$5,694 | \$5,705 |
| Excavation | \$1,455 | \$1,455 | \$1,455 |
| Materials and Installation | \$11,401 | \$11,084 | \$11,187 |
| Total | \$18,582 | \$18,233 | \$18,347 |

3.5.3 Life Cycle Costs

Maintenance of enhanced swales consists of regular inspections, watering, litter and sediment removal, and mowing. Grass may also need to be restored periodically. These routine costs add significantly to the overall long term costs, but the practice remains one of the least expensive LID practices evaluated in this study.

Table 3.10: Enhanced grass swale life cycle costs

| | Curb check dam | Filter sock check dam | Rock check dam |
|------------------------|-----------------------|-------------------------|-------------------|
| Input Parameters | | | |
| Life span | 50+ years | 50+ years | 50+ year |
| Capital cost | \$18,582 | \$18,233 | \$18,347 |
| Replacement cost | n/a | n/a | n/a |
| Annual maintenance | \$500 | \$500 | \$500 |
| Present Value includin | g capital, maintenanc | e and rehabilitation co | sts |
| NPV at 50 years | | | |
| if i = 0 % | \$43,567 | \$43,218 | \$43,333 |
| if i = 3 % | \$32,351 | \$32,003 | \$32,117 |
| if i = 5 % | \$28,874 | \$28,525 | \$28,639 |
| NPV at 25 years | | | |
| if i = 0 % | \$32,011 | \$31,662 | \$31,777 |
| if i = 3 % | \$28,505 | \$28,156 | \$28,270 |
| if i = 5 % | \$26,947 | \$26,598 | \$26,712 |

Note: i = discount rate

3.6 Rainwater Harvesting

The term *Rainwater Harvesting* (RWH) refers to the ancient practice of collecting rainwater from roofs or other impermeable surfaces for future use in satisfying daily water needs. A RWH system typically consists of three basic elements: the collection system (such as a roof), the conveyance system (infrastructure that transports the water), and the storage system (above or below ground cistern); however in larger systems or ones designed to produce potable water, a pressurized or non-pressurized water discharge system and pre/post treatment unit is usually included. In most cases, a cistern overflow draining to an infiltration basin or municipal sewer system is necessary in order to prevent system backups.

3.6.1 Model Scenarios and Designs

The RWH scenarios selected for detailed costing are applicable to large commercial, industrial or institutional contexts, which are currently the most common type of system installed within the Greater Toronto Area. Both scenarios were developed using a RWH sizing and costing tool developed in 2009 by the University of Guelph, Connect the Drops and TRCA to facilitate wider

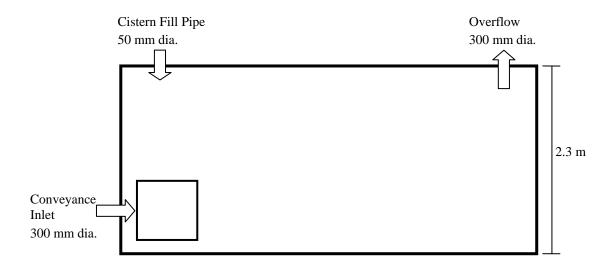
adoption of RWH systems in Ontario (STEP, 2011). The tool uses RS Means databases for costing and optimal cistern sizing based on local rainfall data for the GTA and recommendations provided in recent guidelines on RWH in Ontario.

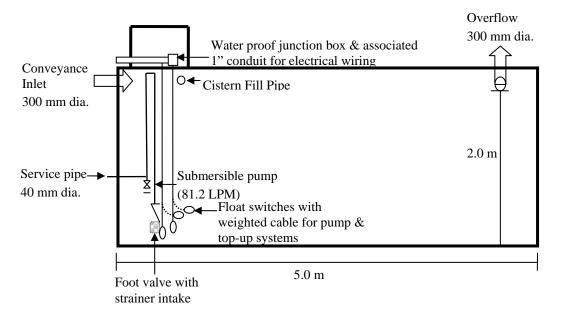
Concrete cistern outside

The first scenario consists of a 23,000 L concrete cistern buried adjacent to the building with dual plumbing distribution, an 81.2 LPM submersible pump, and a 439 L expansion tank. The system also includes a float switch to prevent the pump from dry running, a top-up float switch and associated wiring, a solenoid valve, air gap to prevent backflow, as well as backflow preventer at the premise boundary, a water meter and water hammer arrestor. In the portion of the building using the rainwater cistern for toilet flushing there were 260 occupants and two hose bibs were used on average 14 minutes per day from April to September.

Plastic tank inside

The plastic tank is also 23,000 L, but is stored inside the building. It was costed out volumetrically and therefore could consist of one large unit or several smaller units, depending on space constraints. Many of the same features in the concrete cistern case would apply here as well, but since the cistern is inside, there would be no need for excavation.





Total Volume = 23,000 L

Figure 3.17: Pre-cast concrete tank design

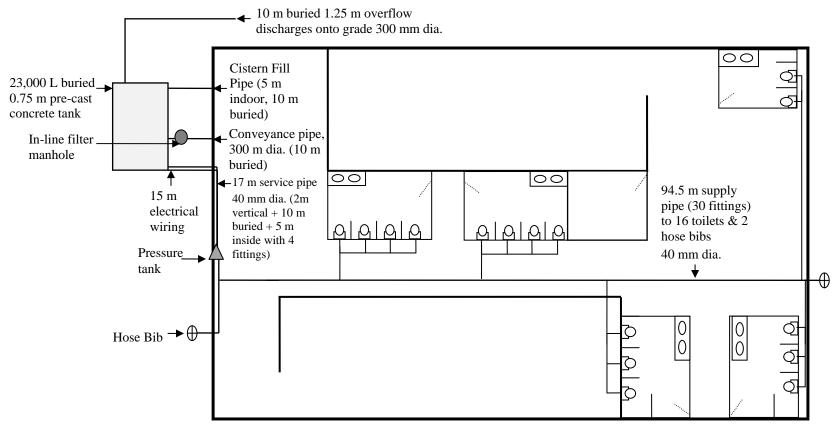


Figure 3.18: Site design for buried pre-cast concrete tank

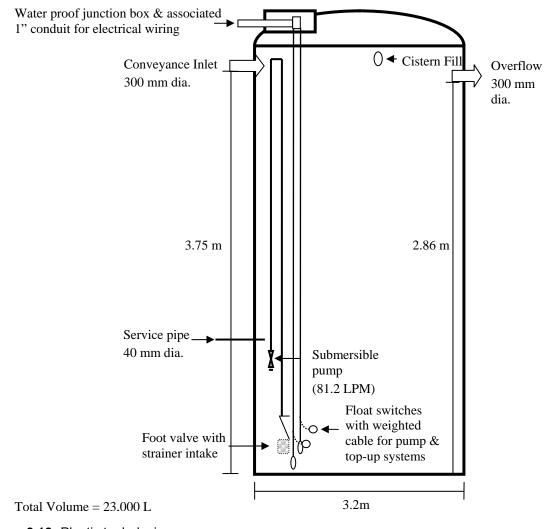


Figure 3.19: Plastic tank design

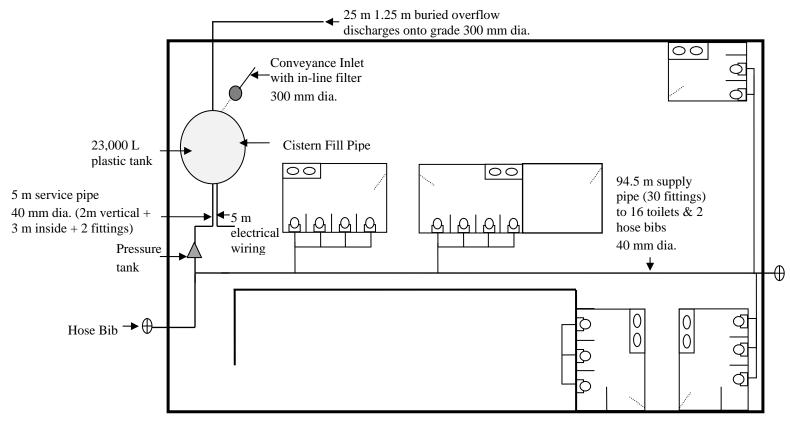


Figure 3.20: Site design for indoor plastic tank

3.6.2 Capital Costs

The concrete tank cost more than the plastic tank, primarily due to the added costs for excavation (Table 3.11). The trench and piping for the overflow cost more for the plastic tank because it was assumed that it would be further from the discharge point and therefore needed to be double the length. Most of the major costs for the tank, pump and piping were similar.

Table 3.11: Rainwater harvesting capital costs

| Input Parameters | Concrete Tank Outdoor | Plastic Tank Indoor |
|-----------------------------|--------------------------|---------------------|
| Planning & Site Preparation | \$4,794 | \$3,694 |
| Excavation | \$1,244 | \$0 |
| Materials & Installation | \$41,199 | \$36,943 |
| Total | \$47,237 | \$40,637 |

3.6.3 Life Cycle Costs

In the life cycle cost estimates shown in Table 3.12 the plastic tank is replaced in year 40, at a cost of \$7,170, whereas the concrete cistern is assumed to last longer. Average annual maintenance costs are the same in the two scenarios at roughly \$744. The requirement for replacing the plastic tank brings the net present values of the two scenarios closer together, with the plastic tank being only slightly less expensive at a 0% discount rate over the 50 year evaluation period.

Table 3.12: Rainwater harvesting life cycle costs

| | Concrete Tank Outdoor | Plastic Tank Indoor | | | | |
|---|-----------------------|---------------------|--|--|--|--|
| Input Parameters | | | | | | |
| Life span | 50+ years | 40 years | | | | |
| Capital cost | \$47,237 | \$40,637 | | | | |
| Replacement cost at 40 years | na | \$5,970 | | | | |
| Annual maintenance | \$744 | \$744 | | | | |
| Present Value including capital, maintenance and rehabilitation costs | | | | | | |
| NPV at 50 years | | | | | | |
| if i = 0 % | \$84,451 | \$83,821 | | | | |
| if i = 3 % | \$66,088 | \$61,318 | | | | |
| if i = 5 % | \$60,140 | \$54,388 | | | | |
| NPV at 25 years | | | | | | |
| if i = 0 % | \$65,844 | \$59,244 | | | | |
| if i = 3 % | \$59,519 | \$52,919 | | | | |
| if i = 5 % | \$56,754 | \$50,154 | | | | |

Note: i = discount rate

3.7 Extensive Greenroof

Greenroofs are typically classified as either extensive or intensive. Extensive greenroofs support low growing plants and have substrate depths ranging from 5 to 15 cm. A greenroof with a substrate deeper than 15 cm is normally defined as intensive. Extensive roofs are much more common and were therefore selected as the basis for detailed costing in this project.

A green roof assembly usually consists of the following components above the roofing membrane: a root-resistant layer to minimize root damage to the membrane; a drainage layer to remove excess water from the drainage medium; a filter fabric to prevent fine particles in the growing medium from clogging the drainage layer; a growing medium to support healthy plant growth, and plants selected for their adaptability to local climate conditions. An irrigation system may also be needed depending on the type of plants selected.

3.7.1 Model Scenarios and Designs

The scenarios selected for model costing include inexpensive and more expensive variations of an extensive green roof. Since green roofs are usually installed on gently sloping roofs, both scenarios assume a roof slope of 2%. As with other practices, it is assumed that the green roof is installed as part of the original new building design (i.e. not a retrofit).

'Cheap' system

The inexpensive system involves installing a sedum cutting system with a 10 cm growing medium on a building less than 5 stories high, which makes it easier to get the plants and green roof materials onto the roof. This scenario does not include pathways, fencing or other features that help improve accessibility. The water leakage test is a simpler, less expensive test than the more sophisticated methods. A TPO waterproof membrane is used.

Expensive system

In this scenario, the building is over 5 stories tall, the waterproof membrane is more expensive and a sophisticated water leakage test is performed. It also includes a root barrier, an irrigation system, more expensive edging and a 15 cm growing medium. Plants are in the form of sedum mats, which are much more expensive than sedum plugs or cuttings. A more expensive EPDM waterproof membrane was used in this scenario.

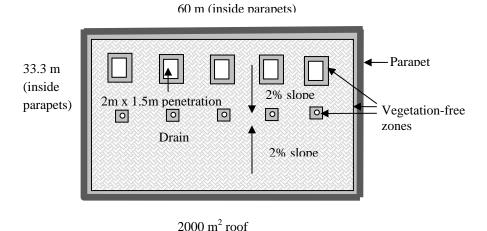


Figure 3.21: Plan view of greenroof design

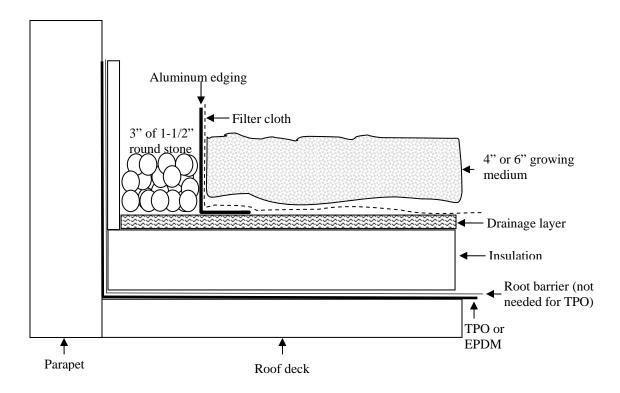


Figure 3.22: Cross section of greenroof design

3.7.2 Capital Costs

The capital cost breakdown shown in Table 3.13 and Appendix A shows how the differences between the two scenarios affect the overall price of the systems. The expensive system is more than twice the cost of the cheap system, mostly due to differences in the cost of materials. The membrane represents a significant component of the cost, but since all roofs require membranes,

it should not be regarded as a cost that is unique to green roofs. Only the 'expensive' green roof has a specialized membrane that would be more costly than a conventional roof.

Table 3.13: Extensive greenroof capital costs

| | Cheap | | Expensive | |
|--------------------------------|------------------|---------------------|------------------|---------------------|
| Input Parameters | With Membrane | Without Membrane | With Membrane | Without Membrane |
| Planning & Site Preparation | \$21,341 | \$10,163 | \$44,804 | \$31,693 |
| Craning | \$13,897 | \$9,265 | \$56,676 | \$51,524 |
| Materials & Installation | \$196,040 | \$90,631 | \$371,430 | \$255,441 |
| Total | \$231,278 | \$110,060 | \$472,909 | \$338,658 |

Detailed costs for conventional roofs were not calculated in this project. However, these were estimated in an earlier study (STEP, 2007) that compared the life cycle cost of green roofs to conventional roofs under various scenarios. In that study, the initial capital cost of a new conventional roof of an equivalent area (2000 m²) was estimated to be a minimum of \$172,000, not including the roof deck. Accordingly, a green roof would add at least \$59,278 to the initial capital cost of the roof. These extra initial costs would be recouped to some extent by the green roof's much longer life and other energy, stormwater and biodiversity benefits.

3.7.3 Life Cycle Costs

The life span of the green roofs was estimated to be 40 years regardless of the scenario. The less expensive scenario had much lower replacement costs, but the \$308 higher annual maintenance costs resulted in a similar net present value for overall maintenance and rehabilitation (assuming a 5% discount rate). The discount rate is a particularly important factor in these scenarios because the high replacement costs play a significant role in the overall Net Present Value calculations.

Table 3.14: Extensive greenroof life cycle costs

| | Cheap | | Expensive | | | |
|---|------------------|---------------------|------------------|---------------------|--|--|
| Input Parameters | With Membrane | Without Membrane | With Membrane | Without Membrane | | |
| Life span | 40 years | 40 years | 40 years | 40 years | | |
| Capital cost | \$231,278 | \$110,060 | \$472,909 | \$338,658 | | |
| Replacement cost at 40 years | \$373,628 | \$209,187 | \$613,542 | \$436,068 | | |
| Annual maintenance | \$2,022 | \$1854 | \$1,714 | \$1546 | | |
| Present Value including capital, maintenance and rehabilitation costs | | | | | | |
| NPV at 50 years | | | | | | |
| if i = 0 % | \$706,022 | \$411,947 | \$1,172,167 | \$852,026 | | |
| if i = 3 % | \$413,506 | \$237,683 | \$705,990 | \$513,139 | | |
| if i = 5 % | \$341,174 | \$193,720 | \$592,200 | \$429,862 | | |
| NPV at 25 years | | | | | | |
| if i = 0 % | \$301,346 | \$175,920 | \$519,577 | \$381,118 | | |
| if i = 3 % | \$288,698 | \$164,706 | \$504,838 | \$367,814 | | |
| if i = 5 % | \$282,999 | \$159,617 | \$498,524 | \$362,109 | | |

Note: i = discount rate

In the earlier STEP study (2007) that compared the cost of conventional roofs to green roofs, various cost and roof longevity scenarios were also evaluated. The scenario that assumed a discount rate of 3.5% and green roof longevity of 45 years showed that even moderately priced green roofs, with initial capital costs similar to this study, can cost less than conventional roofs (which were assumed to last 15 years) while providing other stormwater, biodiversity, energy and heat island mitigation benefits.

4.0 COMPARISON OF LID PRACTICE COSTS

Selecting the preferred combination of stormwater practices for a development site requires knowledge of environmental conditions, space constraints, the anticipated water balance and water quality impacts, as well as the type of practices that would help mitigate these impacts. Since different practices can achieve similar benefits, cost becomes an important criterion for selecting among available stormwater treatment options.

4.1 Capital Costs

The initial capital costs associated with planning, design and construction of the different practice scenarios and practice types are compared in Figure 4.1. The comparison shows that bioretention, rainwater harvesting and the road runoff variations of infiltration chambers and trenches fall within a similar range of costs. Permeable pavements are more expensive, mostly due to the higher cost of materials and installation. Enhanced swales are the least expensive in part because they are designed primarily for conveyance, rather than water balance control. Infiltration trenches and chambers that receive only roof runoff are also relatively cost effective because of the lower costs for pre-treatment. Green roofs are the most expensive but offer a range of benefits that are unique to this practice. They also displace the need to install a conventional roof, which none of the other practices do.

In interpreting these results, it is important to recognize that only the practice itself is assigned a cost. The savings that may be gained from implementing one practice over another are not captured. Thus, for instance, if the project involves building a new parking lot, there would be costs associated with paving the parking lot with asphalt and installing a practice that helps mitigate the water quantity and quality impacts of the runoff generated. Selecting permeable pavement would mean that only a portion of the parking lot would require paving (assuming some asphalt drains onto the pavement), resulting in cost savings over a practice such as bioretention, which cannot be used as a parking surface, and would therefore require more asphalt paving. In the case of bioretention, there may also be a cost associated with the larger area required to accommodate the practice, given that each practice has the same roof and/or paved drainage area. If instead, an underground chamber were used, the cost of asphalt above the chamber would be extra, but there would be no impact on buildable area. The specific context of the project, therefore, will play a critical role in the overall cost of the project

The cost data can also be viewed through the lens of the benefits the different practices provide with regards to stormwater treatment. Focusing specifically on volume reduction is perhaps the simplest means of accomplishing this task because reducing runoff volumes addresses multiple issues, including water quality, stream erosion, thermal impacts and groundwater recharge. The costs could then be expressed per unit volume of runoff reduced through infiltration and/or evapotranspiration. This approach works less well for building integrated practices such as green roofs and rainwater harvesting because the unique practice values associated with, for example,

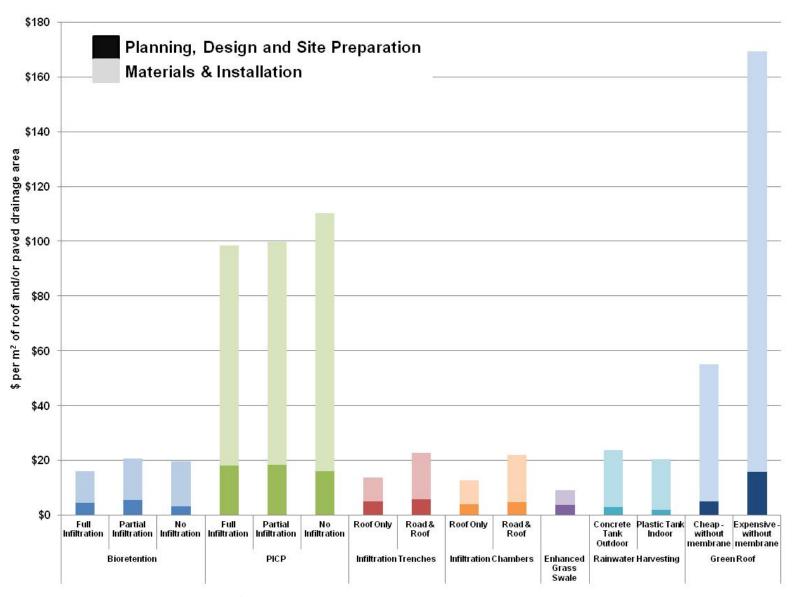


Figure 4.1: Capital costs for all practices per m² of roof and/or paved drainage area

energy reduction or potable water savings, are not accounted for in the overall cost/benefit. An example of costs expressed in relation to the load of suspended solids reduced for different treatment options is provided in section 4.3.

4.2 Life Cycle Costs

Table 4.1 compares LID practice costs for annual maintenance, rehabilitation and overall net present values at discount rates ranging from 0 to 5%. Figure 4.2 shows net present values for the 25 and 50 year time periods. Annual maintenance costs averaged over 50 years ranged from \$74 for infiltration chambers and trenches treating roof runoff to \$2,022 for green roofs. In general, maintenance costs were higher for practices requiring plant maintenance, such as bioretention and green roofs, or extensive pretreatment, such as infiltration chambers and trenches treating road runoff. Rainwater harvesting systems require relatively little maintenance but pumps and pressure tanks need to be replaced at 10 year intervals.

All practices except rainwater harvesting (concrete cistern), underground chambers or trenches and enhanced grass swales required major rehabilitation at some point in the 50 year time period. These expensive rehabilitation costs weigh heavily in the net present value calculations, particularly at low discount rates, making the practices not requiring rehabilitation comparably less expensive over the long term.

Table 4.1: Life cycle costs for all practices

| | Bioret | ention | | Perm | eable Pav | ement | | ration nches | | ration mbers | Enhanced Grass Swales | Rainv Harve | | | Greer | n Roofs | |
|------------------------------------|---------------|-------------------------|--------------------|----------------------|-------------------------|--------------------|-----------|-----------------|-----------|-----------------|-----------------------------|-----------------------------|---------------------------|-----------|---------------------|------------------|---------------------|
| | | | | | | | | | | | | | | Ch | eap | Exper | sive |
| | Full | Partial Infiltration | No Infiltration | Full Infiltration | Partial Infiltration | No Infiltration | Roof Only | Road & Roof | Roof Only | Road & Roof | Rock Check Dam | Concrete Tank Outdoor | Plastic Tank Indoor | With | Without membrane | With membrane | Without membrane |
| Construction | \$31,973 | \$41,476 | \$39,028 | \$98,313 | \$99,652 | \$110,153 | \$27,575 | \$45,534 | \$25,547 | \$43,706 | \$18,347 | \$47,237 | \$40,637 | \$231,278 | \$110,060 | \$472,909 | \$338,658 |
| 50 year eval | luation pe | riod | | | | | | | | | | | | | | | |
| Ave. annual maintenance | \$945 | \$952 | \$952 | \$433 | \$436 | \$436 | \$74 | \$1,277 | \$74 | \$1,212 | \$500 | \$744 | \$744 | \$2,022 | \$1,854 | \$1,714 | \$1,546 |
| Rehabilitation | \$7,504 | \$7,504 | \$7,504 | \$72,990 | \$72,990 | \$72,990 | na | na | na | na | na | na | \$5,970 | \$373,628 | \$209,187 | \$613,542 | \$436,068 |
| Year rehabilitation required | 25 | 25 | 25 | 30 | 30 | 30 | na | na | na | na | na | na | 40 | 40 | 40 | 40 | 40 |
| Present Val | lue of main | tenance & | rehabilitati | on only | | | | | | | | | | | | | |
| if i=0% | \$54,743 | \$55,128 | \$55,128 | \$94,657 | \$94,810 | \$94,810 | \$3,675 | \$63,850 | \$3,675 | \$60,600 | \$24,985 | \$37,214 | \$43,184 | \$474,744 | \$301,887 | \$699,258 | \$513,368 |
| if i=3% | \$28,498 | \$28,670 | \$28,670 | \$41,239 | \$41,316 | \$41,316 | \$1,857 | \$32,276 | \$1,857 | \$30,563 | \$13,769 | \$18,851 | \$20,681 | \$182,228 | \$127,623 | \$233,081 | \$174,481 |
| if i=5% | \$20,210 | \$20,322 | \$20,322 | \$24,768 | \$24,820 | \$24,820 | \$1,298 | \$22,556 | \$1,298 | \$21,332 | \$10,292 | \$12,903 | \$13,751 | \$109,896 | \$83,660 | \$119,291 | \$91,204 |
| Present valu | ue of all (ca | pital cost, | maintenan | ce & rehabi | litation) | | | | | | | | | | | | |
| if i=0% | \$86,716 | \$96,604 | \$94,156 | \$192,970 | \$194,462 | \$204,963 | \$31,250 | \$109,384 | \$29,222 | \$104,306 | \$43,333 | \$84,451 | \$83,821 | \$706,022 | \$411,947 | \$1,172,167 | \$852,026 |
| if i=3% | \$60,471 | \$70,146 | \$67,698 | \$139,552 | \$140,968 | \$151,469 | \$29,432 | \$77,810 | \$27,404 | \$74,269 | \$32,117 | \$66,088 | \$61,318 | \$413,506 | \$237,683 | \$705,990 | \$513,139 |
| if i=5% | \$52,183 | \$61,798 | \$59,350 | \$123,081 | \$124,472 | \$134,973 | \$28,873 | \$68,090 | \$26,845 | \$65,038 | \$28,639 | \$60,140 | \$54,388 | \$341,174 | \$193,720 | \$592,200 | \$429,862 |
| 25 year eval | luation pe | riod | | | | | | | | | | | | | | | |
| Ave. annual maintenance | \$972 | \$978 | \$978 | \$433 | \$436 | \$436 | \$72 | \$1,264 | \$72 | \$1,188 | \$537 | \$744 | \$744 | \$2,802 | \$2,634 | \$1,867 | \$1,698 |
| Rehabilitation | na | na | na | na | na | na | na | na | na | na | na | na | na | na | na | na | na |
| Year rehabilitation required | na | na | na | na | na | na | na | na | na | na | na | na | na | na | na | na | na |
| Present Val | lue of main | tenance & | rehabilitati | on only | | | | | | | | | | | | | |
| if i=0% | \$24,293 | \$24,447 | \$24,447 | \$10,833 | \$10,910 | \$10,910 | \$1,800 | \$31,600 | \$1,800 | \$29,700 | \$13,429 | \$18,607 | \$18,607 | \$70,068 | \$65,860 | \$46,668 | \$42,460 |
| if i=3% | \$17,255 | \$17,355 | \$17,355 | \$7,483 | \$7,533 | \$7,533 | \$1,233 | \$21,593 | \$1,233 | \$20,302 | \$9,922 | \$12,282 | \$12,282 | \$57,420 | \$54,646 | \$31,929 | \$29,156 |
| if i=5% | \$14,156 | \$14,233 | \$14,233 | \$6,012 | \$6,051 | \$6,051 | \$986 | \$17,226 | \$986 | \$16,203 | \$8,365 | \$9,517 | \$9,517 | \$51,721 | \$49,557 | \$25,615 | \$23,451 |
| Present valu | ue of all (ca | pital cost, | maintenan | ce & rehabi | litation) | | | | | | | | | | | | |
| if i=0% | \$56,266 | \$65,923 | \$63,475 | \$109,146 | \$110,562 | \$121,063 | \$29,375 | \$77,134 | \$27,347 | \$73,406 | \$31,777 | \$65,844 | \$59,244 | \$301,346 | \$175,920 | \$519,577 | \$381,118 |
| if i=3% | \$49,228 | \$58,831 | \$56,383 | \$105,796 | \$107,185 | \$117,686 | \$28,808 | \$67,127 | \$26,780 | \$64,008 | \$28,270 | \$59,519 | \$52,919 | \$288,698 | \$164,706 | \$504,838 | \$367,814 |
| if i=5% | \$46,129 | \$55,709 | \$53,261 | \$104,325 | \$105,703 | \$116,204 | \$28,561 | \$62,760 | \$26,533 | \$59,909 | \$26,712 | \$56,754 | \$50,154 | \$282,999 | \$159,617 | \$498,524 | \$362,109 |

Note: i = discount rate

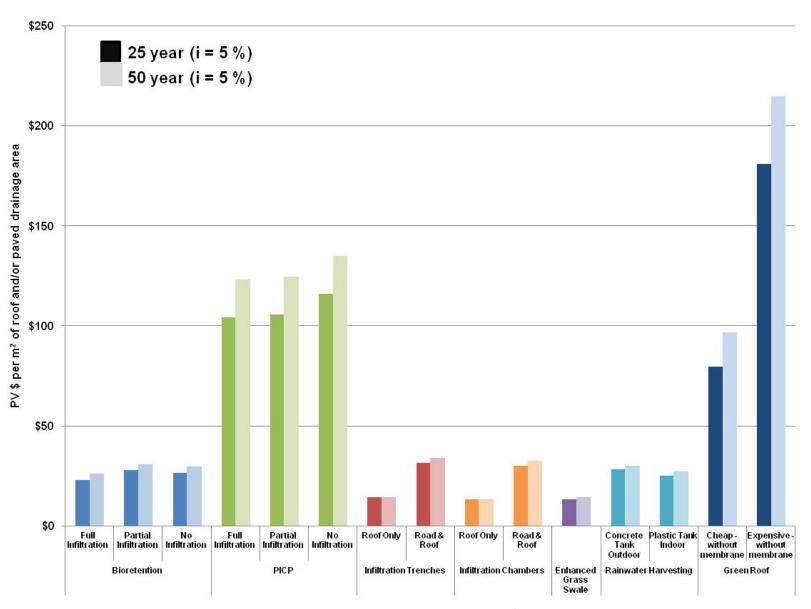


Figure 4.2: Present values for 25 year and 50 year evaluation periods for all practices per m² of roof and/or paved drainage area

4.3 Comparisons to Conventional Grey Infrastructure

The previous section compared the cost of LID practices to one another. In this section, the costs of selected practices are compared to conventional grey infrastructure based on the cost both of the practice and the contributing drainage area. The practice type used in the analysis is for a partial infiltration system.

The scenarios selected for comparative analysis have an asphalt drainage area of 2000 m² with treatment provided by different types of LID practices and a conventional oil grit separator. The scenarios were as follows:

- 1. Asphalt (2000 m²) draining to a storm sewer with treatment provided by an appropriately sized **oil grit separator**
- 2. Asphalt (2000 m²) draining to a 130 m² partial infiltration **bioretention cell** (see design and costing in section 3.1)
- 3. Asphalt (1000 m²) draining to 1000 m² partial infiltration **permeable interlocking concrete pavement** (see design and costing in section 3.2).
- 4. Asphalt (2000 m²) draining to a 100 m² infiltration trench with pre-treatment provided through a 20 m² gravel inlet (substituted OGS in the trench design provided in section 3.3 for a much less expensive gravel filter inlet)
- 5. Asphalt (2000 m²) draining to a 100 m² underground **infiltration trench with pre-treatment provided by an Oil Grit Separator** (similar to model provided in section 3.3, but the OGS is larger to accommodated the larger asphalt drainage area).
- 6. Asphalt (2000 m²) draining to a 200 m² **enhanced swale** (see design and costing in section 3.5)

It should be noted that the bioretention cell, infiltration trench with gravel filter, and enhanced swale take up 130, 20 and 200 m² more space than the other scenarios, respectively. The conventional scenario with OGS treatment also differs significantly from the others as it is the only practice that does not reduce runoff volumes and contaminant loads through infiltration and/or evapotranspiration. The enhanced swale would also be expected to infiltrate less runoff than the other LID practices since it is designed to convey runoff.

Figure 4.3 presents the initial capital and present value costs of the scenarios (asphalt + treatment option) over the 50 year evaluation period at a discount rate of 5%. The initial capital costs of the different treatment scenarios are relatively similar, ranging from \$54 to \$73 per square meter of paved drainage area. The conventional OGS treatment scenario had the second lowest initial cost, at \$57 per m² of paved drainage. When routine maintenance and

rehabilitation/replacement costs are added, and expressed as net present value, the conventional OGS treatment scenario has the third highest cost, at \$114 per m² of paved drainage.

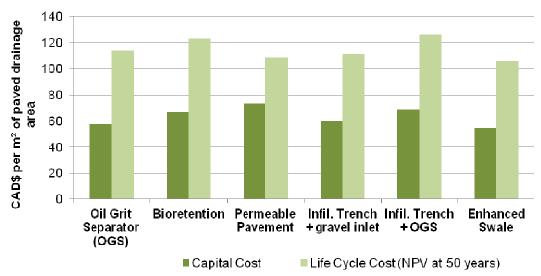


Figure 4.3: Capital and life cycle costs for different asphalt runoff treatment scenarios

The costs presented in Figure 4.3 do not consider differences in the stormwater management benefits of the practices. These differences are shown in Table 4.2 in relation to estimated reductions in runoff, total suspended solids (TSS) concentrations and TSS loads. The runoff reduction estimates are based on literature values provided in the *LID Guide*. TSS concentration reductions are based on literature reviews and local studies (*e.g.* STEP, 2008; Drake et al, 2012). To show the value of these benefits, the capital and life cycle costs of the scenarios are expressed in Figure 4.4 as dollars per kilograms of TSS reduced annually, assuming an average influent concentration of 200 mg/L, annual precipitation of 800 mm (based on climate 'normals' in Ontario) and an asphalt runoff coefficient of 0.98.

Table 4.2: Estimated reductions in runoff, TSS concentrations and loads for six asphalt treatment scenarios

| Treatment Scenario | Runoff Reduction (%) | TSS Concentration Reduction (%) | Load Reduction (%) |
|--|-------------------------|---------------------------------|-----------------------|
| Oil Grit Separator | 0 | 50 | 50 |
| Partial Infiltration Bioretention | 45 | 80 | 89 |
| Partial Infiltration Permeable Pavement | 45 | 80 | 89 |
| Infiltration Trench with gravel inlet | 45 | 50 | 73 |
| Infiltration Trench with Oil Grit Separator | 45 | 50 | 73 |
| Enhanced Swale | 20 | 60 | 68 |

As expected, LID practices are less expensive than traditional OGS treatment when costs are denominated in terms of their water quality benefits. The capital cost of LID scenarios was between 24 and 44% lower than conventional OGS treatment. On a life cycle cost basis, these savings increase to between 35 and 77%. The cost differences relative to conventional OGS treatment would be even greater if the native soils were sandy, as this would significantly increase the volume of runoff reduced and the practices would be cheaper to construct because of lower material and installation costs (see full infiltration scenario models in chapter 3).

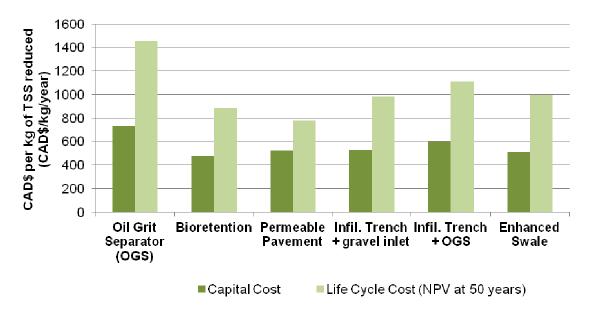


Figure 4.4: Capital and life cycle costs expressed per kilogram of total suspended solids (TSS) load reduced (see text for assumptions)

4.4 Comparison of Study Findings to Other Literature

A literature review was conducted to compare construction, maintenance and rehabilitation costs estimated in this study with those found in other studies or estimated by other models. The literature review was intended to provide an overview of key sources of LID cost information rather than a comprehensive summary of all the literature available on the topic.

Capital cost literature values are compared in the next section, followed by a comparison of maintenance and rehabilitation costs. Most literature values were converted to 2010 \$CAD and to the Toronto location using RSMeans year and location conversion factors.

In reviewing the literature, every attempt was made to select a design similar to the model designs in this study in order to provide more robust comparisons. However, in several instances this was not possible as each study/model incorporated its own unique design assumptions, and included or excluded different components from the construction cost. These differences in methodologies contributed to some of the variation in costs among studies.

4.4.1 Review of literature on LID construction costs

Capital costs of LID practices included in this study are compared with other comparable literature in Table 4.3. The comparison indicates that cost estimates of bioretention and permeable pavers from this study fall on the low end of the range suggested by literature and other models when converted to 2010 \$CAD. Differences in design and costing assumptions account for some of the discrepancy. For instance, WERF added 20% contingency to its permeable paver cost, which was not included in this study. The Olson et al (2010) estimate for permeable pavers provided in Table 4.3 is interpolated from detailed costing of 3 projects in Denver Colorado ranging in size from 324 m² to 2,671 m².

The cost of infiltration trenches in this study (without the hydrodynamic separator) appears to be on the high end of the range suggested by literature. There was no literature available for Infiltration Chambers. However, the cost of the Infiltration Chamber system (without the hydrodynamic separator) matched relatively closely to that suggested by the chamber manufacturer. The cost of the hydrodynamic separator used as a pretreatment device for the chambers and trenches was lower than the Olson et al (2010) estimate.

Cost estimates in this study for rainwater harvesting were higher than the two sources reviewed, likely due to differences in the design and/or range of costs included. Costs from the STEP (2010a) study were provided by the design engineer and did not include indoor piping. WERF had higher tank and installation costs, but lower costs for the pump and piping. Filter and top-up system costs, which accounted for over 10K in the present study did not appear to be included.

Green roof costs in this study were lower than green roof industry sources, possibly due to a lower assumed mark-up. Our costs, however, did line up with those of WERF, which takes a unit costing approach similar to ours. The TRCA survey of local green roofs installed in the GTA reported slightly lower costs, in part because many of the buildings in this survey were low rises that did not require expensive equipment to move the green roof materials (STEP, 2007).

Table 4.3: LID capital cost comparison to literature/other models. Italisized text indicates literature values are lower; bolded text indicates literature costs are higher, and normal text indicates costs are similar

| LID | Model design | Capital cost in this study | | | Literature values | | |
|-------------------------|--|----------------------------|---|-------------------------------|-----------------------------------|---------------------|--|
| Bioretention | Full Infiltration | \$32K | \$26K | \$32K | \$40K | \$44K | |
| | | | WERF 2009 | Weiss et al 2007 | Brown & Schueler 1997 | Olson et al 2010 | |
| | Partial Infiltration | \$42K | \$49K | \$55K | \$59K | \$60K | |
| | | | Weiss et al 2007 | WERF 2009 | Brown & Schueler 1997 | Olson et al 2010 | |
| | No Infiltration | \$39K | \$41K | \$49K | \$52K | \$55K | |
| | | | Weiss et al 2007 | Brown & Schueler 1997 | Olson et al 2010 | WERF 2009 | |
| Permeable | Full Infiltration | \$98K | \$55K (This only | \$99K - \$198K (This | | | |
| Pavers | Partial Infiltration | \$100K | includes paver, bedding, base & | includes 20% contingency, not | \$188K | | |
| | No Infiltration | \$110K | sub-base) | included in our estimate) | | | |
| | | | ICPI 2011 | WERF 2009 | Olson et al 2010 | | |
| Infiltration | Full Infiltration – 2000m ² | \$28K | \$14K | \$25K | | | |
| Trench | roof runoff | | Brown & Schueler 1997 | Weiss et al 2007 | | | |
| | Full Infiltration – 1500m ² parking lot + 500m ² roof runoff | \$45K | This design includes | a hydrodynamic separat | or, which is assessed below. | | |
| Infiltration | Full Infiltration – 2000m ² | \$26K | \$17K (This is lower b | ecause Stormtech is onl | y including items directly relate | ed to the chambers) | |
| Chamber | roof runoff | | Stormtech 2012 | | | | |
| | Full Infiltration – 1500m ² parking lot + 500m ² roof runoff | \$43K | Lit review not done. | This design includes a h | ydrodynamic separator, which | is assessed below. | |
| | Hydrodynamic separator | \$15K | \$4K - \$72K | \$38K | | | |
| | | | USEPA 1999 | Olson et al 2010 | | | |
| Rainwater Harvesting | Buried concrete tank | \$47K | \$23K General rule of thumb \$1/L | \$24K | | | |
| | Indoor plastic tank | \$41K | | \$21K | | | |
| | | | | WERF 2009 | | | |

| LID | Model design | Capital cost in this study | | | Literature values |
|---------------------------|---|----------------------------|---|-----------------|---|
| Green Roof (extensive) | Cheap Case (4" growing medium, sedum plugs, lower building) | \$247K | \$189K (costs are similar when design differences between studies are considered) | \$344K - \$430K | \$646K-\$754K |
| | | | WERF 2009 | Bass 2012 | Wylie 2012 |
| | Expensive Case (6" growing medium, sedum mats, higher building) | \$473K | \$316K (costs are similar when design differences between studies are considered) | | \$279 - \$397 (based on supplier estimates for the green roof system including the base roof) |
| | | | WERF 2009 | | STEP 2007 |
| | Expensive Case (no membrane, green roof only) | \$339K | | | \$238-256K based on actual green roof costs of projects in the GTA, not including the membrane. \$228K-\$360K based on supplier estimates not including the base roof) |
| | | | | | STEP 2007 |

4.4.2 Review of literature on LID maintenance and rehabilitation costs

Table 4.4 presents LID maintenance cost comparisons from various literature sources. Overall, cost estimates for maintenance provided in this study align reasonably well with literature values.

The maintenance costs for bioretention cells estimated in this study are in good agreement with most of the values from the literature or other models. None of the literature sources indicated a periodic rehabilitation cost. Incorporating the rehabilitation cost at 25 years into the annual maintenance cost would only increase it to \$1,103 per year. A 134 m² bioretention facility installed in Vaughan, Ontario in 2010 and monitored through the TRCA's Sustainable Technologies Evaluation Program had annual maintenance costs of approximately \$1200, mostly for weeding and plant maintenance (STEP, 2010b).

The annual cost estimates in this study for maintaining permeable pavers were consistent with those suggested by other literature. Higher end ranges in the literature assumed that more frequent maintenance may be required in some circumstances. Major rehabilitation costs varied among literature sources. WERF recommended removing, washing and replacing all the aggregate at a cost equal to the initial cost of installation. In the present study, it was assumed that the rehabilitation would cost only about two thirds of the initial cost because fines would be largely removed from the surface through regular cleaning, thereby preserving the integrity of the open graded base. The 2010 Olson et al study assumed rehabilitation would cost 80% of the initial installation cost, and that it would be required after only 18 years. The present study suggested a 30 year timeline for rehabilitation based on observations of the structural condition of older permeable pavement sites in the Greater Toronto Area.

Infiltration trenches and chambers were assumed to require very little maintenance if adequate pretreatment was provided based on installations monitored in Ontario (e.g. SWAMP, 2004; JF Sabourin and Associates, 2008). Hence maintenance costs for cleanout of the hydrodynamic device providing pretreatment to the infiltration trench and chamber was the primary maintenance cost for these practices. Costs for clean-out of this device agreed well with other models. The Olson et al (2010) model assumed an additional cost for replacing the hydrodynamic separator after 25 years which was deemed unnecessary in this study.

Rainwater harvesting annual maintenance costs were slightly lower than the lower end estimate by WERF. However, WERF assumed a longer replacement cost for the plastic tank. This extra replacement cost contributes significantly to the 50 year maintenance burden.

Green roof annual maintenance costs in the first two years agree well with other references (CMHC, 2003; GRHC, 2006) that consider this initial period of plant establishment to be a period of more intense maintenance. Higher end maintenance costs may be required on accessible green roofs, or roofs visible from the building windows. However, most green roofs in Ontario are not of this type. Two green roofs monitored by TRCA/STEP in the Toronto area have required very little maintenance after the first year, as plants brought to the rooftop garden by wind or animals have been allowed to thrive or replace the original plant stock.

Table 4.4: LID maintenance and rehabilitation cost comparison to literature/other models. Italisized text indicates literature values are lower; bolded text indicates literature costs are higher, and normal text indicates costs are similar

| LID | Maintenance or rehabilitation | Cost in this study | | Litera | ture values | |
|--|-------------------------------|--|--|--------------------------------------|---|---|
| Bioretention | Annual maintenance | \$945 - \$952 | 0.7% - 10.9% of construction cost Weiss et al 2005 | \$454 - \$6425 WERF 2009 | \$1182 Olson et al 2010 | 5% - 7% of construction cost USEPA, 1999 |
| | | (2%-3% of construction cost) | | | | |
| | Rehabilitation | \$7,504 after 25 years | None of the above r | references mention se | eparate rehab costs. | |
| Permeable Pavers | Annual maintenance | \$433 -\$436 | \$64 | \$130 - \$3,550 (medium is \$330) | \$450 - \$3,400 (median of \$1,900) for sediment removal only | |
| | | | Olson et al 2010 | WERF 2009 | Erickson et al 2010 | |
| | Rehabilitation | \$75K (63% - 71% of initial construction cost) | 100% of initial construction cost | 80% of initial construction cost | | |
| | | , | | every 18 years | | |
| | | after 30 years | after 25, 35 or 45 years | | | |
| | | | WERF 2009 | Olson et al 2010 | | |
| Infiltration Trench 2000m ² roof runoff | Annual maintenance | \$74 (all for sediment removal) | \$371 - \$742 for sediment removal | 5% - 20% of construction cost | 5.1% - 126.0% of construction cost | 10% - 15% of construction cost |
| | | (0.3% of construction cost) | Erickson et al 2010 | USEPA 1999 | Weiss et al 2005 | Alberta 1999 |
| 1500m ² parking lot + 500m ² roof runoff | Annual maintenance | \$1277 (all for sediment removal) | \$370 - \$740 for sediment removal | 5% - 20% of construction cost | 5.1% - 126.0% of construction cost | 10% - 15% of construction cost |
| | | | Erickson et al 2010 | USEPA 1999 | Weiss et al 2005 | Alberta 1999 |
| | | (2.8% of construction cost) | | | | |
| Infiltration Chamber | | | | | | |
| 2000m ² roof runoff | Annual maintenance | \$74 | Lit review not done. | | | |
| 1500m ² parking lot + 500m ² roof runoff | Annual maintenance | \$1212 | hydrodynamic sepa | rator below. | dynamic separator. See lit r | eview for |
| Hydrodynamic separator | Annual maintenance | \$1200 | \$420 - \$1,400 WERF 2005 | \$1,027 Olson et al 2010 | \$1,800 USEPA 1999 | |
| | Rehabilitation | assumed to last 50 | 120% of initial cos | t after 25 years | | |

| LID | ID Maintenance or rehabilitation Cost in th study | | Literature values | | | | | |
|-------------------------|---|--|-------------------------------------|---------------------------------|--|--|--|--|
| years | | years | BMP-REALCOST | 2010 | | | | |
| Rainwater Harvesting | Annual maintenance | \$744 | \$815 - \$13K | | | | | |
| | Rehabilitation | \$5970 plastic tank replacement at year 40 | WERF does not replace tank. | | | | | |
| | | | WERF 2009 | | | | | |
| Green Roof | Annual maintenance | \$1,714 - \$2,022 | | | \$2,840 - \$43,400 WERF 2009 | | | |
| | First 2 years | \$640 - \$26,620 | \$2.7 - \$44/m2 (\$5.4K - \$88K) | \$13-\$21/m2 (\$26K - \$42K) | | | | |
| | Rehabilitation | \$342K - \$617K | GRHC 2006 No lit review done | CMHC 2003 on rehab costs. | | | | |

5.0 CONCLUSIONS

This project has employed a robust and replicable methodology to compile capital and life cycle costs for a number of the most common low impact development practices. Results show the costs associated with construction, maintenance and rehabilitation of each practice. The broader public benefits and avoided infrastructure costs associated with applying the practices are not documented as these will vary depending on a range of factors specific to each site. Combining the cost data collected in this project with these more site specific considerations will help guide decisions on the type and combination of low impact development practices best suited to each site.

Model LID practice design costs documented in this study indicate that bioretention, infiltration chambers, infiltration trenches and enhanced swales are some of the least expensive practices to implement when only the practice cost itself is considered. The practice of rainwater harvesting provides added savings by reducing the cost of potable water supplies. Permeable pavements are comparably more expensive than most other practices, but in many instances these costs would be offset to some extent by a reduction in the need to pave the drainage area, since the pavements serve both as a parking surface and stormwater treatment practice. The practice also does not require as much land as some other practices, making it particularly well suited to retrofit contexts. Green roofs are by far the most expensive practice as they are installed in less accessible locations and need to be carefully engineered to protect the integrity of the building envelope. This practice is often selected because of its aesthetic, biodiversity and energy saving benefits, as well as its overall contribution to green building rating schemes, the value of which were not considered in our cost assessment. The costs and benefits of green roofs are best assessed in relation to those of conventional roofs over long time periods to capture the cost savings associated with the longer life of green roofs (see, for example, STEP, 2007).

Just as green roofs replace conventional roofs, other LID practices supplant more conventional treatment practices. An analysis of different treatment scenarios for an asphalt parking lot revealed that LID practices had comparable life cycle costs to conventional treatment using an oil grit separator (OGS). When the treatment costs of the scenarios were expressed in relation to the superior water quality benefits of LID, the life cycle costs of the LID practices were between 35 and 77% less expensive than conventional OGS treatment.

Capital and life cycle costs generated through this project have been scaled and programmed into a spreadsheet decision support tool for each practice that allows users to input site design information (e.g drainage area size and type) and alter unit costs in order to generate estimates of overall practice costs based on site specific data and considerations. This tool is available on the Sustainable Technologies Evaluation Program website at www.sustaianbletechnologies.ca.

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APPENDIX A:

Detailed Costing Tables

Table A.1: Bioretention

| Item | Item detail | RSMeans Unit Cost (2010\$CND) | Unit cost (\$CND) - other source | Units | Full Infiltration | Partial Infiltration | No Infiltration | Assumptions/Notes |
|---|--|-------------------------------------|---|--------------------|----------------------|----------------------|--------------------|---|
| Site Investigation | | | | | | | | |
| Dig test pit 1 | 80 HP backhoe (equipment) | \$24.88 | | \$/m ³ | \$29.86 | \$99.52 | \$0.00 | Test pit is 1 m x 1 m x 1.275 m, volume is 1.2 m 3 (For Full) Test pit is 1 m x 1 m x 2m and sloped 1:1 above 1.2 m depth, volume is \sim 4 m 3 (For Partial) RSMeans costs for light & heavy soil were averaged. |
| | 80 HP backhoe + 1 labourer (labour) | \$49.58 | | \$/m ³ | \$59.50 | \$198.32 | \$0.00 | |
| Dig test pit 2 | 80 HP backhoe (equipment) | \$24.88 | | \$/m ³ | \$29.86 | \$99.52 | \$0.00 | Test pit is 1 m x 1 m x 1.275 m, volume is 1.2 m³ (For Full) Test pit is 1 m x 1 m x 2m and sloped 1:1 above 1.2 m depth, volume is ~ 4 m³ (For Partial) RSMeans costs for light & heavy soil were averaged. |
| | 80 HP backhoe + 1 labourer (labour) | \$49.58 | | \$/m ³ | \$59.50 | \$198.52 | \$0.00 | |
| Infiltration tests | Double-ring infiltrometer | \$608.85 | | \$/test | \$2,435.40 | \$2,435.40 | \$0.00 | 2 infiltration tests per test pit |
| Site Preparation | | | | | | | | |
| Preconstruction meeting | Part of overhead | | | | \$0.00 | \$0.00 | \$0.00 | |
| Stakeout of utilities | | | \$500.00 | lump sum | \$500.00 | \$500.00 | \$500.00 | Assume no interfering utilities are found as a result. |
| Tree & plant protection | | | | | \$0.00 | \$0.00 | \$0.00 | Assume no trees |
| Traffic control | | | | | \$0.00 | \$0.00 | \$0.00 | Assume not required |
| Install erosion & sediment control and control drainage | 2" submersible gas pump for 3 days (incl. gas) | | \$81.15 | \$/day | \$243.45 | \$243.45 | \$0.00 | |
| | Silk sack in catchbasin | | \$65.00 | \$/unit | \$65.00 | \$65.00 | \$0.00 | |
| | Silt fence 1m around perimeter of excavation | | \$2.21 | \$/m | \$179.01 | \$191.47 | \$0.00 | |
| | Silt fence labour | | \$1.77 | \$/m | \$143.37 | \$153.35 | \$0.00 | |
| Mobilization/demobilization | | | | | \$0.00 | \$0.00 | \$0.00 | Active construction site, so all equipment on site |
| <u>Excavation</u> | | | | | | | | |
| Vegetation removal | Clearing, grubbing, haul away material | | | | \$0.00 | \$0.00 | \$0.00 | Active construction site, assume already done |
| Topsoil salvage - Stockpile & stabilize | | | | | \$0.00 | \$0.00 | \$0.00 | Assume 6" of topsoil is already removed |
| Excavation | 1.5 m ³ bucket excavator + 1 labourer (labour) | \$1.24 | | \$/Bm ³ | \$181.35 | \$330.46 | \$245.94 | Assume excavation rate of 100 Bm³/hr (188 Lm³/hr) Excavation is sloped 1:1 above 1.2 m depth |
| | 1.5 m ³ bucket excavator (equipment) | \$1.89 | | \$/Bm ³ | \$276.41 | \$503.69 | \$374.86 | |
| | Loading - 15 % of excavation cost | | | % | \$68.66 | \$125.12 | \$93.12 | |
| | Hauling in a 13.76 m ³ truck (including truck & driver) | \$172.92 | | \$/hr/truck | \$760.85 | \$1,400.65 | \$1,037.52 | Assume 20 min. cycle time to dump elsewhere on site |
| Safety fencing | 4' high fencing, 6 m around perimeter of excavation (124 m). Assume 1 week rental. | \$800.00 | | \$/week | \$800.00 | \$800.00 | \$800.00 | Includes setup & takedown |
| Material and Installation | | | | | | | | |
| Impermeable membrane | 0.762 mm HDPE liner (materials) | \$4.96 | | \$/m ² | \$0.00 | \$0.00 | \$1,602.08 | Assume membrane extends 1 m beyond edges |
| | 0.762 mm HDPE liner (labour) | \$9.32 | | \$/m ² | \$0.00 | \$0.00 | \$3,010.36 | Adjusted RSMeans labour cost of \$8.88 by +5% to \$9.32 because of the smaller quantity. |

| Item | ltem detail | RSMeans Unit Cost (2010\$CND) | Unit cost (\$CND) - other source | Units | Full Infiltration | Partial Infiltration | No Infiltration | Assumptions/Notes |
|-----------------------|--|-------------------------------------|---|-------------|----------------------|----------------------|--------------------|--|
| HDPE Piping | Underdrain 200 mm diameter, perforated (material) | | \$16.87 | \$/m | \$0.00 | \$548.28 | \$548.28 | Pipe materials used: Armtec Boss 2000, corrugated with smooth inner wall |
| | Underdrain 200 mm diameter, perforated (labour) | \$11.40 | | \$/m | \$0.00 | \$370.50 | \$370.50 | |
| | Clean out pipes, 150 mm diameter (material) | | \$9.84 | \$/m | \$0.00 | \$27.06 | \$27.06 | |
| | Clean out pipes, 150 mm diameter (labour) | \$10.86 | | \$/m | \$0.00 | \$29.87 | \$29.87 | |
| | Overflow pipe 200 mm diameter (material) | | \$15.37 | \$/m | \$19.60 | \$31.59 | \$25.36 | |
| | Overflow pipe 200 mm diameter (labour) | \$11.40 | | \$/m | \$14.54 | \$23.43 | \$18.81 | |
| | Pipe to sewer - 200 mm diameter (trenching not incl.) (material) | | \$15.37 | \$/m | \$76.85 | \$76.85 | \$76.85 | |
| | Pipe to sewer - 200 mm diameter (trenching not incl.) (labour) | \$11.40 | | \$/m | \$57.00 | \$57.00 | \$57.00 | |
| | Monitoring pipes - 150 mm diameter, perforated (material) | | \$10.94 | \$/m | \$27.90 | \$44.96 | \$0.00 | |
| | Monitoring pipes - 150 mm diameter, perforated (labour) | \$10.86 | | \$/m | \$27.69 | \$44.63 | \$0.00 | |
| | Delivery for all pipes | | \$50 to \$100 | \$/delivery | \$50.00 | \$100.00 | \$100.00 | |
| HDPE Pipe Fittings | Underdrain: 3 end caps (200 mm) | \$5.40 | | \$/unit | \$0.00 | \$16.20 | \$16.20 | |
| | Underdrain: 3 Tees (200 mm) | \$107.58 | | \$/unit | \$0.00 | \$322.74 | \$322.74 | Assume the labour for Tees are \$100 ea, labour for manhole adaptor is \$200 |
| | Cleanouts: 2 caps at surface (150 mm) | \$65.00 | | \$/unit | \$0.00 | \$130.00 | \$130.00 | |
| | Cleanouts: 2 Tees (150 mm to 200 mm) | \$107.58 | | \$/unit | \$0.00 | \$215.16 | \$215.16 | |
| | Overflow pipe: 1 inlet guard (200 mm) | \$25.00 | | \$/unit | \$25.00 | \$25.00 | \$25.00 | |
| | Overflow pipe: 1 Tee | \$107.58 | | \$/unit | \$107.58 | \$107.58 | \$107.58 | |
| | Overflow Pipe: with 1 endcap/footplate (200 mm) | \$5.40 | | \$/unit | \$5.40 | \$5.40 | \$5.40 | |
| | Pipe to sewer: 1 manhole adapter (200 mm) | \$36.38 | | \$/unit | \$36.38 | \$36.38 | \$36.38 | |
| | Monitoring pipes: 2 caps at surface (150 mm) | \$65.00 | | \$/unit | \$130.00 | \$130.00 | \$0.00 | |
| | Monitoring pipes: 2 footplates | \$5.40 | | \$/unit | \$10.80 | \$10.80 | \$0.00 | |
| Pipe fittings: Labour | Underdrain: 3 end caps (200 mm) | \$50.00 | | \$/unit | \$0.00 | \$150.00 | \$150.00 | |
| | Underdrain: 3 Tees (200 mm) | \$100.00 | | \$/unit | \$0.00 | \$300.00 | \$300.00 | |
| | Cleanouts: 2 caps at surface (150 mm) | \$50.00 | | \$/unit | \$0.00 | \$100.00 | \$100.00 | |
| | Cleanouts: 2 Tees (150 mm to 200 mm) | \$100.00 | | \$/unit | \$0.00 | \$200.00 | \$200.00 | |
| | Overflow pipe: 1 inlet guard (200 mm) | \$50.00 | | \$/unit | \$50.00 | \$50.00 | \$50.00 | |
| | Overflow pipe: 1 Tee | \$100.00 | | \$/unit | \$100.00 | \$100.00 | \$100.00 | |
| | Overflow Pipe: with 1 endcap/footplate (200 mm) | \$50.00 | | \$/unit | \$50.00 | \$50.00 | \$50.00 | |

| Item | Item detail | RSMeans Unit Cost (2010\$CND) | Unit cost (\$CND) - other source | Units | Full Infiltration | Partial Infiltration | No Infiltration | Assumptions/Notes |
|---------------------------------|---|-------------------------------------|---|--------------------|----------------------|----------------------|--------------------|---|
| | Pipe to sewer: 1 manhole adapter (200 mm) | \$200.00 | | \$/unit | \$200.00 | \$200.00 | \$200.00 | |
| | Monitoring pipes: 2 caps at surface (150 mm) | \$50.00 | | \$/unit | \$100.00 | \$100.00 | \$0.00 | |
| | Monitoring pipes: 2 footplates | \$50.00 | | \$/unit | \$100.00 | \$100.00 | \$0.00 | |
| Pipe to sewer trenching | Pipe trenching & backfill, 0.6 m wide, 1.2 m deep, no slope | \$15.59 | | \$/m | \$77.95 | \$77.95 | \$77.95 | This trench depth was chosen assuming the site is excavated already a certain amount for asphalt paving |
| | Pipe bedding, 0.6 m wide | \$13.18 | | \$/m | \$65.90 | \$65.90 | \$65.90 | |
| Stone | 50 mm clear | | \$36.00 | \$/Cm ³ | \$0.00 | \$3,182.40 | \$1,287.00 | |
| | 1.5 m ³ bucket excavator + 1 labourer (labour) | \$1.24 | | \$/m ³ | \$0.00 | \$109.62 | \$44.33 | Assumed cost is similar to cost of excavation (100 m³/hr) |
| | 1.5 m ³ bucket excavator (equipment) | \$1.89 | | \$/m ³ | \$0.00 | \$167.08 | \$67.57 | |
| Pea Gravel | Material | \$56.10 | | \$/m ³ | \$0.00 | \$729.30 | \$729.30 | |
| | 1.5 m ³ bucket excavator + 1 labourer (labour) | \$1.24 | | \$/m ³ | \$0.00 | \$16.12 | \$16.12 | |
| | 1.5 m ³ bucket excavator (equipment) | \$1.89 | | \$/m ³ | \$0.00 | \$24.57 | \$24.57 | |
| | Level by hand | \$1.56 | | \$/m ² | \$0.00 | \$202.80 | \$202.80 | |
| Geotextile | Material | \$3.10 | | \$/m ² | \$24.80 | \$145.70 | \$139.50 | |
| | Labour | \$0.40 | | \$/m ² | \$3.20 | \$18.80 | \$18.00 | |
| Filter media | Gro-Bark (material) | | \$41.40 | \$/Lm ³ | \$6,727.50 | \$6,727.50 | \$6,727.50 | |
| | 1.5 m ³ bucket excavator + 1 labourer (labour) | \$1.24 | | \$/Cm ³ | \$161.20 | \$161.20 | \$161.20 | Assumed cost is similar to cost of excavation (100 m³/hr) |
| | 1.5 m ³ bucket excavator (equipment) | \$1.89 | | \$/Cm ³ | \$245.70 | \$245.70 | \$245.70 | |
| | Delivery | \$900.00 | | \$/delivery | \$900.00 | \$900.00 | \$900.00 | |
| Backfill sides of excavation | 80 HP dozer + 0.5 labourer (labour) | \$1.02 | | \$/Lm ³ | \$0.00 | \$26.72 | \$4.69 | Assume swell factor of 25% and compaction factor of 0.9 (US Army 2000*) |
| | 80 HP dozer (equipment) | \$0.66 | | \$/Lm ³ | \$0.00 | \$17.29 | \$3.04 | |
| Curbs & gutter with curb inlets | 150 mm high curb, 150 mm thick gutter & 600 mm wide | \$88.35 | | \$/m | \$6,449.55 | \$6,449.55 | \$6,449.55 | Assume cost is same with or without inlets |
| | Labour | \$26.26 | | \$/m | \$1,916.98 | \$1,916.98 | \$1,916.98 | |
| Vegetation | Mixture of Shrubs, grasses & broadleaf/herb. Includes delivery and labour | \$50.20 | | \$/m² | \$4,367.40 | \$4,367.40 | \$4,367.40 | Assume vegetation covers 2/3 of cell area = 87 m ² Assume 50% shrub, 40% grasses, 10% broadleaf/herb. |
| Wood mulch | 75 mm deep (material) | \$2.72 | | \$/m ² | \$337.28 | \$337.28 | \$337.28 | 130 m ² area minus 6 m ² stone inlets |
| | Labour | \$5.18 | | \$/m ² | \$642.32 | \$642.32 | \$642.32 | |
| Stone inlets | 50 mm clear (material) | | \$36.00 | \$/Cm ³ | \$21.60 | \$21.60 | \$21.60 | Assume 50 mm clear, 100 mm deep. Area = 0.5 m ² x 12 inlets = 6 m ² . Vol = 6 m ² x 100 mm = 0.6 m ³ . |
| | Spread by hand (labour) | \$173.11 | | \$/m ³ | \$103.87 | \$103.87 | \$103.87 | |
| SUBTOTAL | | | | | \$29,066 | \$37,706 | \$35,480 | |
| <u>Fees</u> | | | | | | | | |
| Project Overhead | | 10% | | % of subtotal | \$2,906.62 | \$3,770.55 | \$3,548.02 | |
| TOTAL | | | | | \$31,973 | \$41,476 | \$39,028 | |

 Table A2. Permeable pavement

| ltem | Item detail | RSMeans Unit Cost (2010\$CND) | Unit cost (2010\$CND) - other source | Units | Full Infiltration | Partial Infiltration | No Infiltration | Assumptions/Notes |
|-------------------------------|---|-------------------------------------|--|--------------------|----------------------|-------------------------|--------------------|--|
| Site Investigation | | | | | | | | |
| Dig test pit 1 | 80 HP backhoe (equipment) | \$24.88 | | \$/m ³ | \$10.70 | \$10.70 | \$0.00 | Assume test pit is 1 m x 1 m x 430 mm. RSMeans costs for light & heavy soil were averaged. |
| | 80 HP backhoe + 1 labourer (labour) | \$49.58 | | \$/m ³ | \$21.32 | \$21.32 | \$0.00 | |
| Dig test pit 2 | 80 HP backhoe (equipment) | \$24.88 | | \$/m ³ | \$10.70 | \$10.70 | \$0.00 | |
| | 80 HP backhoe + 1 labourer (labour) | \$49.58 | | \$/m ³ | \$21.32 | \$21.32 | \$0.00 | |
| Infiltration tests | | \$608.85 | | \$/test | \$2,435.40 | \$2,435.40 | \$0.00 | 2 infiltration tests per test pit. |
| Soil strength testing | | | | | \$0.00 | \$0.00 | \$0.00 | Not costed; assumed geotech tests done previously |
| Soil quality testing | | | | | \$0.00 | \$0.00 | \$0.00 | Not costed; assumed soil dumped elsewhere on site |
| Site Preparation | | | | | | | | |
| Pre-construction meeting | Part of overhead | | | | \$0.00 | \$0.00 | \$0.00 | |
| Stakeout of utilities | | | \$500.00 | lump sum | \$500.00 | \$500.00 | \$500.00 | |
| Erosion and sediment controls | 8" dia. FilterSoxx along 60 m edge along asphalt | | \$10.00 | \$/m | \$600.00 | \$600.00 | \$0.00 | Assume items already on site, labour negligible |
| Mobilization/demobilization | | | | | \$0.00 | \$0.00 | \$0.00 | Active construction site, so all equipment on site |
| Excavation | | | | | | | | |
| Vegetation removal | Clearing, grubbing, haul away material | | | | \$0.00 | \$0.00 | \$0.00 | Active construction site, assume already done |
| Topsoil salvage, haul to | 6" removed, 60 m travel to stockpile, 200 HP dozer + 0.5 labourer (labour) | \$1.15 | | \$/m ³ | \$175.26 | \$175.26 | \$175.26 | |
| stockpile | 6" removed, 60 m travel to stockpile, 200 HP dozer (equipment) | \$2.06 | | \$/m ³ | \$313.94 | \$313.94 | \$313.94 | Assumed this equipment is not too heavy |
| | 1.5 m³ bucket excavator + 1 labourer, productivity 100 Bm³/hr (labour) | \$1.24 | | \$/Bm³ | \$347.20 | \$347.20 | \$347.20 | Assumed 100 Bm ³ /hr as for Bioretention excavation. Assumed 6" of topsoil has already been removed, so do not need to excavate full depth. |
| Excavate | 1.5 m ³ bucket excavator, productivity 100 Bm ³ /hr (equipment) | \$1.89 | | \$/Bm ³ | \$529.20 | \$529.20 | \$529.20 | |
| | Loading - 15% of excavation cost | | | % | \$131.46 | \$131.46 | \$131.46 | |
| | Hauling in a 13.76 m ³ truck (including truck & driver) | \$172.92 | | \$/hr | \$1,466.36 | \$1,466.19 | 1466.36 | Assumed swell factor of 25%, cycle time of 20 min. |
| | 30,000 lb grader + 25T vibratory roller + 1 labourer (labour) | \$1.16 | | \$/m ² | \$1,160.00 | \$1,160.00 | \$1,160.00 | Assumed this equipment is not too heavy |
| Compaction of native soil | 30,000 lb grader + 25T vibratory roller (equipment) | \$1.14 | | \$/m ² | \$1,140.00 | \$1,140.00 | \$1,140.00 | |
| | Proctor test | \$149.45 | | \$/test | \$149.45 | \$149.45 | \$149.45 | 1 test required |
| | Nuclear density test | \$42.81 | | \$/test | \$171.24 | \$171.24 | \$171.24 | Average of 4 tests required - test is done to check compaction. |
| Materials and Installation | | | | | | | | |
| | 0.762 mm HDPE liner (materials) | \$4.96 | | \$/m ² | \$0.00 | \$0.00 | \$5,720.86 | Assume membrane extends 0.57 m beyond edges |
| Impermeable membrane | 0.762 mm HDPE liner - 3 skilled workers (labour) | \$9.32 | | \$/m ² | \$0.00 | \$0.00 | \$10,745.96 | |
| Contoutile | Polypropylene filtration fabric (materials) | \$3.10 | | \$/m ² | \$3,100.00 | \$3,100.00 | \$0.00 | |
| Geotextile | Polypropylene filtration fabric - 2 labourers | \$0.40 | | \$/m ² | \$400.00 | \$400.00 | \$0.00 | |
| | · · | | | | | 1 | 1 | |

| ltem | Item detail | RSMeans Unit Cost (2010\$CND) | Unit cost (2010\$CND) - other source | Units | Full Infiltration | Partial Infiltration | No Infiltration | Assumptions/Notes |
|-----------------------|--|-------------------------------------|--|-------------------|----------------------|-------------------------|--------------------|--|
| | (labour) | | | | | | | |
| | Underdrain, 150 mm diameter perforated pipe (materials) | | \$10.94 | \$/m | \$0.00 | \$176.13 | \$176.13 | Piping materials used: HDPE Armtec Boss 2000 pipe |
| | Underdrain, 150 mm diameter perforated pipe (labour) | \$10.86 | | \$/m | \$0.00 | \$174.85 | \$174.85 | |
| | Clean out pipes, 100 mm diameter pipe (materials) | | \$4.79 | \$/m | \$0.00 | \$1.10 | \$1.34 | |
| | Clean out pipes, 100 mm diameter pipe (labour) | \$10.19 | | \$/m | \$0.00 | \$2.34 | \$2.85 | |
| HDPE Piping | Pipe to catchbasin, 150 mm diameter pipe (materials) | | \$9.84 | \$/m | \$0.00 | \$4.92 | \$4.92 | |
| | Pipe to catchbasin, 150 mm diameter pipe (labour) | \$10.86 | | \$/m | \$0.00 | \$5.43 | \$5.43 | |
| | Monitoring pipes, 150 mm diameter, perforated pipe (materials) | | \$10.94 | \$/m | \$4.70 | \$4.70 | \$0.00 | |
| | Monitoring pipes, 150 mm diameter, perforated pipe (labour) | \$10.86 | | \$/m | \$4.67 | \$4.67 | \$0.00 | |
| | Delivery (total for all pipe) | | \$50.00 | n/a | \$0.00 | \$50.00 | \$50.00 | Assume delivery negligible |
| | Underdrain 150 mm end cap (materials) | | \$2.92 | \$/ea. | \$0.00 | \$2.92 | \$2.92 | |
| | Underdrain 150 mm end cap (labour) | \$50.00 | | \$/ea. | \$0.00 | \$50.00 | \$50.00 | From looking at RSMeans, assumed \$50 for simplicity |
| | Underdrain 150 mm coupler (materials) | | \$1.50 | \$/ea. | \$0.00 | \$1.50 | \$1.50 | |
| | Underdrain 150 mm coupler (labour) | \$50.00 | | \$/ea. | \$0.00 | \$50.00 | \$50.00 | From looking at RSMeans, assumed \$50 for simplicity |
| | Clean-out 100 mm surface cap (materials) | | \$65.00 | \$/ea. | \$0.00 | \$65.00 | \$65.00 | Cast iron cap, assumed to be suitable as a surface cap. |
| | Clean-out 100 mm surface cap (labour) | \$50.00 | | \$/ea. | \$0.00 | \$50.00 | \$50.00 | From looking at RSMeans, assumed \$50 for simplicity |
| | Clean-out tee, 100 - 150 mm (materials) | | \$111.65 | \$/ea. | \$0.00 | \$111.65 | \$111.65 | |
| Pipe fittings | Clean-out tee, 100 - 150 mm (labour) | \$100.00 | | \$/ea. | \$0.00 | \$100.00 | \$100.00 | Assumed \$100 from RSMeans cost of \$189 for a 300 mm tee. |
| | Manhole adapter for pipe to catchbasin, 150 mm (materials) | | \$27.58 | \$/ea. | \$0.00 | \$27.58 | \$27.58 | |
| | Manhole adapter for pipe to catchbasin, 150 mm (labour) | | \$200.00 | \$/ea. | \$0.00 | \$200.00 | \$200.00 | |
| | Monitoring pipe 150 mm surface cap (materials) | | \$65.00 | \$/ea. | \$65.00 | \$65.00 | \$0.00 | |
| | Monitoring pipe 150 mm surface cap (labour) | \$50.00 | | \$/ea. | \$50.00 | \$50.00 | \$0.00 | From looking at RSMeans, assumed \$50 for simplicity |
| | Monitoring pipe footplate (materials) | | \$2.92 | \$/ea. | \$2.92 | \$2.92 | \$0.00 | Assumed same cost as an end-cap |
| | Monitoring pipe footplate (labour) | \$50.00 | | \$/ea. | \$50.00 | \$50.00 | \$0.00 | From looking at RSMeans, assumed \$50 for simplicity |
| Flow restrictor | Canpipe 4" ball valve (materials) | | \$93.90 | \$/ea. | \$0.00 | \$93.90 | \$0.00 | |
| Flow restrictor | Canpipe 4" ball valve (labour) | \$50.00 | | \$/ea. | \$0.00 | \$50.00 | \$0.00 | From looking at RSMeans, assumed \$50 for simplicity |
| | 50 mm clear limestone (materials) | | \$36.00 | \$/m ³ | \$7,200.00 | \$7,200.00 | \$7,200.00 | |
| Sub-base, 200 mm deep | 30,000 lb grader, 1.5 cy front-end loader, 300 HP dozer, 25 T vibratory roller, truck tractor & water tank trailer + 1 labour foreman + 2 labourers (labour) | \$1.00 | | \$/m² | \$1,000.00 | \$1,000.00 | \$1,000.00 | Assume equip not too heavy. These RSMeans costs are for 40 mm stone. Assume costs for 50 mm stone is same. |
| | 30,000 lb grader, 1.5 cy front-end loader, 300 | \$1.29 | | \$/m ² | \$1,290.00 | \$1,290.00 | \$1,290.00 | |

| ltem | Item detail | RSMeans Unit Cost (2010\$CND) | Unit cost (2010\$CND) - other source | Units | Full Infiltration | Partial Infiltration | No Infiltration | Assumptions/Notes |
|---------------------------------------|---|-------------------------------------|--|----------------------|----------------------|-------------------------|--------------------|---|
| | HP dozer, 25 T vibratory roller, truck tractor & water tank trailer (equipment) | | | | | | | |
| | 19 mm clear limestone (materials) | | \$37.00 | \$/m ³ | \$3,700.00 | \$3,700.00 | \$3,700.00 | |
| Base, 100 mm deep | 30,000 lb grader, 300 HP dozer, 25 T vibratory roller, truck tractor & water tank trailer + 1 labour foreman (labour) | \$0.58 | | \$/m ² | \$580.00 | \$580.00 | \$580.00 | Assume equipment not too heavy |
| | 30,000 lb grader, 300 HP dozer, 25 T vibratory roller, truck tractor & water tank trailer (equipment) | \$1.01 | | \$/m ² | \$1,010.00 | \$1,010.00 | \$1,010.00 | Assume equipment not too heavy |
| Compaction test | Nuclear density test | \$42.81 | | \$/test | \$85.62 | \$85.62 | \$85.62 | Assume 2 tests |
| | 150 mm wide, 450 mm deep, cast-in-place (materials) | \$40.64 | | \$/m | \$2,438.40 | \$2,438.40 | \$2,438.40 | Assume 450 mm is sufficient to extend to the sub- base of adjacent asphalt pavement. |
| Concrete curb along 1 edge | 150 mm wide, 450 mm deep, cast-in-place - 1 carpenter foreman, 4 carpenters, 1 labourer (labour) | \$19.69 | | \$/m | \$1,181.40 | \$1,181.40 | \$1,181.40 | |
| | Snapedge® (materials) | | \$4.76 | \$/m | \$444.58 | \$444.58 | \$444.58 | Delivery negligible because the product is very light and can be transported with the pavers. |
| Plastic edge restraints along 3 edges | Snapedge® spikes (materials) | | \$1.03 | \$/m | \$96.20 | \$96.20 | \$96.20 | Need 5 spikes per 8 ft (2.44 m) of Snapedge. Spikes are \$0.50 each. |
| | Snapedge® (labour) | | \$1.80 | \$/m | \$168.12 | \$168.12 | \$168.12 | \$52.73/hr wage, 29.3 m can be installed per hour. Installation speed (96 ft/hr) |
| | 80 mm interlocking pavers (materials) | | \$31.56 | \$/m ² | \$31,560.00 | \$31,560.00 | \$31,560.00 | Source is average of five prices |
| Bedding & Pavers | Pavers (labour + equip only) and bedding including 50 mm layer and enough for void filling (materials, labour, equipment) | | \$25.30 | \$/m ² | \$25,300.00 | \$25,300.00 | \$25,300.00 | Machine installation of pavers. Price is an average of range provided (\$21.30-\$29.30) for union labour. |
| Striping | | \$0.46 | | \$/m | \$460.00 | \$460.00 | \$460.00 | |
| SUBTOTAL | | | | | \$89,375 | \$90,592 | \$100,139 | |
| <u>Fees</u> | | | | | | | | |
| Project overhead | | 10.00% | | % of sub total | \$8,937.52 | \$9,059.23 | \$10,013.94 | |
| TOTAL | | | | | \$98,313 | \$99,652 | \$110,153 | |

Table A3: Infiltration trenches

| ltem | ltem detail | RSMeans Unit Cost (2010\$CND) | Unit cost - other source (\$CND) | Units | Roof Only | Road & Roof | Assumptions/Notes |
|------------------------------------|---|-------------------------------------|--|----------------------|--------------|----------------|---|
| Site Investigation | | | | | | | |
| Dig test pit 1 | 80 HP backhoe (equipment) | \$24.88 | | \$/m ³ | \$299.13 | \$299.13 | Assume test pit is 1m x 1m, 2.72m deep, & sloped 1:1 above 1.2m depth. RSMeans costs for light & heavy soil were averaged. |
| | 80 HP backhoe + 1 labourer (labour) | \$49.58 | | \$/m ³ | \$596.10 | \$596.10 | |
| Die teet eit 2 | 80 HP backhoe (equipment) | \$24.88 | | \$/m ³ | \$299.13 | \$299.13 | |
| Dig test pit 2 | 80 HP backhoe + 1 labourer (labour) | \$49.58 | | \$/m ³ | \$596.10 | \$596.10 | |
| Infiltration tests | Double-ring infiltrometer | \$608.85 | | \$/test | \$2,435.40 | \$2,435.40 | 2 infiltration tests per test pit |
| Soil strength testing | | | | | | | Not costed; assumed geotech tests done previously |
| Soil quality testing | | | | | | | Not costed; assumed soil dumped elsewhere on site. |
| Site Preparation | | | | | | | |
| Pre-construction meeting | Part of overhead | | | | | | |
| Stakeout of utilities | Assume no interfering utilities found as a result | | \$500.00 | lump sum | \$500.00 | \$500.00 | |
| Erosion and sediment controls | Silt fence (material) | \$2.21 | | \$/m | \$112.71 | \$112.71 | Silt fence along one edge ~ 51 m (decided by Mariko Uda, similar to approach with Infiltration Chamber) |
| | 2 labourers | \$1.77 | | \$/m | \$90.27 | \$90.27 | |
| Mobilization/demobilization | | | | | \$0.00 | \$0.00 | Active construction site, so all equipment on site |
| <u>Excavation</u> | | | | | | | |
| Vegetation removal | Clearing, grubbing, haul away material | | | | \$0.00 | \$0.00 | Active construction site, assume already done |
| Topsoil salvage, haul to stockpile | 200 HP dozer (equipment) | \$2.06 | | \$/m ³ | \$31.93 | \$31.93 | 6" removed, 60 m travel to stockpile. 101.76 m ² x 152 mm = 15.5 m ³ |
| | 200 HP dozer + 0.5 labourer (labour) | \$1.15 | | \$/m ³ | \$17.83 | \$17.83 | |
| | Trench 2-3 m deep with trench box; 1.9 m ³ bucket excavator (equipment) | \$3.01 | | \$/Bm ³ | \$787.12 | \$787.12 | Use a trench box. Assumed common earth. 1.9 m³ bucket was used. Depth is 2.57m (2.72 m - 0.15 m topsoil already removed). Therefore vol = 2.57m x 101.76 m² = 261.5 m³ |
| | Trench 2-3 m deep with trench box; 1.9 m ³ bucket excavator + 1 labourer (labour) | \$1.39 | | \$/Bm ³ | \$363.49 | \$363.49 | |
| Excavate trench with trench box | Loading - 15% of excavation cost | | | % | \$172.59 | \$172.59 | |
| | Hauling in a 13.76 m ³ truck (includes driver) | \$172.92 | | \$/hr | \$1,017.39 | \$1,017.39 | Assumed some soil not hauled away (used later for backfill). Assumed swell factor of 25% and 20 min. cycle time to dump elsewhere on site. Assumed 13.76 m³ truck size. Backfill (trench) = 660 mm x 2 m x 50.88 m = 67.162 Bm³, Therefore vol to haul away = 261.5 Bm³ - 67.2 Bm³ = 194.3 Bm³. |
| Level subgrade | Assume this can be done as part of excavation step, as assumed with Infiltration Chambers | | | | | | |
| Safety fencing | 4' high, 1 week rental, including setup & takedown | | \$251.75 | lump sum | \$251.75 | \$251.75 | Assume 1m length of excavation left open (hole of 1 m x 2 m). Put a safety fence 1 m around it, total 14 m. |
| Materials and Installation | | | | | | | |
| | Precast concrete, 4' dia, 6' deep (includes excavation of 34.2 Bm³, formed concrete footing, frame & cover, steps, compacted backfill) (material) | \$2,837.00 | | lump sum | \$2,837.00 | \$2,837.00 | |
| | Labour & equipment | \$2,354.00 | | lump sum | \$2,354.00 | \$2,354.00 | |
| Manhole | Loading excavated soil | 15% | | % of excavation cost | \$53.10 | \$53.10 | Used 15% of RSMeans cost for 4' dia., 8' deep manhole includes an excavation cost of \$354 to excavate 34.2 Bm ³ |
| | Hauling in a 13.76 m ³ truck (includes driver) | \$172.92 | | \$/hr | \$179.08 | \$179.08 | Assumed swell factor of 25% (*US Army 2000) and 20 min. cycle time to dump elsewhere on site. Assume all 34.2 Bm ³ excavated is hauled away |
| Geotextile - bottom, sides & top | Polypropylene filtration fabric (materials) | \$3.10 | | \$/m ² | \$1,162.50 | \$1,162.50 | Assumed this RSMeans line is suitable. Area = 101.8 m ² (top + 101.8 m ² (bottom) + [2 sides x (50.88 m x 1.62 m deep)] + [2 |

| Item | ltem detail | RSMeans Unit Cost (2010\$CND) | Unit cost - other source (\$CND) | Units | Roof Only | Road & Roof | Assumptions/Notes |
|---|--|-------------------------------------|--|----------------------|--------------|----------------|--|
| | | , | \. | | | | ends x (2 m x 1.62 m deep)] = 375 m ² total area. |
| | 2 labourers | \$0.40 | | \$/m ² | \$150.00 | \$150.00 | |
| | Downstream Defender - 4' wide (material + delivery) | | \$12,000.00 | lump sum | \$0.00 | \$12,000.00 | |
| Hydrodynamic Separator | Assume installation cost is roughly similar to that of 4' dia., 10' deep precast manhole in RSMeans that includes 47.9 Bm³ excavation (labour & equipment) | \$2,883.00 | | lump sum | \$0.00 | \$2,883.00 | |
| | Loading excavated soil | 15% | | % of excavation cost | \$0.00 | \$432.45 | |
| | Hauling in a 13.76 m ³ truck (includes driver) | \$172.92 | | \$/hr | \$0.00 | \$250.81 | Assumed swell factor of 25% (*US Army 2000) and 20 min. cycle time to dump elsewhere on site. Assume all 47.9 Bm ³ excavated is hauled away |
| Pipe from separator to manhole - 2 m long trench | Trenching, common earth, no slope, 2' wide, 6' deep; 3/8 cy bucket hydraulic track-mounted backhoe, backfill, compaction, removal of spoil by truck; the backfill has been reduced to take into account pipe of suitable size & bedding (labour) | \$15.12 | | m | \$0.00 | \$30.24 | |
| | Equipment | \$5.58 | | m | \$0.00 | \$11.16 | |
| Pipe from separator to manhole - | Armtec Boss 2000 solid pipe, 300 mm dia. (material) | | \$22.81 | m | \$0.00 | \$45.62 | |
| attach 300 mm pipe to both separator & manhole | Armtec Boss 2000 solid pipe, 300 mm manhole adaptor (material) | | \$46.00 | ea. | \$0.00 | \$46.00 | |
| | Labour | | \$200.00 | ea. | \$0.00 | \$400.00 | Assume cost is similar to attaching pipe to separator |
| Pipe from separator to manhole - pipe bedding | Pipe bedding, side slope 0 to 1, 2' wide, pipe size 10" dia., compacted sand for bedding & 12" above pipe; pipe, trench, backfill not included (material) | \$8.22 | | m | \$0.00 | \$16.44 | |
| | Labour & equipment | \$5.10 | | m | \$0.00 | \$10.20 | |
| Attachment for pipe from parking lot to separator (do not cost pipe/trench, just cost out the attachment) | Labour | | \$200.00 | ea | \$0.00 | \$200.00 | Assume cost is similar to attaching pipe to a separator |
| Attachment for pipe from roof to control manhole (do not cost | Armtec Boss 2000 solid pipe, 200 or 300 mm manhole adaptor (material) | | \$42.08 | ea | \$42.08 | \$42.08 | Assume close to cost of 250 mm adaptor (\$42.08). |
| pipe/trench, just cost out the attachment) | Labour | | \$200.00 | ea | \$200.00 | \$200.00 | |
| Attach overflow pipe to control manhole (do not cost pipe/trench, just cost out the attachment) | Armtec Boss 2000 solid pipe, 300 mm manhole adaptor (material) | | \$46.00 | ea | \$46.00 | \$46.00 | |
| cost out the attachment) | Labour | | \$200.00 | ea | \$200.00 | \$200.00 | |
| | Armtec Boss 2000 solid pipe, 300 mm dia. (material) | | \$22.81 | m | \$6.84 | \$6.84 | |
| Inlet pipe - attach pipe to both control manhole & perforated pipe | Armtec Boss 2000 300 mm manhole adaptor (material) | | \$46.00 | ea | \$46.00 | \$46.00 | |
| | Labour to attach pipe to manhole | | \$200.00 | ea | \$200.00 | \$200.00 | |
| | Labour to attach pipe to perforated pipe | | \$50.00 | ea | \$50.00 | \$50.00 | |
| | Armtec Boss 2000 perforated pipe, 300 mm dia. (material) | | \$23.75 | m | \$1,194.15 | \$1,194.15 | Assumed length of pipe is 2' (0.6m) less than length of trench. |
| Perforated pipe | Installation of storm drainage piping, HDPE, 300 mm dia.; 1 foreman, 1 skilled labourer, 1 labourer (labour) | \$12.52 | | m | \$629.51 | \$629.51 | |
| | Armtec Boss 2000 end cap, belled (300 mm) (material) | | \$11.46 | ea | \$11.46 | \$11.46 | |

| ltem | Item detail | RSMeans Unit Cost (2010\$CND) | Unit cost - other source (\$CND) | Units | Roof Only | Road & Roof | Assumptions/Notes |
|---|--|-------------------------------------|--|--------------------|--------------|----------------|---|
| | Labour | | \$50.00 | ea | \$50.00 | \$50.00 | |
| Line inside of pipe with filter cloth & | Assume polypropylene filtration fabric (materials) | \$3.10 | | \$/m ² | \$148.80 | \$148.80 | Assumed this RSMeans line is suitable. Area = 50.58 m (length) x $3.14 \times 0.3 \text{ m} = 48 \text{ m}^2$. |
| expandable rings | Labour | \$50.00 | | hr | \$200.00 | \$200.00 | Assume 2 labourers, 2 hours |
| | Armtec Boss 2000 perforated pipe, 150 mm dia. (material) | | \$10.94 | m | \$59.51 | \$59.51 | |
| | Installation of storm drainage piping, HDPE, 150 mm dia.; 1 foreman, 1 skilled labourer, 1 labourer (labour) | \$10.86 | | m | \$59.08 | \$59.08 | Each monitoring well is 2.72 m deep. There are 2 wells. |
| Monitoring wells | Cast iron cap (assume these can be used for caps at surface) | | \$65.00 | ea | \$130.00 | \$130.00 | |
| | Labour | | \$50.00 | ea | \$100.00 | \$100.00 | |
| | Footplate - assume we can use Armtec Boss 2000 endcap, 150 mm dia., although this may be an underestimate. | | \$2.92 | ea | \$5.84 | \$5.84 | |
| | Labour | | \$50.00 | ea | \$100.00 | \$100.00 | |
| 50 mm stone | 50 mm clear limestone (materials) | | \$36.00 | \$/Cm ³ | \$5,806.80 | \$5,806.80 | Calculated volume as follows: total vol = 101.8 m^2 area x 1.62 m depth = 164.9 m^3 , vol of pipe = $\pi(0.15 \text{ m})(0.15 \text{ m}) \times 50.28 \text{ m} = 3.6 \text{ m}^3$; thus, vol of stone req'd = $164.9 \text{ m}^3 - 3.6 \text{ m}^3 = 161.3 \text{ m}^3$. |
| 30 mm stone | 1.5 m ³ excavator + 1 labourer (labour) | \$1.23 | | \$/Bm ³ | \$198.40 | \$198.40 | Assumed cost to place stone is similar to that of excavating soil (100 Bm ³ /hr). |
| | 1.5 m ³ excavator | \$1.88 | | \$/Bm ³ | \$303.24 | \$303.24 | |
| Compact stone | 21" wide walk-behind vibrating plate compactor, 2 passes, 12" lifts (equipment) | \$0.11 | | \$/Em ³ | \$17.74 | \$17.74 | 2 passes fine for light compaction and that with this stone hardly need compaction. |
| Compact stone | 21" wide walk-behind vibrating plate compactor, 2 passes, 12" lifts; 1 labourer (labour) | \$1.01 | | \$/Em ³ | \$162.91 | \$162.91 | |
| Place fill | 1.5 m ³ excavator + 1 labourer (labour) | \$1.23 | | \$/Bm ³ | \$93.97 | \$93.97 | Assumed cost to place fill is similar to that of excavating soil (100 Bm 3 /hr). volume = 101.8 m 2 x 0.750 m = 76.4 m 3 . |
| | 1.5 m ³ excavator | \$1.88 | | \$/Bm ³ | \$143.63 | \$143.63 | |
| | Compact in 200 mm lifts with vibrating plate compactor (labour) | \$2.83 | | \$/Cm ³ | \$216.21 | \$216.21 | Assume same cost whether compacted in 200 or 150 mm lifts. |
| Compact fill in 6" lifts to 95% Proctor | Equipment | \$0.25 | | \$/Cm ³ | \$19.10 | \$19.10 | |
| density | Proctor test | \$149.45 | | \$/test | \$149.45 | \$149.45 | 1 test required |
| | Nuclear density test | \$42.81 | | \$/test | \$171.24 | \$171.24 | |
| SUBTOTAL | | | | | \$25,069 | \$41,395 | |
| <u>Fees</u> | | | | | | | |
| Project Overhead | | 10.00% | | % of sub total | \$2,506.86 | \$4,139.45 | |
| TOTAL | | | | | \$27,575 | \$45,534 | |

Table A4: Infiltration chambers

| ltem | Item detail | RSMeans Unit Cost (2010\$CND) | Unit cost (CND) - other source | Units | Roof Only | Road & Roof | Assumptions/Notes |
|------------------------------------|--|-------------------------------------|--------------------------------------|--------------------|--------------|----------------|--|
| Site Investigation | | | | | | | |
| Dig test pit 1 | 80 HP backhoe (equipment) | \$24.88 | | \$/m ³ | \$69.66 | \$69.66 | Assume test pit is 1 m x 1 m, 1.8 m deep, & sloped 1:1 above 1.2 m depth. RSMeans costs for light & heavy soil were averaged. |
| | 80 HP backhoe + 1 labourer (labour) | \$49.58 | | \$/m ³ | \$138.82 | \$138.82 | |
| Di- 111-0 | 80 HP backhoe (equipment) | \$24.88 | | \$/m ³ | \$69.66 | \$69.66 | |
| Dig test pit 2 | 80 HP backhoe + 1 labourer (labour) | \$49.58 | | \$/m ³ | \$138.82 | \$138.82 | |
| Infiltration tests | Double-ring infiltrometer | \$608.85 | | \$/test | \$2,435.40 | \$2,435.40 | 2 infiltration tests per test pit |
| Soil strength testing | | | | | | | Not costed; assumed geotech tests done previously |
| Soil quality testing | | | | | | | Not costed; assumed soil dumped elsewhere on site |
| Site Preparation | | | | | | | |
| Pre-construction meeting | Part of Overhead | | | | \$0.00 | \$0.00 | |
| Stakeout of utilities | Assume no interfering utilities found as a result | | \$500.00 | lump sum | \$500.00 | \$500.00 | |
| Erosion and sediment controls | | \$2.21 | | \$/m | \$26.52 | \$26.52 | Silt fence along one edge ~ 12 m (decided by Mariko Uda & Lisa Rocha) |
| | 2 labourers | \$1.77 | | \$/m | \$21.24 | \$21.24 | |
| Mobilization/demobilization | Active construction site, so all equipment on site | | | | \$0.00 | \$0.00 | |
| <u>Excavation</u> | | | | | | | |
| Vegetation removal | Clearing, grubbing, haul away material | | | | \$0.00 | \$0.00 | Active construction site, assume already done |
| | 200 HP dozer + 0.5 labourer (labour) | \$1.15 | | \$/m ³ | \$18.29 | \$18.29 | 6" removed, 60 m travel to stockpile |
| Topsoil salvage, haul to stockpile | 200 HP dozer (equipment) | \$2.06 | | \$/m ³ | \$32.75 | \$32.75 | 6" removed, 60 m travel to stockpile |
| | 1.5 m ³ bucket excavator + 1 labourer (labour) | \$1.23 | | \$/Bm³ | \$223.86 | \$223.86 | Assumed common earth, 100 Bm³/hr (interpolated in RSMeans), that depth is 1.65 m (1.8 m - 0.15 m topsoil already removed), that excavation is sloped 1:1 above 1.2 m depth. |
| | 1.5 m ³ bucket excavator (equipment) | \$1.88 | | \$/Bm ³ | \$342.16 | \$342.16 | • |
| Excavate | Loading - 15% of excavation cost | | | % | \$84.90 | \$84.90 | |
| | Hauling in a 13.76 m ³ truck (includes driver) | \$172.92 | | \$/hr | \$788.57 | \$788.57 | Assumed swell factor of 25%*, assumed 20 min. cycle time to dump elsewhere on site. Assumed volume to haul away is excavated volume (182 Bm³) minus volume to be reused as fill (300 mm x 104.7 m² = 31.4 Bm³). So, haul away 150.6 Bm³. |
| Level subgrade | Can be done as part of excavation step. | | | | \$0.00 | \$0.00 | |
| Safety fencing | 4' high, 1 week rental, including setup & takedown). | \$650.00 | | lumpsum | \$650.00 | \$650.00 | Assume 6 m around perimeter of excavation -> total 89 m |
| Materials and Installation | | | | | | | |
| | Precast concrete, 4' dia., 8' deep (includes excavation of 34.2 Bm³, formed concrete footing, frame & cover, steps, compacted backfill) (material) | \$2,837.00 | | lump sum | \$2,837.00 | \$2,837.00 | This RSMeans cost does not include hauling away excavated soil or pipe connections |
| | Labour and equipment | \$2,354.00 | | lump sum | \$2,354.00 | \$2,354.00 | |
| Manhole | Loading excavated soil - 15% of excavation cost | | | % | \$53.10 | \$53.10 | RSMeans cost for 4'dia., 8' deep manhole includes an excavation cost of \$354 to excavate 34.2 Bm ³ |
| | Hauling in a 13.76 m ³ truck (includes driver) | \$172.92 | | \$/hr | \$179.08 | \$179.08 | Assumed swell factor of 25% (*US Army 2000), assumed 20 min. cycle time to dump elsewhere on site. Assume all 34.2 Bm³ excavated is hauled away. |
| | Downstream Defender - 4' wide (material + delivery) | | \$12,000.00 | lump sum | \$0.00 | \$12,000.00 | |
| Hydrodynamic Separator | Assume installation cost is roughly similar to that of 4' dia., 10' deep precast manhole in RSMeans that includes 47.9 Bm ³ excavation (labour & equipment) | \$2,883.00 | | lump sum | \$0.00 | \$2,883.00 | |

| ltem | ltem detail | RSMeans Unit Cost (2010\$CND) | Unit cost (CND) - other source | Units | Roof Only | Road & Roof | Assumptions/Notes |
|---|--|-------------------------------------|--------------------------------------|--------------------|--------------|----------------|---|
| | Loading excavated soil - 15% of excavation cost | , | | % | \$0.00 | \$432.35 | |
| | Hauling in a 13.76 m ³ truck (includes driver) | \$172.92 | | \$/hr | \$0.00 | \$250.81 | Assumed swell factor of 25% (*US Army), assumed 20 min. cycle time to dump elsewhere on site. Assume all 47.9 Bm ³ excavated is hauled away. |
| Pipe from separator to manhole - 2 m long trench | Trenching, common earth, no slope, 2' wide, 6' deep; 3/8 cy bucket hydraulic track-mounted backhoe, backfill, compaction, removal of spoil by truck; the backfill has been reduced to take into account pipe of suitable size & bedding (labour) | \$15.12 | | m | \$0.00 | \$30.24 | |
| | Equipment | \$5.58 | | m | \$0.00 | \$11.16 | |
| Pipe from separator to manhole - | Armtec Boss 2000 solid pipe, 300 mm dia. (material) | | \$22.81 | m | \$0.00 | \$45.62 | |
| attach 300 mm pipe to both separator & manhole | Armtec Boss 2000 solid pipe, 300 mm manhole adaptor (material) | | \$46.00 | ea. | \$0.00 | \$46.00 | |
| | Labour | | \$200.00 | ea. | \$0.00 | \$400.00 | |
| Pipe from separator to manhole - | Pipe bedding, side slope 0 to 1, 2' wide, pipe size 10" dia., compacted sand for bedding & 12" above pipe; pipe, trench, backfill not included (material) | \$8.22 | | m | \$0.00 | \$16.44 | |
| 3 | Labour and equipment | \$5.10 | | m | \$0.00 | \$10.20 | |
| Attach pipe from parking lot to separator (do not cost pipe/trench, just cost out the attachment) | Labour | | \$200.00 | ea | \$0.00 | \$200.00 | |
| Attach pipe from roof to control manhole (do not cost pipe/trench, just | Armtec Boss 2000 solid pipe, 200 or 300 mm manhole adaptor (material) | | \$42.08 | ea | \$42.08 | \$42.08 | Assume close to cost of 250mm adaptor (\$42.08). |
| cost out the attachment) | Labour | | \$200.00 | ea | \$200.00 | \$200.00 | |
| Attach overflow pipe to control manhole (do not cost pipe/trench, just | Armtec Boss 2000 solid pipe, 300 mm manhole adaptor (material) | | \$46.00 | ea | \$46.00 | \$46.00 | |
| cost out the attachment) | Labour | | \$200.00 | ea | \$200.00 | \$200.00 | |
| Inlet pipe to chamber - attach pipe to | Armtec Boss 2000 solid pipe, 600 mm manhole adaptor (material) | | \$135.98 | ea | \$135.98 | \$135.98 | |
| both control manhole & chamber | Labour to attach pipe to manhole | | \$200.00 | ea | \$200.00 | \$200.00 | |
| | Labour to attach pipe to chamber | | \$50.00 | ea | \$50.00 | \$50.00 | |
| Geotextile surrounding stone | Polypropylene filtration fabric (materials) | \$3.10 | | \$/m² | \$784.30 | \$784.30 | Assumed this RSMeans line is suitable for the Class 2 non- woven geotextile. Area = 104.7 m ² (top) + 104.7 m ² (bottom) + (41.186 m perimeter x 1.067 m deep) = 253 m ² total area. account. |
| | 2 labourers | \$0.40 | | \$/m ² | \$101.20 | \$101.20 | |
| | 50 mm clear limestone (materials) | | \$36.00 | \$/Cm ³ | \$572.76 | \$572.76 | |
| 50 mm stone, 6" (152mm) deep, place | 1.5 m ³ bucket excavator + 1 labourer (labour) | \$1.23 | | \$/Bm ³ | \$19.57 | \$19.57 | Assumed cost is similar to cost of excavation |
| piace | 1.5 m ³ bucket excavator (equipment) | \$1.88 | | \$/Bm ³ | \$29.91 | \$29.91 | |
| Level the stone | Hand grade select gravel (2 labourers) | \$1.56 | | \$/m ² | \$163.33 | \$163.33 | |
| Geotextile for scour protection | Polypropylene filtration fabric (materials) | \$3.10 | | \$/m² | \$107.57 | \$107.57 | Assumed this RSMeans line is suitable for the Class 1 woven geotextile. Area = 3.8 m x 9.138 m = 34.7 m ² total area. |
| | 2 labourers | \$0.40 | | \$/m ² | \$13.88 | \$13.88 | |
| Infiltration chambers & end caps | Stormtech SC-740 chambers | | \$96.00 | \$/m³ storage | \$6,535.68 | \$6,535.68 | Material + delivery cost for chambers, endcaps, fittings, couplers, geotextile is approximately \$100/m³ of storage. Exclude geotextile at approximately \$1/m². Estimated cost is \$96/m³ of storage. |
| | 2 labourers | \$50.00 | | \$/person- hr | \$100.00 | \$100.00 | Installation rate is 30 chambers per hour by 2 labourers |
| Geotextile for isolator row | Polypropylene filtration fabric (materials) | \$3.10 | | \$/m² | \$0.00 | \$162.13 | Assumed this RSMeans line is suitable for the Class 1 & 2 woven geotextile. Class 1 geotextile on bottom: area = 1.4 m x 10.9 m x 2 layers = 30.5 m^2 . Class 2 geotextile on top/sides: area = perimeter of half-circle of 2 m x 10.9 m = 21.8 m^2 thus, |

| ltem | Item detail | RSMeans Unit Cost (2010\$CND) | Unit cost (CND) - other source | Units | Roof Only | Road & Roof | Assumptions/Notes |
|---|---|-------------------------------------|--------------------------------------|--------------------|--------------|----------------|--|
| | | | | | | | total area of geotextile = 52.3 m ² . |
| | 2 labourers | \$0.40 | | \$/m ² | \$0.00 | \$20.92 | |
| 50mm stone, fill around chambers and 6" (152 mm) over top | 50 mm clear limestone (materials) | | \$36.00 | \$/Cm ³ | \$2,044.80 | \$2,044.80 | Calculated volume as follows: total vol = 104.7 m ² area x (1.067 m depth - 152 mm stone depth below) = 95.8 m ³ ; vol inside chambers = 30 chambers x 1.3 m ³ /chamber = 39 m ³ ; thus, vol of stone req'd = 95.8m ³ - 39 m ³ = 56.8 m ³ . |
| (, | 1.5 m ³ bucket excavator + 1 labourer (labour) | \$1.23 | | \$/Bm ³ | \$69.86 | \$69.86 | Assumed cost is similar to cost of excavation |
| | 1.5 m ³ bucket excavator (equipment) | \$1.88 | | \$/Bm ³ | \$106.78 | \$106.78 | |
| Level the stone | Hand grade select gravel (2 labourers) | \$1.56 | | \$/m ² | \$163.33 | \$163.33 | |
| | Assume native soil on-site is suitable (so no material cost) | | | | \$0.00 | \$0.00 | |
| | 1.5 m ³ bucket excavator + 1 labourer (labour) | \$1.23 | | \$/Bm ³ | \$50.18 | \$50.18 | Assumed cost is similar to cost of excavation. Compacted volume = 390 mm x 104.7 m = 40.8 Cm ³ |
| Well-graded soil, 390 mm depth, | 1.5 m ³ bucket excavator (equipment) | \$1.88 | | \$/Bm ³ | \$76.70 | \$76.70 | |
| compacted | Compact in 200 mm lifts with vibrating plate compactor (labour) | \$2.83 | | \$/Cm ³ | \$115.46 | \$115.46 | Assume same cost whether compacted in 200 or 300mm lifts. |
| | Equipment | \$0.25 | | \$/Cm ³ | \$10.20 | \$10.20 | |
| | Proctor test | \$149.45 | | \$/test | \$149.45 | \$149.45 | 1 test required |
| | Nuclear density test | \$42.81 | | \$/test | \$171.24 | \$171.24 | Average of 4 tests required - test is done to check compaction. |
| SUBTOTAL | | | | | \$23,224 | \$39,733.10 | |
| <u>Fees</u> | | | | | | | |
| Project Overhead | | 10.00% | | % of sub total | \$2,322.41 | \$3,973.31 | |
| TOTAL | | | | | \$25,547 | \$43,706 | |

Table A5: Enhanced grass swale

| Item | Item detail | RSMeans Unit Cost (2010\$CND) | Unit cost - other source (\$CND) | Units | Curb check dam | Filter sock check dam | Rock check dam | Assumptions/Notes |
|------------------------------------|--|-------------------------------------|--|----------------------|----------------------|-----------------------------|----------------------|--|
| Site Investigation | | | | | | | | |
| Dig test pit 1 | 80 HP backhoe (equip) | \$24.88 | | \$/m³ | \$29.86 | \$29.86 | \$29.86 | Test pit is 1m x 1m x 1.275m, therefore volume is ~ 1.2m ³ RSMeans costs for light & heavy soil were averaged. |
| | 80 HP backhoe + 1 labourer (labour) | \$49.58 | | \$/m ³ | \$59.50 | \$59.50 | \$59.50 | averagea. |
| Dig test pit 2 | 80 HP backhoe (equip) | \$24.88 | | \$/m ³ | \$29.86 | \$29.86 | \$29.86 | Test pit is 1m x 1m x 1.275m, therefore volume is - 1.2m ³ RSMeans costs for light & heavy soil were averaged. |
| | 80 HP backhoe + 1 labourer (labour) | \$49.58 | | \$/m ³ | \$59.50 | \$59.50 | \$59.50 | |
| Infiltration tests | Double-ring infiltrometer | \$608.85 | | \$/test | \$2,435.40 | \$2,435.40 | \$2,435.40 | 2 infiltration tests per test pit |
| Soil quality testing | Not costed; assumed soil dumped elsewhere on site. | | | | | | | |
| Site Preparation | | | | | | | | |
| Preconstruction meeting | Part of overhead | | | | | | | |
| Stakeout of utilities | Assume no interfering utilities are found as a result. | | \$500.00 | lump sum | \$500.00 | \$500.00 | \$500.00 | |
| Tree & plant protection | Assume no trees | | | | | | | |
| Traffic control | Assume not required | | | | | | | |
| Install erosion & sediment control | 2" submersible gas pump (incl. gas) | \$81.15 | | \$/day | \$243.45 | \$243.45 | \$243.45 | Assume 3 days |
| and control drainage | Silt sack in catchbasin | | \$65.00 | \$/unit | \$65.00 | \$65.00 | \$65.00 | |
| | Silt fence 1m around excavation (material) | \$2.21 | | \$/m | \$341.00 | \$341.00 | \$341.00 | Assume distance is 2x(69.9 m + 2m) + 2x(3.25 m + 2m), total is 154.3 m. Swale 61.5 m + driveway 8.4 m = 69.9 m. |
| | Silt fence 1m around excavation (labour) | \$1.77 | | \$/m | \$273.11 | \$273.11 | \$273.11 | |
| Mobilization/demobilization | Active construction site so all equipment on site | | | | | \$0.00 | \$0.00 | |
| <u>Excavation</u> | | | | | | | | |
| Vegetation removal | Clearing, grubbing, haul away material | | | , | \$0.00 | \$0.00 | \$0.00 | Active construction site, assume already done |
| Topsoil salvage, haul to stockpile | 200 HP dozer (equip) | \$2.06 | | \$/m ³ | \$0.00 | \$0.00 | \$0.00 | Assumed already done as part of regular construction |
| | 200 HP dozer + 0.5 labourer (labour) | \$1.15 | | \$/m ³ | \$0.00 | \$0.00 | \$0.00 | |
| Excavation | 1.5 m ³ bucket excavator + 1 labourer (labour) | \$1.24 | | \$/Bm³ | \$88.68 | \$88.68 | \$88.68 | Assume excavation rate of 100 Bm³/hr (Mark Preston). Excavation is sloped 2.5:1 along edges 0.5 m depth. Excavation of swale (L 61.5 m, V 62.49 m³) and driveway with additional 0.15 m depth non-sloped (L 8.4m, V 10.33 m²), total Volume = 72.82 m³ |
| | 1.5 m³ bucket excavator (equipment) | \$1.89 | | \$/Bm ³ | \$135.17 | \$135.17 | \$135.17 | Swale bottom = 23.06, sides = 38.91, Corners - 0.52, swale total = 62.49 m³, Driveway bottom = 4.1, slopes = 5.72, corners - 0.52, Driveway total - 10.33 m³, TOTAL EXCAVATION = 72.82 m³ |
| Loading excavated soil | | 15% | | % of excavation cost | \$33.58 | \$33.58 | \$33.58 | |
| Hauling excavated soil | 13.76m ³ truck (incl. driver) | \$172.92 | | \$/hr/truck | \$397.72 | \$397.72 | \$397.72 | 71.52 m ³ x 1.25 (swell factor, US Army 2000*) = 89.4 Lm ³ ; thus, 6.5, so 7 truckloads. Assume 20 min. cycle time to dumb elsewhere on site; thus, 2 hours and 20 minutes /truck |
| Safety fencing | 4' high fencing, 6m around perimeter of excavation. Assume 1 week rental (incl. setup & takedown). | | \$800.00 | lump sum for 124m | \$800.00 | \$800.00 | \$800.00 | |
| Materials and Installation | | | | | | | | |
| HDPE Pipe | Pipe to sewer - 200 mm diameter Armtec Boss 2000, corrugated with smooth inner wall (material) | | \$15.37 | \$/m | \$76.85 | \$76.85 | \$76.85 | |
| | Pipe to sewer (labour) | \$11.40 | | \$/m | \$57.00 | \$57.00 | \$57.00 | |
| | Delivery for all pipes | | \$50.00 | lumpsum | \$50.00 | \$50.00 | \$50.00 | |
| HDPE Pipe Fittings | Pipe to sewer:-manhole adapter (200 mm) | \$36.38 | | \$/unit | \$36.38 | \$36.38 | \$36.38 | |

| ltem | Item detail | RSMeans Unit Cost | Unit cost - other source | Units | Curb check | Filter sock check | Rock check | Assumptions/Notes |
|---------------------------------|--|----------------------|-----------------------------|--------------------|---------------------|---------------------|---------------------|---|
| B: Em: | B: 4 (000) | (2010\$CND) | (\$CND) | 0 / '' | dam | dam | dam | |
| Pipe Fittings: Labour | Pipe to sewer:manhole adapter (200 mm) Pipe trenching & backfill, 0.6m wide, 1.2m deep, | \$200.00 \$15.59 | | \$/unit \$/m | \$200.00 \$77.95 | \$200.00 \$77.95 | \$200.00 \$77.95 | |
| Pipe to sewer trenching | no slope | , | | · | , , , , , , | , | , | |
| | Pipe bedding, 0.6m wide | \$13.18 | | \$/m | \$65.90 | \$65.90 | \$65.90 | |
| Pipe for culvert | 300 mm, 1.6 mm thickness | | \$40.00 | \$/m | \$336.00 | \$336.00 | \$336.00 | Smaller than recommended however small depth. 8.4 m width |
| | Labour | \$11.40 | | \$/m | \$95.76 | \$95.76 | \$95.76 | Assumed to be the same as HDPE pipe |
| | Delivery | , | \$50.00 | lumpsum | \$50.00 | \$50.00 | \$50.00 | Assumed to be the same as HDPE pipe |
| Curbs & gutter with curb inlets | 150 mm high curb, 150 mm thick gutter, 600 mm wide (not sure if reinforced) (material) | \$88.35 | | \$/m | \$5,433.53 | \$5,433.53 | \$5,433.53 | Assumed perimeter along one side, not including driveway |
| | Labour | \$26.26 | | \$/m | \$1,614.99 | \$1,614.99 | \$1,614.99 | , |
| Catchbasins | Frame and cover | | \$500.00 | each | \$500.00 | \$500.00 | \$500.00 | |
| | Catchbasin | | \$367.00 | m | \$279.65 | \$279.65 | \$279.65 | Minimum size is 0.762 m |
| | Installation | | \$500.00 | each | \$500.00 | \$500.00 | \$500.00 | |
| Sod | Material | | \$2.00 | \$/m² | \$441.00 | \$441.00 | \$441.00 | Sod covers bottom (46.15 m²) and sides (174.34 m²), total 220.5 m² |
| | Labour | | \$1.00 | \$/m ² | \$220.50 | \$220.50 | \$220.50 | |
| Check dams | 0.3 m curb | | \$150.00 | \$/m ² | \$337.50 | \$0.00 | \$0.00 | 1 m long, 0.3 m high curbs, length 0.75 m bottom, then up sides 0.75 in length to reach 0.3 m height, so 0.75*3 = 2.25 m for each check dam |
| | Biofilter sock | | \$15.00 | \$/m | \$0.00 | \$20.25 | \$0.00 | 1 m long, 0.3 m high for each check dam |
| | Rocks 50 mm clear (material) | | \$36.00 | \$/m³ | \$0.00 | \$0.00 | \$19.44 | Main section 0.75 m wide by 0.3 m high by minimum 0.6 m length (0.135 m³), plus front and back slopes at 2:1 ratio (0.068 m³ per slope), plus sides of main section (0.068 m³ per side), plus sides of front and back slopes (0.034 m³ per slope side), TOTAL 0.54 m³ |
| | Rocks 50 mm clear (labour) | \$173.11 | | \$/m ³ | \$0.00 | \$0.00 | \$93.48 | |
| | Geotextile Material | \$3.10 | | \$/m ² | \$0.00 | \$0.00 | \$9.77 | Geotextile required under rock check dam |
| | Geotextile Labour | \$0.40 | | \$/m ² | \$0.00 | \$0.00 | \$1.26 | |
| Stone inlets | 50 mm clear (material) | | \$36.00 | \$/Cm ³ | \$16.20 | \$16.20 | \$16.20 | Assume 50 mm clear, 100mm deep, 1 every 6 m, Area = 0.5 m ² x 9 inlets = 4.5 m ² . Vol = 4.5 m ² x 0.1 m = 0.45 m ³ . |
| | Spread by hand (labour) | \$173.11 | | | \$77.90 | \$77.90 | \$77.90 | |
| | Geotextile Material | \$3.10 | | \$/m ² | \$13.95 | \$13.95 | \$13.95 | Assume 50 mm clear, 100mm deep. Area = $0.5\text{m}^2 \times 9$ inlets = 4.5 m^2 . |
| | Geotextile Labour | \$0.40 | | \$/m ² | \$1.80 | \$1.80 | \$1.80 | |
| Headwalls for culvert | Headwall on either side of driveway | | \$200.00 | each | \$400.00 | \$400.00 | \$400.00 | |
| 50mm stone | 50 mm clear limestone (materials) | | \$36.00 | \$/Cm ³ | \$291.60 | \$291.60 | \$291.60 | Free draining backfill around pipe in culvert, surrounding pipe, 0.15 m below (rectangle trench) and 0.15 m above |
| | 1.5 m ³ excavator + 1 labourer (labour) | \$1.23 | | \$/Bm ³ | \$9.96 | \$9.96 | \$9.96 | Volume of pipe = 0.59 m³, volume of backfill: flat - 3.645, slopes 5.06, total 8.708 m³. Backfill - pipe volume - 8.1 m³ |
| | 1.5 m³ excavator | \$1.88 | | \$/Bm³ | \$15.23 | \$15.23 | \$15.23 | , , , , , , , , |
| Compact stone | 21" wide walk-behind vibrating plate compactor, 2 passes, 6" lifts (equip) | \$0.11 | | \$/Em³ | \$0.89 | \$0.89 | \$0.89 | Assumed cost is the same whether compacted in 6" or 12" lifts |
| | 21" wide walk-behind vibrating plate compactor, 2 passes, 6" lifts; 1 labourer (labour) | \$1.01 | | \$/Em³ | \$8.18 | \$8.18 | \$8.18 | |
| | Proctor test | \$149.45 | | \$/test | \$149.45 | \$149.45 | \$149.45 | |
| | Nuclear density test | \$42.81 | | \$/test | \$42.81 | \$42.81 | \$42.81 | Assume 1 would be sufficient with smaller area |
| SUBTOTAL | | | | | \$16,893 | \$16,576 | \$16,679 | |
| Fees | | | | | | | | |
| Project Overhead | | 10.00% | | % of subtotal | \$1,689.28 | \$1,657.56 | \$1,667.92 | |
| TOTAL | | | | | \$18,582.08 | \$18,233.11 | \$18,347.17 | |

Table A6: Rainwater harvesting

| ltem | Item detail | RSMeans Unit Cost (2010\$CND) | Unit cost (CND) - other source | Units | Concrete Tank Outdoor | Plastic Tank Indoor | Assumptions/Notes |
|--|---|-------------------------------------|---|-----------------|-----------------------------|---------------------------|---|
| Site Investigation | | | | | | | |
| Soil strength testing | | | | | \$0.00 | \$0.00 | Not costed; assumed geotech tests done previously |
| Soil quality testing | | | | | \$0.00 | \$0.00 | Not costed; assumed soil dumped elsewhere on site |
| Site Preparation | | | | | | | |
| Preconstruction meeting | Part of overhead | | | | \$0.00 | \$0.00 | |
| Stakeout of utilities | Assume no interfering utilities are found as a result. | | \$500.00 | lump sum | \$500.00 | \$0.00 | |
| Mobilization/demobilization | Active construction site, so all equipment on site | | | | \$0.00 | \$0.00 | |
| Excavation | | | | | | | |
| Conveyance Pipe trenching & backfill | 0.6 m wide, 1.2 m deep, no slope | \$15.59 | | m | \$155.90 | \$0.00 | |
| | 1.5 m ³ bucket excavator + 1 labourer (labour) | \$2.48 | | Bm ³ | \$62.25 | \$0.00 | Assumed common earth, 50 Bm³/hr (guesstimate by Mariko Uda because this is a small excavation), excavation is 18" around tank (assume same clearance as for rainwater harvesting tank; see below) and sloped 1:1 about 1.2 m depth, and that tank is buried 0.5 m with 6" of bedding underneath |
| On the Property of the Propert | 1.5 m ³ bucket excavator (equipment) | \$3.78 | | Bm ³ | \$94.88 | \$0.00 | |
| Conveyance Pipe Excavation | Loading - 15% of excavation cost | | | % | \$5.85 | \$0.00 | Assume only 6.3 Bm ³ of soil (vol of tank & bedding) is hauled away. Excavation cost of just 6.3 Bm ³ is (\$62 + \$95) * 6.3 Bm ³ / 25.1 Bm ³ = \$39 |
| | Hauling in a 13.76 m ³ truck (includes driver) | \$172.92 | | hr | \$32.85 | \$0.00 | Assume only 6.3 Bm³ of soil (vol of tank & bedding) is hauled away. 6.3 Bm³ x 1.25 (swell factor, US Army 2000*) = 7.88 Lm³; thus, 0.57 truckload. Assume 20 min. cycle time to dump elsewhere on site. Thus, 0.19 truck-hours |
| | 1.5 m ³ bucket excavator + 1 labourer (labour) | \$2.48 | | Bm ³ | \$277.51 | \$0.00 | Assumed common earth, 50 Bm³/hr (guesstimate by Mariko Uda because this is a small excavation), excavation is 18" around tank (according to Technical Advisory Council for Onsite Wastewater Treatment 2006*, put min 18" clearance on all sides of precast concrete septic tank) and sloped 1.1 above 1.2 m depth, and that tank is buried 0.75 m with 6" of bedding underneath. |
| Tank Excavation | 1.5 m ³ bucket excavator (equipment) | \$3.78 | | Bm ³ | \$422.98 | \$0.00 | |
| | Loading - 15% of excavation cost | | | % | \$29.10 | \$0.00 | Assume only 31.0 Bm³ of soil (vol of tank & bedding) is hauled away. Excavation cost of just 31.0 Bm³ is (\$278 + \$423) * 31.0 Bm³ / 111.9 Bm³ = \$194. |
| | Hauling in a 13.76 m ³ truck (includes driver) | \$172.92 | | hr | \$162.54 | \$0.00 | Assume only 31.0 Bm³ of soil (vol of tank & bedding) is hauled away. 31.0 Bm³ x 1.25 (swell factor, US Army 2000*) = 38.75 Lm³; thus, 2.82 truckload. Assume 20 min. cycle time to dump elsewhere on site. Thus, 0.94 truck-hours. |
| Service pipe: burying | | | | | \$0.00 | \$0.00 | Buried with conveyance pipe |
| Top-up pipe: burying | | | | | \$0.00 | \$0.00 | Assume for simplicity that top-up pipe is buried in same trench as conveyance & service pipes |
| Overflow pipe trenching & backfill | 0.6 m wide, 1.2 m deep, no slope | \$15.59 | | m | \$0.00 | \$0.00 | Do not cost as would be needed even without rainwater harvesting |
| Materials and Installation | | | | | | | |
| Conveyance Pipe | | | | | | | |
| PVC SDR 35 | 300 mm diameter (material) | \$75.31 | | m | \$753.10 | \$0.00 | Just costed length from exterior of building to tank |
| | 300 mm diameter (labour) | \$16.20 | | m | \$162.00 | \$0.00 | |
| | 300 mm diameter | \$1.62 | | m | \$16.20 | \$0.00 | |
| Pipe bedding | 0.6 m wide | \$13.18 | | m | \$131.80 | \$0.00 | |
| Inline German-style filter | 3P VF4 by 3P Technik, which is suitable for a | | \$5,825.00 | ea | \$5,825.00 | \$5,825.00 | |

| Item | Item detail | RSMeans Unit Cost (2010\$CND) | Unit cost (CND) - other source | Units | Concrete Tank Outdoor | Plastic Tank Indoor | Assumptions/Notes |
|--|--|-------------------------------------|---|-----------------|-----------------------------|---------------------------|--|
| Precast concrete tank to put filter in | 2.1 m long x 1.5 m wide x 1.7 m deep | | \$3,000.00 | ea | \$3,000.00 | \$3,000.00 | |
| Installation of filter into tank and delivery of combined tank/filter | RH20 provides service to install 3P VF4 filter into tank | | \$2,000.00 | ea | \$2,000.00 | \$2,000.00 | |
| Bedding | 20 mm clear (material) | | \$37.00 | m ³ | \$33.74 | \$0.00 | Concrete tanks usually have bedding of 6" of 20-25 mm clean stone. Vol = 6" (152 mm) x 3 m x 2 m = 0.912 m ³ |
| | 1.5 m ³ bucket excavator + 1 labourer (labour) | \$2.11 | | m³ | \$1.92 | \$0.00 | Assumed cost is similar to cost of excavation but for gravel. Used RSMeans bost for excavationi but deducted 15% as suggested by RSMeans for soft soil or sand. Assumed similar for gravel |
| | 1.5 m ³ bucket excavator (equipment) | \$3.21 | | m ³ | \$2.93 | \$0.00 | |
| Attach inflow, outflow and overflow pipes to tank | | | \$100.00 | ea | \$300.00 | \$300.00 | |
| Backfill | 80 HP dozer + 0.5 labourer (labour) | \$1.02 | | Lm ³ | \$26.62 | \$0.00 | Vol of backfill = vol of excavated (25.06 Bm³) - vol of tank (5.355 m³) - vol of bedding (0.912 Cm³) = 18.8 Cm³. Assuming swell factor of 25% and compaction factor of 0.9 (US Army 2000*), 18.8 Cm³ would equal 26.1 Lm³ (18.8 Cm³ * 1.25 / 0.9). |
| | 80 HP dozer (equipment) | \$0.66 | | Lm ³ | \$17.23 | \$0.00 | |
| Compact backfill | Walk-behind vibrating plate (labour) | \$3.07 | | Cm ³ | \$57.72 | \$0.00 | |
| Compact Backini | Walk-behind vibrating plate (equipment) | \$0.28 | | Cm ³ | \$5.26 | \$0.00 | |
| <u>Tank</u> | | | | | | | |
| Pre-cast concrete (below ground) | | | \$0.30 | L | \$6,900.00 | \$0.00 | |
| Standard tank access riser | | | \$418.00 | ea | \$418.00 | \$0.00 | |
| Plastic tank (above-ground) | | | \$0.29 | L | \$0.00 | \$6,670.00 | |
| Concrete tank delivery | | | \$233.00 | tank | \$233.00 | \$0.00 | |
| Bedding | 20 mm clear (material) | | \$37.00 | m ³ | \$106.19 | \$0.00 | Concrete tanks usually have bedding of 6" of 20-25 mm clean stone. Vol = 6" (152 mm) x 3.2 m x 5.9 m = 2.87 m^3 . |
| | 1.5 m ³ bucket excavator + 1 labourer (labour) | \$2.11 | | m ³ | \$6.06 | \$0.00 | Assumed cost is similar to cost of excavation but for gravel. Used RSMeans cost for excavation but deducted 15% as suggested by RSMeans for soft soil or sand. Assumed similar for gravel. |
| | 1.5 m ³ bucket excavator + 1 labourer (equipment) | \$3.21 | | m ³ | \$9.21 | \$0.00 | |
| Installation/craning | For precast concrete tanks > 20,000 L | | \$155.00 | hr | \$620.00 | \$0.00 | |
| Attach connections (conveyance pipe, service pipe, overflow pipe, fill pipe, wiring) | | | \$100.00 | ea | \$500.00 | \$500.00 | |
| Backfill | 80 HP dozer + 0.5 labourer (labour) | \$1.02 | | Lm ³ | \$114.65 | \$0.00 | Vol of backfill = vol of excav (111.94 Bm³) - vol of tank (28.175 m³) - vol of bedding (2.87 Cm³) = 80.895 Cm³. Assuming swell factor of 25% and compaction factor of 0.9 (US Army 2000*), 80.895 Cm³ would equal 112.4 Lm³ (80.895 Cm³ * 1.25 / 0.9) |
| | 80 HP dozer (equipment) | \$0.66 | | Lm ³ | \$74.18 | \$0.00 | |
| Compact backfill | Walk-behind vibrating plate (labour) | \$3.07 | | Cm ³ | \$248.35 | \$0.00 | |
| · | Walk-behind vibrating plate (equipment) | \$0.28 | | Cm ³ | \$22.65 | \$0.00 | |
| Plumbing Accessories | | | | | | | |
| Submersible pump | 81.2 lpm fountain pump with controls (material) | \$2,485.00 | | ea | \$2,485.00 | \$2,485.00 | 3/4 hp costs \$2234.05 (material); thus \$30.60 (material)/lpm. Thus for 81.2 lpm -> \$2485 (material). |
| Cubinololide pump | 81.2 lpm fountain pump with controls (labour) | \$245.00 | | ea | \$245.00 | \$245.00 | 3/4 hp costs \$220.33 (labour); thus \$3.02 (labour)/lpm. Thus for 81.2 lpm> \$245 (labour). |
| Pressure tank | 439 L (116 gallons) potable water tank (material) | \$3,362.49 | | ea | \$3,362.49 | \$3,362.49 | Steel water tanks can be used as pressure tanks |

| ltem | Item detail | RSMeans Unit Cost (2010\$CND) | Unit cost (CND) - other source | Units | Concrete Tank Outdoor | Plastic Tank Indoor | Assumptions/Notes |
|--------------------------------------|--|-------------------------------------|---|-------|-----------------------------|---------------------------|--|
| | 439 L (116 gallons) potable water tank (labour) | \$68.62 | | ea | \$68.62 | \$68.62 | |
| Pump float switch | Approx. 1hp | | 97.38 | ea | \$97.38 | \$97.38 | |
| Pump float electrical wiring | Approx. 14 gauge | \$1.76 | | m | \$26.40 | \$8.80 | |
| Service pipe: Polyethylene (PE) C901 | 40 mm diameter (material) | \$5.15 | | m | \$87.55 | \$25.75 | PE C901 usually comes in coils or 20' lenghts, no couplings required |
| , | 40 mm diameter (labour) | \$5.58 | | m | \$94.86 | \$27.90 | |
| Service pipe: Polyethylene (PE) C901 | 40 mm diameter elbow (material) | \$7.24 | | ea | \$28.96 | \$14.48 | |
| fittings | 40 mm diameter elbow (labour) | \$14.94 | | ea | \$59.76 | \$29.88 | |
| | Pipe sleeve with link seal for 1-1/2" diameter pipe (material) | \$64.09 | | ea | \$64.09 | \$0.00 | |
| Service pipe through wall | Pipe sleeve with link seal for 1-1/2" diameter pipe (labour) | \$93.80 | | ea | \$93.80 | \$0.00 | |
| Service pipe: hangers every meter | Hanger consisting of clamp, clevis & rod (material) | \$11.81 | | ea | \$59.05 | \$35.43 | |
| indoors | Hanger consisting of clamp, clevis & rod (labour) | \$15.69 | | ea | \$78.45 | \$47.07 | |
| Overhania v Overhan Olava K | 40 mm diameter, includes couplings & hangers (material) | \$46.95 | | m | \$4,436.78 | \$4,436.78 | |
| Supply pipe: Copper Class K | 40 mm diameter, includes couplings & hangers (labour) | \$37.39 | | m | \$3,533.36 | \$3,533.36 | |
| Supply pine: Copper fittings | 40 mm diameter 90 degree elbows (material) | \$20.98 | | ea | \$629.40 | \$629.40 | Assume cost of fittings on average is the cost of an elbow |
| Supply pipe: Copper fittings | 40 mm diameter 90 degree elbows (labour) | \$43.78 | | ea | \$1,313.40 | \$1,313.40 | |
| Top-up float switch | Approx. 1/2 hp | | \$54.16 | ea | \$54.16 | \$54.16 | |
| Top-up float electrical wiring | Approx. 14 gauge | \$1.76 | | m | \$26.40 | \$8.80 | |
| Solenoid valve | Domestic/commerical, bronze, compound, flanged, 20 mm | | \$309.90 | ea | \$309.90 | \$309.90 | |
| Water hammer arrestor | 20 mm (material) | \$22.48 | | ea | \$22.48 | \$22.48 | |
| | 20 mm (labour) | \$47.42 | | ea | \$47.42 | \$47.42 | |
| Water meter | 40 mm (material) | \$305.90 | | ea | \$305.90 | \$305.90 | |
| Water meter | 40 mm (labour) | \$75.88 | | ea | \$75.88 | \$75.88 | |
| Air gap (tundish) | 3P Tundish by 3P Technik (material) | | \$75.00 | ea | \$75.00 | \$75.00 | |
| All gap (tulidisil) | Tundish (labour) | | \$50.00 | ea | \$50.00 | \$50.00 | |
| Tan un nines ARC (int. installation) | 50 mm diameter, including couplings and hangers (material) | \$8.49 | | m | \$42.45 | \$42.45 | |
| Top-up pipe: ABS (int. installation) | 50 mm diamter, including couplings and hangers (labour) | \$54.26 | | m | \$271.30 | \$271.30 | |
| Top-up pipe: ABS elbow | 50 mm diameter (material) | \$2.53 | | ea | \$2.53 | \$2.53 | Assumed need atleast 1 elbow |
| тор-ир ріре. АвЗ еівом | 50 mm diameter (labour) | \$31.01 | | ea | \$31.01 | \$31.01 | |
| Tan un nine Abreugh wall | Pipe sleeve with link seal for 2" diameter pipe (material) | \$75.05 | | ea | \$75.05 | | Method used to bring pipes through walls in commercial applications |
| Top-up pipe through wall | Pipe sleeve with link seal for 2" diameter pipe (labour) | \$106.68 | | ea | \$106.68 | \$0.00 | |
| Top up pine: APS (out installation) | 50 mm diameter (does not include coupling or hangers) (material) | \$4.84 | | m | \$48.40 | \$0.00 | |
| Top-up pipe: ABS (ext.installation) | 50 mm diameter (does not include coupling or hangers) (labour) | \$28.22 | | m | \$282.20 | \$0.00 | |
| Top up pine: APS couplings | 50 mm diameter (material) | \$1.06 | | ea | \$1.06 | \$0.00 | Assume 1 coupling required |
| Top-up pipe: ABS couplings | 50 mm diameter (labour) | \$31.01 | | ea | \$31.01 | \$0.00 | |
| Reduced pressure backflow preventer | 50 mm (material) | \$909.09 | | ea | \$909.09 | \$909.09 | |
| reduced pressure backnow preventer | 50 mm (labour) | \$81.17 | | ea | \$81.17 | \$81.17 | |
| Overflow | | | | | | | |

| ltem | Item detail | RSMeans Unit Cost (2010\$CND) | Unit cost (CND) - other source | Units | Concrete Tank Outdoor | Plastic Tank Indoor | Assumptions/Notes |
|------------------|--|-------------------------------------|---|----------------------|-----------------------------|---------------------------|--|
| PVC SDR 35 | 300 mm diameter | \$93.13 | | m | \$0.00 | \$0.00 | Do not cost as would be needed even without rainwater harvesting |
| Pipe bedding | 0.6 m wide | \$13.18 | | m | \$0.00 | \$0.00 | |
| 1 bend | PVC SDR 35, 300 mm diameter elbow (material) | \$279.73 | | ea | \$0.00 | \$0.00 | |
| i bend | PVC SDR 35, 300 mm diameter elbow (labour) | \$101.85 | | ea | \$0.00 | \$0.00 | |
| SUBTOTAL | | | | | \$42,943.11 | \$36,942.82 | |
| Fees | | | | | | | |
| Project Overhead | | 10.00% | | % of sub total | \$4,294.31 | \$3,694.28 | |
| TOTAL | | | | | \$47,237 | \$40,637 | |

Table A7: Extensive greenroof

| Item | Item detail | RSMeans Unit Cost (2010 or 2011\$CND) | Unit cost (\$CND) - other source | Units | Cheap | Expensive | Assumptions/Notes |
|--|--|---|--|----------------|-------------|-------------|--|
| Site Preparation | | | | | | | |
| Pre-construction meeting | Part of construction mgmt fee | | | | \$0.00 | \$0.00 | |
| Mobilization/demobilization | Crane, 55 ton | \$158.00 | | 2-way | \$316.00 | \$0.00 | Assumed for 2 mobilizations/demobilization's because crane is initially needed to lift membrane, then is not needed until later for the rest of the materials. |
| Mobilization/demobilization | Crane, 100 ton | \$453.00 | | way | \$0.00 | \$1,812.00 | Assumed for 2 mobilizations/demobilization's because crane is initially needed to lift membrane, then is not needed until later for the rest of the materials. |
| Crane | | | | | | | |
| 55T crane to lift membrane, drainage layer, stone, edging, cuttings to under 5 storeys | Equipment & labour | \$4,632.38 | | day | \$13,897.14 | \$0.00 | 55T crane does 28 picks per day, will need it for 2.6 days - round up to 3 days. |
| 100T crane to lift membrane, root barrier, drainage layer, stone, edging, sedum mats to 6-10 storeys | Equipment & labour | \$5,152.38 | | day | \$0.00 | \$56,676.18 | 100T crane does 21 picks per day will need it fo 11.2 days - round down to 11 days. |
| Materials and Installation | | | | | | | |
| | Material & delivery - TPO, 60mils thick, fully adhered | \$12.48 | | m ² | \$24,960.00 | \$0.00 | |
| | Lift onto roof - equipment & labour | See above -Crane | | | | | |
| | Labour | \$10.14 | | m ² | \$20,280.00 | \$0.00 | |
| Waterproof membrane: TPO | Equipment | \$0.83 | | m ² | \$1,660.00 | \$0.00 | |
| | Extra labour for flashing around parapets & roof penetrations - assume labour cost similar to PVC sheet flashing | \$17.22 | | m² | \$1,248.45 | \$0.00 | Assume 330 mm of flashing around parapets, mechanical units and drains. |
| | Material & delivery - EPDM, 60 mils thick, fully adhered | \$18.21 | | m ² | \$0.00 | \$36,420.00 | |
| | Lift onto roof - equipment & labour | See above -Crane | | | | | |
| | Labour | \$9.74 | | m ² | \$0.00 | \$19,480.00 | |
| Waterproof membrane: EPDM | Equipment | \$0.79 | | m ² | \$0.00 | \$1,580.00 | |
| | Extra labour for flashing around parapets & roof penetrations - assume labour cost similar to PVC sheet flashing | \$17.22 | | m² | \$0.00 | \$1,248.45 | Assume 330 mm of flashing around parapets, mechanical units and drains. |
| Water leakage test: EFVM | EFVM by International Leak Detection - cost to install grid & conduct initial test | | \$13.99 | m ² | \$0.00 | \$27,980.00 | Tested in one visit |
| Water leakage test: other option more cheaper than EFVM | Applied potential electrical method or water lance method by I-CORP International - cost to do initial test | | \$3,000.00 | lump sum | \$3,000.00 | \$0.00 | Conductive material is required below the waterproof membrane, assumed a concrete structure. These methods cannot be used for black EPDM, which has too much carbon content. |
| | Material | | \$4.30 | m ² | \$0.00 | \$8,600.00 | Average of quotes |
| Root barrier (not needed for TPO, possibly | Lift onto roof - equipment & labour | See above -Crane | | | | | |
| needed for EPDM) | Labour - assume similar to laying drainage mat. | \$4.16 | | m ² | \$0.00 | \$8,320.00 | |
| | Material - Dow Roofmate | | \$23.68 | m ² | \$47,360.00 | \$47,360.00 | |
| R20 insulation | Lift onto roof - equipment & labour | See above -Crane | | | | | |
| | Labour | \$4.95 | | m ² | \$9,900.00 | \$9,900.00 | |
| Drainage layer + filter cloth (combined): | Material + delivery: average cost of 3 different drainage layers (3RFoam, dimple board, and another dimple board). | | \$11.09 | m² | \$22,180.00 | \$22,180.00 | Average cost for drainage layer |
| | Onto roof - equipment & labour | See above -Crane | | | | | |

| ltem | ltem detail | RSMeans Unit Cost (2010 or 2011\$CND) | Unit cost (\$CND) - other source | Units | Cheap | Expensive | Assumptions/Notes |
|---|--|---|--|----------------|--------------|--------------|--|
| | Labour - similar to laying drainage mat | \$4.16 | | m ² | \$8,320.00 | \$8,320.00 | |
| Irrigation system | Total installed cost | | \$10.76 | m ² | \$0.00 | \$21,520.00 | Assumed irrigation cost costs approx. \$1/sf. |
| | Permaloc's GeoEdge 4-1/2" aluminum edging | | \$30.70 | m | \$7,521.50 | \$0.00 | |
| | Permaloc's GeoEdge 4-1/2" aluminum corners | | \$43.06 | corner | \$1,033.44 | \$0.00 | No delivery cost included, assumed not significant. Assume pre- made corners for the 4 perimeter corners and the corners around the 5 mechanical units (4 corners each), but not for the drains. |
| Edging: aluminium | Permaloc's GeoEdge 6-1/2" aluminum edging | | \$46.05 | m | \$0.00 | \$11,282.25 | |
| | Permaloc's GeoEdge 6-1/2" aluminum corners | | \$57.46 | corner | \$0.00 | \$1,379.04 | No delivery cost included, assumed not significant. Assume pre- made corners for the 4 perimeter corners and the corners around the 5 mechanical units (4 corners each), but not for the drains. |
| | Onto roof - equipment & labour | See above -Crane | | | | | |
| | Labour - assume similar to installing lumber edging | \$8.89 | | m | \$2,311.40 | \$2,311.40 | |
| | Material + delivery: average cost of 3 different suppliers | | \$7.93 | m ² | \$958.34 | \$958.34 | |
| Vegetation-free zone - 3" of 1-1/2" | Onto roof - equipment & labour | See above -Crane | | | | | |
| washed round stone | Labour - assume similar to spreading same volume of pea gravel | \$62.13 | | m ³ | \$1,568.38 | \$1,568.38 | |
| | Material - average of 3 suppliers | | \$13.00 | m ² | \$24,206.00 | \$0.00 | |
| 4" growing medium - in bulk, not in sacks | Delivery in bulk | | \$0.85 | m ² | \$1,582.70 | \$0.00 | |
| | Blowing onto roof with blower truck | | \$7.10 | m ² | \$13,220.20 | \$0.00 | |
| | Material | | \$23.40 | m ² | \$0.00 | \$43,570.80 | |
| | Delivery of sacks | | \$1.99 | m ² | \$0.00 | \$3,705.38 | |
| 6" growing medium - in sacks | Lifting onto roof with crane 6-10 stories & spreading - equipment & labour | \$20.77 | | m ² | \$0.00 | \$38,673.74 | |
| | Material | | \$2.12 | m ² | \$3,947.44 | \$0.00 | |
| | Delivery | | \$0.11 | m ² | \$204.82 | \$0.00 | |
| Plants; sedum cuttings | Onto roof - equipment & labour | See above -Crane | | | | | |
| | Labour - assume similar to applying 2 bushels/1000 sf of sprigs | \$0.31 | | m ² | \$577.22 | \$0.00 | Assumed an application rate of 25lb/1000 sf. |
| | Material | | \$4.30 | m ² | \$0.00 | \$0.00 | Toronto's Green Roof Bylaw says min. 1 plug/sf. |
| Digate, and use along | Delivery | | \$0.61 | m ² | \$0.00 | \$0.00 | Assume truck cost of \$500 plus \$160 per rack. 4 racks would be needed. Therefore, total delivery charge is \$1140, or \$0.61/m2. |
| Plants; sedum plugs | Onto roof - equipment & labour | See above -Crane | | | | | |
| | Labour - assume similar to planting 2-1/4" potted plants at 1/sf. | \$5.49 | | m ² | \$0.00 | \$0.00 | |
| | Material | | \$31.22 | m ² | \$0.00 | \$58,131.64 | This material includes 1" of growing medium, so we can minus 1" of growing medium. |
| | Delivery | | \$1.42 | m ² | \$0.00 | \$2,644.04 | 3 trucks needed at a cost of \$750 each. Pallets are required for \$390. Therefore total cost is \$2640, or \$1.42/m ² . |
| Plants; sedum mats | Onto roof - equipment & labour | See above -Crane | | | | | |
| | Labour | \$4.63 | | m ² | \$0.00 | \$8,621.06 | |
| | SAVINGS because can reduce growing medium by 1" | | -\$14,325.00 | lump sum | \$0.00 | -\$14,325.00 | The savings are estimated at \$14,325 if growing medium is in sacks & craned up 6-10 stories. |
| SUBTOTAL with membranes | | | | | \$210,253.03 | \$429,917.70 | |
| Fees | | | | | | | |

| Item | ltem detail | RSMeans Unit Cost (2010 or 2011\$CND) | Unit cost (\$CND) - other source | Units | Cheap | Expensive | Assumptions/Notes |
|------------------------------|-------------|---|--|----------------|-------------|-------------|-------------------|
| Project Overhead (10%) | | 10.00% | | % of sub total | \$21,025.30 | \$42,991.77 | |
| TOTAL | | | | | \$231,278 | \$472,909 | |
| SUBTOTAL without membranes 1 | | | | | | | |
| Fees | | | | | \$100,054 | \$307,871 | |
| Project Overhead (10%) | | 10.00% | | | \$10,005 | \$30,787 | |
| TOTAL | | | | | \$110,060 | \$338,658 | |

Notes: 1Subtotal without membranes excluded costs for membranes and R20 insulation, as well craning was reduced to 1 day for cheap, and 2 days for expensive.

Table A8: Asphalt (used for comparative analysis)

| Item | Item detail | RSMeans Unit Cost (2010\$CND) | Unit cost (\$CND) - other source | Units | Total (\$CND) | Assumptions/Notes |
|--|--|----------------------------------|--|----------------------|---------------|---|
| Site Investigation | | | | | | |
| Soil strength testing | | | | | | Not costed; assumed geotech tests done previously |
| Soil quality testing | | | | | | Not costed; assumed soil dumped elsewhere on site |
| Site Preparation | • | | | | | |
| Pre-construction meeting | Part of overhead | | | | | |
| Stakeout of utilities | Assume no interfering utilities found as a result | | \$500.00 | lump sum | \$500.00 | |
| Mobilization/demobilization | | | | | | Active construction site, so all equipment on site |
| Excavation | | | | | | |
| Vegetation removal | Clearing, grubbing, haul away material | | | | \$0.00 | Active construction site, assume already done |
| Topsoil salvage, haul to stockpile | 6" removed, 60 m travel to stockpile, 200 HP dozer + 0.5 labourer (labour) | \$1.15 | | \$/m ³ | \$175.26 | |
| | 6" removed, 60 m travel to stockpile, 200 HP dozer (equipment) | \$2.06 | | \$/m ³ | \$313.94 | |
| | 1.5 m³ bucket excavator + 1 labourer, productivity 100 Bm³/hr (labour) | \$1.24 | | \$/Bm ³ | \$248.50 | Assumed a productivity of 100 Bm ³ /hr. Assumed common earth. 6" of topsoil has already been removed, so do not need to excavate full depth, plus catchbasins and pipe |
| Excavate | 1.5 m ³ bucket excavator, productivity 100 Bm ³ /hr (equipment) | \$1.89 | | \$/Bm ³ | \$378.76 | 60 m x 16.7 m x 0.2 m = 200.4 m3 for parking lot |
| | Loading | 15% | | % of excavation cost | \$94.09 | |
| | Hauling in a 13.76 m ³ truck (including truck & driver) | \$172.92 | | \$/hr | \$1,038.84 | Assumed swell factor of 25% (*US Army 2000), cycle time of 20 min. |
| Compaction of native soil | 30,000 lb grader + 25T vibratory roller + 1 labourer (labour) | \$1.16 | | \$/m ² | \$1,160.00 | |
| | 30,000 lb grader + 25T vibratory roller (equipment) | \$1.14 | | \$/m ² | \$1,140.00 | |
| | Proctor test | \$149.45 | | \$/test | \$149.45 | 1 test required |
| | Nuclear density test | \$42.81 | | \$/test | \$171.24 | Avg. 4 tests required - test is done to check compaction. |
| Hydrodynamic Separator | | | | | | |
| | Downstream Defender - 4' wide (mat + delivery) | | \$12,000.00 | lump sum | \$0.00 | |
| Hydrodynamic Separator | Assume installation cost is roughly similar to that of 4' dia., 10' deep precast manhole in RSMeans that includes 47.9 Bm³ excavation (labour & equip) | \$2,883.00 | | lump sum | \$0.00 | |
| | Loading excavated soil | 15% | | % of excavation cost | \$0.00 | |
| | Hauling in a 13.76 m ³ truck (includes driver) | \$172.92 | | \$/hr | \$0.00 | |
| Materials and Installation | | | | | | |
| Catchbasins | Frame and cover | | \$500.00 | each | \$0.00 | |
| | Catchbasin | | \$367.00 | m | \$0.00 | Minimum size is 0.762, two catchbasins = 1.524 m |
| | Installation | | \$500.00 | each | \$0.00 | |
| Conveyance pipes from catchbasins to HDS | Armtec Boss 2000 solid pipe, 300 mm dia. (material) | | \$22.81 | m | \$0.00 | Catchbasins on either end of parking lot at halfway point, drain to HDS at halfway along other end, so $2 \times 30 \text{ m} = 60 \text{ m}$, plus $2 \times 8.335 \text{ m} = 16.67 \text{ m}$, TOTAL 66.67 m |
| | (labour & equip) | \$5.10 | | m | \$0.00 | |
| | 20 mm crusher run (material) | | \$43.00 | \$/Cm ³ | \$12,900.00 | |
| Base, 300 mm deep | 30,000 lb grader, 300 HP dozer, 25 T vibratory roller, truck tractor & water tank trailer + 1 labour foreman (labour) | \$0.75 | | \$/m ² | \$750.00 | |

| Item | Item detail | RSMeans Unit Cost (2010\$CND) | Unit cost (\$CND) - other source | Units | Total (\$CND) | Assumptions/Notes |
|------------------|---|----------------------------------|--|-------------------|---------------|---|
| | 30,000 lb grader, 300 HP dozer, 25 T vibratory roller, truck tractor & water tank trailer (equipment) | \$1.20 | | \$/m ² | \$1,200.00 | |
| Compaction test | Proctor test | | | | \$0.00 | Assume supplier provides curve, so not required. |
| | Nuclear density test | \$42.81 | | \$/test | \$214.05 | Assume 5 tests |
| | Plant mix asphalt, wearing course, 50 mm thick (material) | \$18.37 | | \$/m ² | \$18,370.00 | 60 m x 33.34 m = 2000 m2 |
| | 1 foreman, 7 labourers, 4 equipment operators (labour) | \$1.02 | | \$/m ² | \$1,020.00 | |
| Asphalt | 130 HP asphalt paver, 2 10T tandem rollers, 1 12T pneumatic whl roller (equipment) | \$0.61 | | \$/m ² | \$610.00 | |
| | Hauling in a 13.76 m ³ truck (including truck & driver) | \$172.92 | | \$/hr | \$864.60 | Assume cycle time of 1h, assumed a 18 cy (13.76 m³) / 25T ton truck. The vol of asphalt required is 50 mm x 1000 m² = 50 m³. If the compacted density of asphalt is 145 lb/cu ft (2322 kg/m³), then we need 50 m³ x 2322 kg/m³ = 116.1 T. If each truck load takes 25 T, we need 4.6 (i.e. 5) truck loads. Therefore 5 truck hours. |
| | Asphalt lab test | | \$200.00 | \$/test | \$200.00 | For the 1000 m ² parking lot, we need 116.1 T. Thus, assume just 1 test. |
| | Asphalt nuclear density tests | | \$60.00 | \$/hr | \$180.00 | For this 1000 m ² parking lot, the asphalt paving productivity is 5305m ² per day according to RSMeans which is lower than other sources. Assume 3 hours. |
| Striping | | \$0.46 | | \$/m ² | \$460.00 | |
| SUBTOTAL | | | | | \$42,138.72 | |
| <u>Fees</u> | | | | | | |
| Project overhead | | 10.00% | | % of sub total | \$4,213.87 | |
| TOTAL | | | | | \$46,353 | |

APPENDIX B:

Maintenance Costs

Table B1: Bioretention maintenance yearly costs

| Maintenance Task | Frequency | Full Infiltration | Partial or No Infiltration |
|-----------------------------|--|-------------------|----------------------------|
| Watering | Year 1: Weekly first 2 months, bi- weekly May to August | \$302 | \$302 |
| | Year 2: 10% of plants that are new, weekly for first 2 months, biweekly May-August | \$212 | \$212 |
| | Year 3: Biweekly May-August | \$20 | \$20 |
| Inspection | Years 1 & 2: 4.5 times per year | \$212 | \$212 |
| | 2.5 times per year in subsequent years | \$118 | \$118 |
| Remove litter and debris | 6 times per year | \$120 | \$120 |
| Remove Sediment | Every 2 years, or as needed | \$912 | \$912 |
| | After year 2 | \$362 | \$362 |
| Prune | Annually or as needed | \$58 | \$58 |
| Weed | 6 times per year | \$120 | \$120 |
| Add mulch to maintain 75 mm | Replace every 3 years | \$980 | \$980 |
| Restore lost vegetation | 10% in year 2 | \$437 | \$437 |
| Unclog underdrain | Every 10 years | \$0 | \$77 |
| Average per year | | \$945 | \$952 |

Table B2: Bioretention rehabilitation

| Item | Full, Partial or No Infiltration |
|--------------------------|-------------------------------------|
| Remove all plants | \$137 |
| Install new plants | \$4,367 |
| Install new filter media | \$1,738 |
| Till | \$103 |
| TOTAL | \$6,345 |

Table B3: Permeable pavement maintenance yearly costs

| Maintenance Task | Frequency | Full Infiltration | Partial or No Infiltration |
|------------------------------|----------------|----------------------|-------------------------------|
| Surface sweeping with vacuum | Every 2 years | \$582 | \$582 |
| Restriping | Every 3 years | \$460 | \$460 |
| Pave replacement (10 pavers) | Every 8 years | \$57 | \$57 |
| Clean out pipes | Every 10 years | \$0 | \$38 |
| Average per year | | \$433 | \$436 |

Table B4: Permeable pavement rehabilitation

| Item | Full, Partial or No Infiltration |
|---|--|
| Removal of Pavers and Stone | |
| Remove pavers | \$1,625 |
| Remove No. 8, and top 2" of No.57 stone | \$2,057 |
| Cost of removal at year 30 | \$3,682 |
| Installation of New Pavers and Stone | |
| Erosion and sediment control | \$600 |
| Mobilization & demobilization | \$1,516 |
| Base, 50 mm deep | \$3,440 |
| Compaction test | \$86 |
| Plastic edge restraints | \$709 |
| Bedding & pavers | \$56,860 |
| Striping | \$460 |
| Cost of installation at year 30 | \$63,670 |
| SUBTOTAL | \$67,35 |
| Clean up | \$6,735 |
| TOTAL | \$74,088 |

Table B5: Infiltration trenches yearly costs

| Maintenance Task | Frequency | Roof Only | Road & Roof |
|--|--|-----------|-------------|
| Catchbasin cleanout | Once a year for roof runoff only design | \$75 | \$0 |
| Vacuum sediment & oil from hydrodynamic separator | Annually for parking lot runoff design | \$0 | \$1,200 |
| Soil Test | At 8 years for parking lot runoff design | \$0 | \$550 |
| Remove & replace filter cloth inner lining from perforated pipe. Test & dispose of sediment. | Once every 8 years for parking lot runoff design | \$0 | \$750 |
| Average per year | | \$74 | \$1,277 |

Table B6: Infiltration chambers yearly costs

| Maintenance task | Frequency | Roof Only | Road & Roof |
|--|---|-----------|-------------|
| Catchbasin cleanout | Once a year for Roof Runoff only design | \$75 | \$0 |
| Vacuum sediment & oil from hydrodynamic separator | Annually | \$0 | \$1,200 |
| Jet vac & vacuum sediment from isolator row of infiltration chambers | Once every 8 years | \$0 | \$300 |
| Average per year | | \$74 | \$1,212 |

Table B7: Enhanced grass swales yearly costs

| Maintenance task | Frequency | Curb/Filter sock/Rock check dam |
|---------------------------|--|---------------------------------|
| | Year 1: Weekly first 2 months, bi-weekly May to August | \$767 |
| Watering | Year 2: 10% of plants that are new, weekly for first 2 months, biweekly May-August | \$534 |
| | Year 3: Biweekly May-August | \$51 |
| Inconnetion | Years 1 & 2: 4.5 times per year | \$212 |
| Inspection | 2.5 times per year in subsequent years | \$118 |
| Damaria littar and dahria | Years 1 & 2: 4.5 times per year | \$90 |
| Remove litter and debris | 2.5 times per year in subsequent years | \$50 |
| Damaya andimant | Every 2 years, or as needed | \$912 |
| Remove sediment | After year 2 | \$362 |
| Restore lost vegetation | Restore lost vegetation In Year 2 | |
| Mowing | Once a month, as as needed May to September | \$106 |
| Average per year | | \$500 |

Table B8: Rainwater harvesting yearly costs

| Maintenance Task | Frequency | Concrete Tank Outdoor | Plastic Tank Indoor |
|---------------------------------------|----------------|--------------------------|------------------------|
| Cleaning in-line filter | Annually | \$75 | \$75 |
| Inspection | Annually | \$100 | \$100 |
| Cleaning out tank | Every 10 years | \$1,200 | \$1,200 |
| Replacing pump | Every 10 years | \$2,485 | \$2,485 |
| Replacing pressure tank | Every 10 years | \$3,431 | \$3,431 |
| Average per year | | \$744 | \$863 |
| Rehabilitation (replace plastic tank) | Every 40 years | n/a | \$7,170 |

Table B9: Extensive greenroof maintenance yearly costs

| Maintenance Task Frequency | | Cheap | Expensive |
|--|--|----------|-----------|
| | Year 1: Cheap case – once or twice a day until establishment (14 weeks), then once a week for 2.5 months | \$15,800 | \$0 |
| Watering | Year 2: Cheap case – once every 2-3 weeks for 4 months | \$700 | \$0 |
| | Year 3: Cheap case – once every 2-3 weeks for 4 months | \$700 | \$0 |
| | Year 1: Cheap case – every other week for 2 months, then once a month for 4 months Expensive case - Once | \$8,640 | \$1,080 |
| Weeding | Year 2: Cheap case – once a month for 6 months Expensive case – ½ of area once | \$6,480 | \$540 |
| | Year 3: Cheap case – three times Expensive case – ½ of area once | \$3,240 | \$540 |
| | Subsequent years: Both case – ½ of area once | \$540 | \$540 |
| Plant replacement (10%) | Every 40 years | \$2,080 | \$2,080 |
| Check drains, flashing, membrane | Twice a year | \$100 | \$100 |
| Test Membrane | Every 5 years | \$3,000 | \$5,000 |
| Membrane repair of small leak Every 5 years after 10 years | | \$762 | \$762 |
| Average per year | | \$9495 | \$13.985 |

Table B10: Extensive greenroof rehabilitation

| Item | Cheap | Expensive |
|---|-----------|-----------|
| Remove sedum, growing medium & stone ¹ | \$45,470 | \$68,205 |
| Remove drainage layer ¹ | \$10,505 | \$10,505 |
| Remove insulation ¹ | \$27,034 | \$27,034 |
| Remove TPO/EPDM ¹ | \$13,036 | \$13,036 |
| Chute | \$4,731 | \$12,617 |
| Cost of demolition | \$100,776 | \$131,397 |
| Cost of new greenroof | \$210,253 | \$429,918 |
| Subtotal | \$311,029 | \$561,315 |
| Project overhead | \$31,103 | \$56,131 |
| TOTAL | \$342,132 | \$617,446 |

Notes: ¹Includes carrying across roof and disposal

 Table B11: Asphalt yearly costs (used for comparative analysis)

| Maintenance Task | Frequency | Yearly cost |
|---|-------------------|----------------|
| Sealcoat | Every 3 years | \$2,900 |
| Cleaning surface prior to sealcoating | Every 3 years | \$220 |
| Restriping (after sealcoat) | Every 3 years | \$460 |
| Crack filling, pothole filling, patches | Ongoing as needed | \$1,000 |
| Average per year | | \$2,146 |

Table B12: Asphalt rehabilitation (used for comparative analysis)

| Item | Total cost |
|--|------------|
| Remove asphalt | \$6,470 |
| Regrading, compacting as necessary | \$490 |
| New asphalt | \$21,245 |
| Striping | \$460 |
| Cost of rehabilitation at 25 years | \$28,665 |
| Project overhead | \$2,867 |
| Overall cost of rehabilitation at 25 years | \$31,532 |

APPENDIX C:

Life Cycle Maintenance Costs

Table C1: Bioretention

| Maintenance Task | Full Infiltration | Partial or No Infiltration |
|------------------|-------------------|----------------------------|
| Water | \$534 | \$534 |
| Inspection | \$6,088 | \$6,088 |
| Litter | \$6,000 | \$6,000 |
| Sediment | \$9,600 | \$9,600 |
| Prune | \$2,900 | \$2,900 |
| Weed | \$6,000 | \$6,000 |
| Mulch | \$15,680 | \$15,680 |
| Vegetation | \$437 | \$437 |
| Underdrain | \$0 | \$385 |
| Rehab | \$7504 | \$7504 |
| TOTAL | \$54,743 | \$55,128 |

Table C2: Permeable pavement

| Maintenance Task | Full Infiltration | Partial or No Infiltration |
|------------------|-------------------|----------------------------|
| Vacuum sweep | \$13,968 | \$13,968 |
| Replace pavers | \$339 | \$339 |
| Clean out pipes | \$0 | \$154 |
| Restriping | \$7,360 | \$7,360 |
| Rehab | \$72,990 | \$72,990 |
| TOTAL | \$94,657 | \$94,811 |

Table C3: Infiltration trenches

| Maintenance Task | Roof Only | Road & Roof |
|---|-----------|-------------|
| Cleanout catchbasin | \$3,675 | \$0 |
| Clean-out hydrodynamic separator | \$0 | \$58,800 |
| Replace filter cloth & dispose sediment | \$0 | \$4,500 |
| Test sediment | \$0 | \$550 |
| TOTAL | \$3,675 | \$63,850 |

Table C4: Infiltration chambers

| Maintenance Task | Roof Only | Road & Roof |
|--------------------------------|-----------|-------------|
| Cleanout catchbasin | \$3,675 | \$0 |
| Clean-out separator | \$0 | \$58,800 |
| Clean-out infiltration chamber | \$0 | \$1,800 |
| TOTAL | \$3,675 | \$60,600 |

Table C5: Enhanced grass swales

| Maintenance Task | Curb/Filter sock/Rock check dam |
|--------------------|---------------------------------|
| Water | \$1,351 |
| Inspection | \$6,088 |
| Litter | \$2,580 |
| Remove sediment | \$9,600 |
| Restore vegetation | \$66 |
| Mowing | \$5,300 |
| TOTAL | \$24,985 |

Table C6: Rainwater harvesting

| Maintenance Task | Concrete Tank | Plastic Tank |
|--------------------------------|---------------|--------------|
| Cleaning in-line filter | \$3,750 | \$3,750 |
| Inspection | \$5,000 | \$5,000 |
| Cleaning out tank | \$4,800 | \$4,800 |
| Replacing pump & pressure tank | \$23,664 | \$23,664 |
| Replacement | n/a | \$5,970 |
| TOTAL | \$37,214 | \$43,184 |

Table C7: Extensive greenroof

| Maintenance Task | Cheap | Expensive |
|----------------------------------|-----------|-----------|
| Water | \$17,200 | \$0 |
| Weeding | \$43,740 | \$27,540 |
| Plant replacement | \$2,080 | \$2,080 |
| Check drains, flashing, membrane | \$5,000 | \$5,000 |
| Test membrane | \$27,000 | \$45,000 |
| Repair membrane, small leak | \$6,096 | \$6,096 |
| Replacement | \$373,628 | \$613,542 |
| TOTAL | \$474,744 | \$699,258 |

Table C8: Asphalt (used for comparative analysis)

| Maintenance Task | Asphalt |
|---|-----------|
| Clean, sealcoat and restriping | \$57,280 |
| Crack filling, pothole filling and patching | \$50,000 |
| Rehabilitation | \$26,951 |
| TOTAL | \$134,231 |

APPENDIX

B

Stormwater Management Calculations

| 111 | | | ject | 25th Side Road | No. | 211-06027-0 | 0 |
|-----|---|------|-------|------------------|---------|-------------|------|
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| | | Chec | ecked | Steven Van Haren | Checked | | 1 |

Subject Rainfall Data

2. Rainfall data

Stormwater management facilities should be designed based on the IDF tables developed by Environment Canada for Barrie WPCC based on rain gauge data for the period 1979 - 2003 including a 15% increase in rainfall intensity data to account for climate change. The adjusted Chicago distribution parameters for different return periods are provided below

Rainfall parameters

678.085

4.699

0.781

В

853.608

4.699

0.766

| Return Period (Year) | 2 | 5 | 10 | 25 | 50 | 100 |
|-------------------------|---------|---------|---------|----------|----------|---------|
| Α | 678.085 | 853.608 | 975.865 | 1146.275 | 1236.152 | 1426.41 |
| В | 4.699 | 4.699 | 4.699 | 4.922 | 4.699 | 5.273 |
| С | 0.781 | 0.766 | 0.76 | 0.757 | 0.751 | 0.759 |

City of Barrie 4-hr Chicago Storm Hyetographs (Adjusted to Account for Climate Change)

| | | | Intensity | (mm/hr) | | |
|------------|-------|--------|-----------|---------|--------|--------|
| Time (min) | 2-YR | 5-YR | 10-YR | 25-YR | 50-YR | 100-YF |
| 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10 | 2.47 | 3.57 | 4.32 | 5.22 | 5.93 | 6.41 |
| 20 | 2.82 | 4.07 | 4.91 | 5.94 | 6.74 | 7.29 |
| 30 | 3.31 | 4.76 | 5.73 | 6.93 | 7.85 | 8.52 |
| 40 | 4.05 | 5.79 | 6.96 | 8.42 | 9.50 | 10.36 |
| 50 | 5.30 | 7.53 | 9.03 | 10.91 | 12.27 | 13.45 |
| 60 | 7.98 | 11.20 | 13.36 | 16.13 | 18.04 | 19.96 |
| 70 | 18.78 | 25.64 | 30.27 | 36.37 | 40.22 | 45.22 |
| 80 | 83.11 | 108.92 | 126.55 | 148.15 | 164.22 | 180.15 |
| 90 | 24.57 | 33.31 | 39.22 | 47.06 | 51.92 | 58.54 |
| 100 | 13.01 | 17.99 | 21.35 | 25.72 | 28.58 | 31.96 |
| 110 | 9.01 | 12.60 | 15.01 | 18.11 | 20.23 | 22.45 |
| 120 | 6.97 | 9.82 | 11.74 | 14.17 | 15.88 | 17.52 |
| 130 | 5.73 | 8.12 | 9.72 | 11.74 | 13.20 | 14.50 |
| 140 | 4.89 | 6.96 | 8.35 | 10.09 | 11.37 | 12.44 |
| 150 | 4.28 | 6.12 | 7.35 | 8.89 | 10.03 | 10.94 |
| 160 | 3.82 | 5.48 | 6.59 | 7.96 | 9.00 | 9.80 |
| 170 | 3.46 | 4.97 | 5.99 | 7.24 | 8.19 | 8.90 |
| 180 | 3.17 | 4.56 | 5.50 | 6.65 | 7.53 | 8.16 |
| 190 | 2.93 | 4.22 | 5.09 | 6.15 | 6.98 | 7.56 |
| 200 | 2.72 | 3.93 | 4.74 | 5.74 | 6.51 | 7.04 |
| 210 | 2.55 | 3.68 | 4.45 | 5.38 | 6.11 | 6.60 |
| 220 | 2.39 | 3.47 | 4.19 | 5.08 | 5.77 | 6.22 |
| 230 | 2.26 | 3.28 | 3.97 | 4.80 | 5.46 | 5.89 |
| 240 | 2.15 | 3.12 | 3.77 | 4.57 | 5.19 | 5.59 |
| Depth (mm) | 36.96 | 50.52 | 59.69 | 71.24 | 79.45 | 87.58 |

975.865

4.699

0.760

1146.275

4.922

0.757

1236.152

4.699

0.751

1426.408

5.273

0.759

| Storm Event | Depth (mm) | | | | |
|------------------|-------------------------------|----------------------------|--|--|--|
| Storm Event | 12-hr SCS (no climate change) | 12-hr SCS (climate change) | | | |
| 2-year | 40.8 | 46.8 | | | |
| 5-year | 56.4 | 64.8 | | | |
| 10-year | 66.0 | 75.6 | | | |
| 25-year | 79.2 | 91.2 | | | |
| 50-year | 88.8 | 102.0 | | | |
| 100-year | 98.4 | 112.8 | | | |
| Regional (Hazel) | 212 | | | | |



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Subject Pre-Development Conditions Time to Peak

 $\underline{\textit{Airport Equation}}$ To be used if "C" value is less than or equal to 0.4

 $t_c = 3.26 * (1.1 - C) * L^{0.5} * S_w^{-0.33}$

Where: t_c = time of concentration, minutes

C = runoff coefficient L = watershed length, m S_w = watershed slope, %

| Catchment Name | Max Ele. | Minimum Ele, | L | Slope % | С | Тс | TP |
|-----------------|----------|--------------|---------|---------|------|------|------|
| Catchment 101 | 275 | 226 | 2335 | 2.10 | 0.2 | 1.85 | 1.23 |
| Catchment 102 | 237 | 224.7 | 980.5 | 1.25 | 0.2 | 1.42 | 0.95 |
| Catchment 103 | 272 | 222.8 | 4350 | 1.13 | 0.2 | 3.10 | 2.06 |
| Catchment 104 | 270.5 | 223.99 | 3271 | 1.42 | 0.20 | 2.49 | 1.66 |
| Catchment 105 | 236.5 | 222.82 | 303 | 4.51 | 0.20 | 0.52 | 0.35 |
| Catchment 106-1 | 253.5 | 226.15 | 787 | 3.48 | 0.20 | 0.91 | 0.61 |
| Catchment 107 | 255.5 | 229.30 | 1292 | 2.03 | 0.20 | 1.39 | 0.93 |
| Catchment 108 | 275 | 235.71 | 4287.00 | 0.92 | 0.20 | 3.30 | 2.20 |
| Catchment 109 | 248 | 241.00 | 296.00 | 2.36 | 0.20 | 0.63 | 0.42 |
| Catchment 110 | 250 | 227.30 | 1103.00 | 2.06 | 0.20 | 1.28 | 0.85 |
| Catchment 111 | 236.5 | 230.90 | 1576.00 | 0.36 | 0.20 | 2.73 | 1.82 |
| Catchment 112 | 255 | 245.56 | 3146.00 | 0.30 | 0.20 | 4.08 | 2.72 |



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Subject Pre-development Conditions Road Drainage Areas

Pre-development Area Breakdown

| Catchment Name | Area (ha) | Road Area (ha) | TIMP (%) | XIMP (%) | Road Imp (%) | Outlet name | |
|-----------------------------------|------------|-------------------|------------|------------|--------------|---|--|
| Catchment 101 | 182 | N.A | 23 | 23 | N.A | | |
| Catchment 101-1 | 42 | N.A | 35 | 35 | N.A | (1800 mm and 900mm diame Existing Culverts) | |
| Catchment 1001L (R) | N.A | 0.2100 | N.A | N.A | 79 | | |
| Catchment 1001R (R) | N.A | 0.2300 | N.A | N.A | 78 | | |
| Catchment 102 | 45 | N.A | 0 | 0 | N.A | | |
| Catchment 1002L (R) | N.A | 0.7300 | N.A | N.A | 71 | (500 mm diameter Existing | |
| Catchment 1002R (R) | N.A | 0.8300 | N.A | N.A | 75 | (500 mm diameter Existing Culvert) | |
| Catchment 103 | 384 | N.A | 0 | 0 | N.A | | |
| Catchment 1003L (R) | N.A | 0.3800 | N.A | N.A | 66 | (1100mm x 1500 mm diamete | |
| Catchment 1003R (R) | N.A | 0.3900 | N.A | N.A | 79 | Existing Culvert) | |
| Catchment 104 | 242 | N.A | 0 | 0 | N.A | | |
| Catchment 1004L (R) | N.A | 0.3500 | N.A | N.A | 69 | (800mm diameter Existing | |
| Catchment 1004R (R) | N.A | 0.3800 | N.A | N.A | 74 | Culvert) | |
| Catchment 105 | 135 | N.A | 0 | 0 | N.A | | |
| Catchment 1005L (R) | N.A | 0.3700 | N.A | N.A | 66 | (1200mm and 800 mm diamete | |
| Catchment 1005R (R) | N.A | 0.3600 | N.A | N.A | 62 | Existing Culverts) | |
| Catchment 106 | 29 | N.A | 0 | 0 | N.A | • , | |
| Catchment 1006L (R) | N.A | 0.6500 | N.A | N.A | 65 | (500mm x 700 mm diameter | |
| Catchment 1006R (R) | N.A | 0.6600 | N.A | N.A | 62 | Existing Culverts) | |
| Catchment 107 | 59.6 | N.A | 0 | 0 | N.A | , | |
| Catchment 1007L (R) | N.A | 0.7200 | N.A | N.A | 60 | (800mm diameter Existing | |
| Catchment 1007R (R) | N.A | 0.7400 | N.A | N.A | 71 | Culvert) | |
| Catchment 108-1 | 207 | N.A | 0 | 0 | N.A | · | |
| Catchment 1008-L | N.A | 0.21 | N.A | N.A | 52 | (700mm x 1000 mm diameter | |
| Catchment 1008-R | N.A | 0.16 | N.A | N.A | 87 | Existing Culverts) | |
| Catchment 108-2 | 207 | N.A | 0 | 0 | N.A | | |
| Catchment 1008-L | N.A | 0.21 | N.A | N.A | 52 | (900mm diameter Existing | |
| Catchment 1008-R | N.A | 0.21 | N.A | N.A | 87 | Culvert) | |
| Catchment 109 | 6 | N.A | 0 | 0 | N.A | | |
| Catchment 1009L | N.A | 0.50 | N.A | N.A | 74 | (450mm diameter Existing | |
| Catchment 1009R | N.A | 0.63 | N.A | N.A | 81 | Culvert) | |
| Catchment 110 | 178 | N.A | 38 | 38 | N.A | | |
| Catchment 1100 L | N.A | 0.91 | N.A | N.A | 55 | (Existing Bridge 6 m x 3.2 m) | |
| Catchment 1100R | N.A | 0.88 | N.A | N.A | 72 | (Existing bridge o III x 3.2 III) | |
| Catchment 111 | 109 | N.A | 0 | 0 | | Existing Culvert | |
| Catchment 1110-L | N.A | 1.06 | N.A | N.A | N.A 59 | Existing Culvert Existing Culvert | |
| Catchment 1110-R | N.A | 0.97 | N.A | N.A | | Existing Culvert Existing Culvert | |
| Catchment 112 | 192 | N.A | 0 | 0 | 78 N.A | Existing Culvert Existing Culvert | |
| | N.A | 1.21 | N.A | N.A | | | |
| Catchment 1120-L Catchment 1120-R | N.A N.A | 1.21 | N.A N.A | N.A N.A | 68 | Existing Culvert Existing Culvert | |
| Total | 1171 | 15.29 | 68.1 | | 69 | LAISTING OUIVEIT | |



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Post-Development Drainage Areas and LID Units Footprint Areas

Post-Development Area Breakdown

| Post-Development Area Breakdown | | | | | | | |
|---------------------------------------|--------------------------|----------|----------|----------------------------|--------------------------------|--|--|
| Catchment Name | Road Catchment Area (ha) | TIMP (%) | XIMP (%) | LID Footprint Area (ha) | Total Pervious Area (ha) | Outlet name | |
| Catchment 2001.1(L)- Context 3 | 0.100 | 90 | 90 | 0.006 | 0.01 | | |
| Catchment 2001.1 R- Context 3 | 0.099 | 79 | 79 | 0.011 | 0.02 | Existing storm pipe | |
| Catchment Name | Road Catchment Area (ha) | TIMP (%) | XIMP (%) | LID Footprint Area (ha) | Total Pervious Area (ha) | Outlet name | |
| Catchment 2001.2(L)- Context 1 | 0.11 | 95 | 95 | 0.01 | 0.01 | (1800 mm and 900mm diameter | |
| Catchment 2001.2(R)- Context 1 | 0.13 | 96 | 96 | 0.01 | 0.01 | Existing Culverts) | |
| Catchment 2002L (R) -Context 1 | 0.70 | 94 | 94 | 0.044 | 0.08 | (500 mm diameter Existing | |
| Catchment 2002R (R) (Context 1) | 0.80 | 95 | 95 | 0.04 | 0.12 | Culvert) | |
| Catchment 2003L (R) (Context 1) | 0.43 | 90 | 90 | 0.0167 | 0.04 | (1100mm x 1500 mm diameter | |
| Catchment 2003R (R) (Context 1) | 0.47 | 87 | 87 | 0.04 | 0.06 | Existing Culvert) | |
| Catchment 2004L (R) (Context 1) | 0.35 | 89 | 89 | 0.015 | 0.04 | (800mm diameter Existing | |
| Catchment 2004R (R) (Context 1) | 0.36 | 85 | 85 | 0.05 | 0.05 | Culvert) | |
| Catchment 2005L (R) (Context 1) | 0.28 | 90 | 90 | 0.01 | 0.03 | (1200mm and 800 mm diameters | |
| Catchment 2005R (R) (Context 1) | 0.29 | 78 | 78 | 0.03 | 0.06 | Existing Culverts) | |
| Catchment 2006L (R) (Context 1) | 0.65 | 88 | 88 | 0.05 | 0.08 | (500mm x 700 mm diameter | |
| Catchment 2006R (R) (Context 1) | 0.73 | 80 | 80 | 0.03 | 0.15 | Existing Culverts) | |
| Catchment 2007L (R) (Context 1) | 0.58 | 85 | 85 | 0.06 | 0.09 | (800mm diameter Existing | |
| Catchment 2007R (R) (Context 1) | 0.64 | 84 | 84 | 0.07 | 0.11 | Culvert) | |
| Catchment 20081-L (Context 1) | 0.07 | 84 | 84 | 0.007 | 0.011 | | |
| Catchment 20081-R (Context 1) | 0.07 | 83 | 83 | 0.006 | 0.012 | | |
| Catchment Name | Road Catchment Area (ha) | TIMP (%) | XIMP (%) | LID Footprint Area (ha) | Total Pervious Area (ha) | 700mm x 1000 mm diameter Existing Culverts and 900mm diameter Existing Culvert | |
| Catchment 20082-L (Context 3) | 0.38 | 70 | 70 | 0.0434 | 0.117 | | |
| Catchment 20082-R (Context 3) | 0.39 | 59 | 59 | 0.043 | 0.160 | | |
| Catchment 2009L (Context 3) | 0.40 | 77 | 77 | 0.032 | 0.093 | (450mm diameter Existing | |
| Catchment 2009R (Context 3) | 0.39 | 77 | 77 | 0.037 | 0.091 | Culvert) | |
| Catchment 2010 L (Context 3) | 0.25 | 82 | 82 | 0.02 | 0.04 | | |
| Catchment 2010R (Context 3) | 0.25 | 82 | 82 | 0.01 | 0.04 | | |
| Catchment Name | Road Catchment Area (ha) | TIMP (%) | XIMP (%) | LID Footprint Area (ha) | Total Pervious Area (ha) | (Existing Bridge 6 m x 3.2 m) | |
| Catchment 2010 L (Context 1) | 0.47 | 74 | 74 | 0.033 | 0.12 | | |
| Catchment 2010R (Context 1) | 0.47 | 86 | 86 | 0.02 | 0.07 | | |
| Catchment 2010 L Total (Context 1, 3) | 0.72 | 77 | | | | | |
| Catchment 2010 R Total (Context 1, 3) | 0.72 | 85 | | | | | |
| Catchment 2011 L (Context 3,2) | 0.87 | 86 | 86 | 0.05 | 0.12 | (450mm diameter Existing | |
| Catchment 2011 R (Context 3,2) | 0.90 | 85 | 85 | 0.06 | 0.14 | Culvert) | |
| Catchment 2012-L (Context 2) | 1.11 | 56 | 56 | 0.07 | 0.49 | Existing 400 mm Culvert | |
| Catchment 2012-R (Context 2) | 1.11 | 93 | 93 | 0.08 | 0.08 | Existing 400 min Guivert | |
| Total | 15.289 | 82 | | | | | |



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Subject

Required Storage Volumes within LID units to meet Stormwater Management Control

| Catchment Name | Infiltration Gallery Footprint Area (ha) | LID Required Storage Volume for Quality Control (m³) | Infiltration Chamber Required Storage Volume to retain 12.5 mm of rainfall depth (m³) | Infiltration Gallery Provided Volume (m) | Unit Depth (m) |
|---------------------------------|---|--|---|--|----------------------|
| Catchment 2001.1(L)- Context 3 | 0.006 | 5 | 11.2 | 27.7 | 1.2 |
| Catchment 2001.1 R- Context 3 | 0.011 | 4 | 9.8 | 31.0 | 0.7 |
| Catchment Name | LID Footprint Area (ha) | LID Required Storage Volume for Quality Control (m³) | LID Required Storage Volume to retain 12.5 mm of rainfall depth (m3) | LID Provided Volume (m) | Unit Depth (m) |
| Catchment 2001.2(L)- Context 1 | 0.01 | 8 | 13.1 | 39 | 1.9 |
| Catchment 2001.2(R)- Context 1 | 0.01 | 1.25 | 15.6 | 30.9 | 1.2 |
| Catchment 2002 (L)- Context 1 | 0.04 | 46.39 | 82.0 | 254.6 | 1.2 |
| Catchment 2002(R)- Context 1 | 0.04 | 54.83 | 94.5 | 268.9 | 1.2 |
| Catchment 2003 (L)- Context 1 | 0.02 | 23.1 | 48.2 | 166 | 2.3 |
| Catchment 2003(R)- Context 1 | 0.04 | 21.1 | 50.9 | 228 | 1.2 |
| Catchment 2004 (L)- Context 1 | 0.015 | 18.1 | 38.9 | 111 | 1.6 |
| Catchment 2004(R)- Context 1 | 0.05 | 14.9 | 38.4 | 269 | 1.2 |
| Catchment 2005 (L)- Context 1 | 0.008 | 15 | 31.4 | 64 | 1.5 |
| Catchment 2005(R)- Context 1 | 0.03 | 11 | 28.3 | 185 | 1.2 |
| Catchment 2006 (L)- Context 1 | 0.05 | 31 | 71.2 | 291 | 1.2 |
| Catchment 2006 (R)- Context 1 | 0.03 | 28 | 72.9 | 240 | 1.9 |
| Catchment 2007 (L)- Context 1 | 0.06 | 23 | 61.7 | 358 | 1.2 |
| Catchment 2007 (R)- Context 1 | 0.64 | 23 | 66.8 | 400 | 1.2 |
| Catchment 20081 (L)- Context 1 | 0.01 | 2.54 | 7.1 | 45 | 1.6 |
| Catchment 20082 (L)- Context 3 | 0.04 | 13.34 | 33.3 | 173 | 1.00 |
| Catchment 2008 (L)- Context 1&3 | Total | 16 | 40.3 | 219 | |
| Catchment 20081 (R)- Context 1 | 0.006 | 3 | 7.6 | 36 | 1.3 |
| Catchment 20082 (R)- Context 3 | 0.04 | 12 | 28.3 | 172 | 1.00 |
| Catchment 2008 (R)- Context 1&3 | Total | 161 | | 208 | |
| Catchment 2009 (L)- Context 3 | 0.032 | 15 | 38.4 | 63 | 0.50 |
| Catchment 2009 (R)- Context 3 | 0.037 | 15 | 37.4 | 67 | 0.50 |
| Catchment 20101 (L)- Context 3 | 0.022 | 10 | 25.6 | 43 | 0.50 |
| Catchment 20102 (L)- Context 1 | 0.033 | 17 | 43.8 | 191 | 1.2 |
| Catchment 2010 (L) | Total | 27 | 69.4 | 235 | |
| Catchment 20101(R)- Context 3 | 0.027 | 10 | 25.6 | 140 | 1.3 |
| Catchment 20102 (R)- Context 1 | 0.024 | 19 | 76.1 | 152 | 1.5 |
| Catchment 2010 (R) | Total | 29 | | 292 | |
| Catchment 2011 (L)- Context 3,2 | 0.053 | 30 | 93.3 | 258 | 1.2 |
| Catchment 2011 (R)- Context 3,2 | 0.056 | 36 | 95.2 | 268 | 1.2 |
| Catchment 2012 (L)- Context 2 | 0.0693 | 34 | 77.5 | 314 | 1.2 |
| Catchment 2012 (R)- Context 2 | 0.077 | 47 | 129.1 | 388 | 1.3 |
| Total | | | | 5285 | |



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Infiltration Rate Calculations

Table C 2: Approximate relationships between hydraulic conductivity, percolation time and infiltration rate

| Hydraulic Conductivity, K _{fs} (centimetres/second) | Percolation Time, T (minutes/centimetre) | Infiltration Rate, 1/T (millimetres/hour) |
|---|---|--|
| 0.1 | 2 | 300 |
| 0.01 | 4 | 150 |
| 0.001 | 8 | 75 |
| 0.0001 | 12 | 50 |
| 0.00001 | 20 | 30 |
| 0.000001 | 50 | 12 |

Source: Ontario Ministry of Municipal Affairs and Housing (OMMAH). 1997. Supplementary Guidelines to the Ontario Building Code 1997. SG-6 Percolation Time and Soil Descriptions. Toronto, Ontario.

 Percolation Rate:
 BH3
 0.0100
 cm/s
 150.0

 BH12
 0.001
 cm/s
 75.0

 BH1
 0.0000001
 cm/s
 50.0

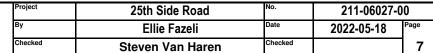
 BH5
 0.00000001
 cm/s

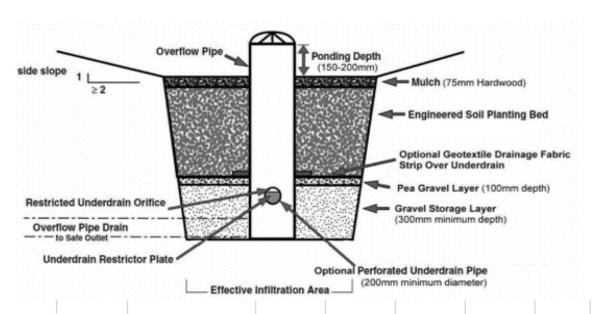
Table C 3: Safety correction factors for calculating design infiltration rates

| Ratio of Mean Measured Infiltration Rates ¹ | Safety Correction Factor ² |
|--|---------------------------------------|
| ≤ 1 | 2.5 |
| 1.1 to 4.0 | 3.5 |
| 4.1 to 8.0 | 4.5 |
| 8.1 to 16.0 | 6.5 |
| 16.1 or greater | 8.5 |

Source: Wisconsin Department of Natural Resources. 2004. Conservation Practice Standards. Site Evaluation for Stormwater Infiltration (1002). Madison, WI.

| | Ratio | Saftey Factor | Infiltration Rate | |
|------|--------|---------------|-------------------|--|
| ВН3 | 12.50 | 6.50 | 23.08 mm/hr | |
| BH12 | 6.25 | 4.50 | 33.33 | |
| BH1 | 1.0000 | 2.50 | 4.80 | |
| BH5 | NA | | | |





| Bi | | | |
|----|--|--|--|
| | | | |
| | | | |

| Bioswale Catchment 2001.2 (| L): | Bioswale Catchment | <mark>: 2001.2 (R)</mark> : |
|---|--------------------|---|-----------------------------|
| Base Area Catchment 2001.2 (L) | 56.00 m² | Base Area Catchment 2001.2 (R) | 55.00 m² |
| mulch depth | 0.075 m | mulch depth | 0.075 m |
| Porosity of mulch | 70% | Porosity of mulch | 70% |
| Storage in mulch la | 2.940 m³ | Storage in mulch I | 2.888 m³ |
| Filter Media Depth | 1.40 m | Filter Media Depth | 0.65 m |
| Porosity of Filter Media | 20% | Porosity of Filter Media | 20% |
| Storage in voids of filter media | 16 m³ | Storage in voids of filter media | 7 m³ |
| Percolation rate within gravel layer | 300.0 mm/hr | Percolation rate within gravel layer | 300.0 mm/hr |
| Drawdown time within gravel layer (filter media and chocker course layer were included) | 5.0 hr | Drawdown time within gravel layer (filter media and chocker course layer were included) | 2.5 hr |
| Ponding Depth | 0.2 m | Ponding Depth | 0.2 m |
| Surface Storage | 11.2 m³ | Surface Storage | 11.0 m³ |
| Percolation rate within filter media layer | 25.0 mm/hr | Percolation rate within filter media layer | 25.0 mm/hr |
| Drawdown time within filter media (ponding depth and mulch later were included) | 11.0 hr | Drawdown time within filter media (ponding depth and mulch later were included) | 11.0 hr |
| Gravel layer depth | 0.30 m | Gravel layer depth | 0.35 m |
| Porosity of Gravel layer | 40% | Porosity of Gravel layer | 40% |
| torage in voids of gravel | 6.7 m ³ | Storage in voids of gravel | 7.7 m ³ |
| ercolation rate within native soil | 33.3 mm/hr | Percolation rate within native soil | 33.3 mm/hr |
| Drawdown time within native soil | 9.0 hr | Drawdown time within native soil | 10.5 hr |
| Chocker course | 0.1 m | Chocker course | 0.1 m |
| Porosity of Chocker course | 40% | Porosity of Chocker course | 40% |
| Storage inchocker course layer | 2.2 m³ | Storage inchocker course layer | 2.2 m³ |
| Total depth of system | 1.9 m | Total depth of system | 1.18 m |
| Total Storage | 39 m³ | Total Storage | 31 m³ |
| Total drawdown time | 25.0 hr | Total drawdown time | 24.0 hr |



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| Bioswale Catchment 2002 (L): | | Bioswale Catchme | nt 2002(R): |
|---|-----------------------|---|-------------|
| Base Area Catchment 2002 (L) | 437.00 m ² | Base Area Catchment 2002 (R) | 439.00 m² |
| mulch depth | 0.075 m | mulch depth | 0.075 m |
| Porosity of mulch | 70% | Porosity of mulch | 70% |
| Storage in mulch la | 22.943 m³ | Storage in mulch I | 23.048 m³ |
| Filter Media Depth | 0.65 m | Filter Media Depth | 0.50 m |
| Porosity of Filter Media | 20% | Porosity of Filter Media | 20% |
| Storage in voids of filter media | 57 m³ | Storage in voids of filter media | 44 m³ |
| Percolation rate within gravel layer | 300.0 mm/hr | Percolation rate within gravel layer | 300.0 mm/hr |
| Drawdown time within gravel layer (filter media and chocker course layer were included) | 2.5 hr | Drawdown time within gravel layer (filter media and chocker course layer were included) | 2.0 hr |
| Ponding Depth | 0.2 m | Ponding Depth | 0.2 m |
| Surface Storage | 87.4 m³ | Surface Storage | 87.8 m³ |
| Percolation rate within filter media layer | 25.0 mm/hr | Percolation rate within filter media layer | 25.0 mm/hr |
| Drawdown time within filter media (ponding depth and mulch later were included) | 11.0 hr | Drawdown time within filter media (ponding depth and mulch later were included) | 11.0 hr |
| Gravel layer depth | 0.40 m | Gravel layer depth | 0.55 m |
| Porosity of Gravel layer | 40% | Porosity of Gravel layer | 40% |
| Storage in voids of gravel | 69.9 m³ | Storage in voids of gravel | 96.6 m³ |
| Percolation rate within native soil | 33.3 mm/hr | Percolation rate within native soil | 33.3 mm/hr |
| Drawdown time within native soil | 12.0 hr | Drawdown time within native soil | 16.5 hr |
| Chocker course | 0.1 m | Chocker course | 0.1 m |
| Porosity of Chocker course | 40% | Porosity of Chocker course | 40% |
| Storage inchocker course layer | 17.5 m³ | Storage inchocker course layer | 17.6 m³ |
| Total depth of system | 1.23 m | Total depth of system | 1.23 m |
| Total Storage | 255 m³ | Total Storage | 269 m³ |
| Total drawdown time | 25.5 hr | Total drawdown time | 29.5 hr |



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| Bioswale Catchment 2003 (L): | | Bioswale Catchme | nt 2003 (R): |
|---|-------------|---|--------------|
| Base Area Catchment 2003 (L) | 167.00 m² | Base Area Catchment 2003 (R) | 399.00 m² |
| mulch depth | 0.075 m | mulch depth | 0.075 m |
| Porosity of mulch | 70% | Porosity of mulch | 70% |
| Storage in mulch la | 8.768 m³ | Storage in mulch I | 20.948 m³ |
| Filter Media Depth | 1.40 m | Filter Media Depth | 0.70 m |
| Porosity of Filter Media | 30% | Porosity of Filter Media | 20% |
| Storage in voids of filter media | 70 m³ | Storage in voids of filter media | 56 m³ |
| Percolation rate within gravel layer | 300.0 mm/hr | Percolation rate within gravel layer | 300.0 mm/hr |
| Drawdown time within gravel layer (filter media and chocker course layer were included) | 5.0 hr | Drawdown time within gravel layer (filter media and chocker course layer were included) | 2.7 hr |
| Ponding Depth | 0.2 m | Ponding Depth | 0.2 m |
| Surface Storage | 33.4 m³ | Surface Storage | 79.8 m³ |
| Percolation rate within filter media layer | 25.0 mm/hr | Percolation rate within filter media layer | 25.0 mm/hr |
| Drawdown time within filter media (ponding depth and mulch later were included) | 11.0 hr | Drawdown time within filter media (ponding depth and mulch later were included) | 11.0 hr |
| Gravel layer depth | 0.70 m | Gravel layer depth | 0.35 m |
| Porosity of Gravel layer | 40% | Porosity of Gravel layer | 40% |
| torage in voids of gravel | 46.8 m³ | Storage in voids of gravel | 55.9 m³ |
| ercolation rate within native soil | 33.3 mm/hr | Percolation rate within native soil | 33.3 mm/hr |
| Drawdown time within native soil | 21.0 hr | Drawdown time within native soil | 10.5 hr |
| Chocker course | 0.1 m | Chocker course | 0.1 m |
| Porosity of Chocker course | 40% | Porosity of Chocker course | 40% |
| Storage inchocker course layer | 6.7 m³ | Storage inchocker course layer | 16.0 m³ |
| Total depth of system | 2.28 m | Total depth of system | 1.2 m |
| Total Storage | 166 m³ | Total Storage | 228 m³ |
| Total drawdown time | 37.0 hr | Total drawdown time | 24.2 hr |



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| Bioswale Catchment 2004 (L): | | Bioswale Catchmer | nt 2004 (R): |
|---|-------------|---|--------------|
| Base Area Catchment 2004 (L) | 150.00 m² | Base Area Catchment 2004 (R) | 454.00 m² |
| mulch depth | 0.075 m | mulch depth | 0.075 m |
| Porosity of mulch | 70% | Porosity of mulch | 70% |
| Storage in mulch li | 7.875 m³ | Storage in mulch I | 23.835 m³ |
| Filter Media Depth | 0.75 m | Filter Media Depth | 0.50 m |
| Porosity of Filter Media | 25% | Porosity of Filter Media | 20% |
| Storage in voids of filter media | 28 m³ | Storage in voids of filter media | 45 m³ |
| Percolation rate within gravel layer | 300.0 mm/hr | Percolation rate within gravel layer | 300.0 mm/hr |
| Drawdown time within gravel layer (filter media and chocker course layer were included) | 2.8 hr | Drawdown time within gravel layer (filter media and chocker course layer were included) | 2.0 hr |
| Ponding Depth | 0.2 m | Ponding Depth | 0.2 m |
| Surface Storage | 30.0 m³ | Surface Storage | 90.8 m³ |
| Percolation rate within filter media layer | 25.0 mm/hr | Percolation rate within filter media layer | 25.0 mm/hr |
| Drawdown time within filter media (ponding depth and mulch later were included) | 11.0 hr | Drawdown time within filter media (ponding depth and mulch later were included) | 11.0 hr |
| Gravel layer depth | 0.65 m | Gravel layer depth | 0.50 m |
| Porosity of Gravel layer | 40% | Porosity of Gravel layer | 40% |
| Storage in voids of gravel | 39.0 m³ | Storage in voids of gravel | 90.8 m³ |
| Percolation rate within native soil | 33.3 mm/hr | Percolation rate within native soil | 33.3 mm/hr |
| Drawdown time within native soil | 19.5 hr | Drawdown time within native soil | 15.0 hr |
| Chocker course | 0.1 m | Chocker course | 0.1 m |
| Porosity of Chocker course | 40% | Porosity of Chocker course | 40% |
| Storage inchocker course layer | 6.0 m³ | Storage inchocker course layer | 18.2 m³ |
| Total depth of system | 1.58 m | Total depth of system | 1.18 m |
| Total Storage | 111 m³ | Total Storage | 269 m³ |
| Total drawdown time | 33.3 hr | Total drawdown time | 28.0 hr |



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| Bioswale Catchment 2005 (L): | | Bioswale Catchmer | nt 2005 (R): |
|---|-------------|---|-----------------------|
| Base Area Catchment 2005 (L) | 84.87 m² | Base Area Catchment 2005 (R) | 313.00 m ² |
| mulch depth | 0.075 m | mulch depth | 0.075 m |
| Porosity of mulch | 70% | Porosity of mulch | 70% |
| Storage in mulch li | 4.456 m³ | Storage in mulch l | 16.433 m³ |
| Filter Media Depth | 0.40 m | Filter Media Depth | 0.50 m |
| Porosity of Filter Media | 20% | Porosity of Filter Media | 20% |
| Storage in voids of filter media | 7 m³ | Storage in voids of filter media | 31 m³ |
| Percolation rate within gravel layer | 300.0 mm/hr | Percolation rate within gravel layer | 300.0 mm/hr |
| Drawdown time within gravel layer (filter media and chocker course layer were included) | 1.7 hr | Drawdown time within gravel layer (filter media and chocker course layer were included) | 2.0 hr |
| Ponding Depth | 0.2 m | Ponding Depth | 0.2 m |
| Surface Storage | 17.0 m³ | Surface Storage | 62.6 m³ |
| Percolation rate within filter media layer | 25.0 mm/hr | Percolation rate within filter media layer | 25.0 mm/hr |
| Drawdown time within filter media (ponding depth and mulch later were included) | 11.0 hr | Drawdown time within filter media (ponding depth and mulch later were included) | 11.0 hr |
| Gravel layer depth | 0.95 m | Gravel layer depth | 0.50 m |
| Porosity of Gravel layer | 40% | Porosity of Gravel layer | 40% |
| torage in voids of gravel | 32.3 m³ | Storage in voids of gravel | 62.6 m³ |
| Percolation rate within native soil | 33.3 mm/hr | Percolation rate within native soil | 33.3 mm/hr |
| Drawdown time within native soil | 28.5 hr | Drawdown time within native soil | 15.0 hr |
| Chocker course | 0.1 m | Chocker course | 0.1 m |
| Porosity of Chocker course | 40% | Porosity of Chocker course | 40% |
| Storage inchocker course layer | 3.4 m³ | Storage inchocker course layer | 12.5 m³ |
| Total depth of system | 1.53 m | Total depth of system | 1.18 m |
| Total Storage | 64 m³ | Total Storage | 185 m³ |
| Total drawdown time | 41.2 hr | Total drawdown time | 28.0 hr |



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| Bioswale Catchment 2006 (L): | | Bioswale Catchme | nt 2006 (R): |
|---|-------------|---|--------------|
| Base Area Catchment 2006 (L) | 491.00 m² | Base Area Catchment 2006 (R) | 319.00 m² |
| mulch depth | 0.075 m | mulch depth | 0.075 m |
| Porosity of mulch | 70% | Porosity of mulch | 70% |
| Storage in mulch li | 25.778 m³ | Storage in mulch I | 16.748 m³ |
| Filter Media Depth | 0.50 m | Filter Media Depth | 1.10 m |
| Porosity of Filter Media | 20% | Porosity of Filter Media | 20% |
| Storage in voids of filter media | 49 m³ | Storage in voids of filter media | 70 m³ |
| Percolation rate within gravel layer | 300.0 mm/hr | Percolation rate within gravel layer | 300.0 mm/hr |
| Drawdown time within gravel layer (filter media and chocker course layer were included) | 2.0 hr | Drawdown time within gravel layer (filter media and chocker course layer were included) | 4.0 hr |
| Ponding Depth | 0.2 m | Ponding Depth | 0.2 m |
| Surface Storage | 98.2 m³ | Surface Storage | 63.8 m³ |
| Percolation rate within filter media layer | 25.0 mm/hr | Percolation rate within filter media layer | 25.0 mm/hr |
| Drawdown time within filter media (ponding depth and mulch later were included) | 11.0 hr | Drawdown time within filter media (ponding depth and mulch later were included) | 11.0 hr |
| Gravel layer depth | 0.50 m | Gravel layer depth | 0.60 m |
| Porosity of Gravel layer | 40% | Porosity of Gravel layer | 40% |
| torage in voids of gravel | 98.2 m³ | Storage in voids of gravel | 76.6 m³ |
| ercolation rate within native soil | 33.3 mm/hr | Percolation rate within native soil | 33.3 mm/hr |
| Drawdown time within native soil | 15.0 hr | Drawdown time within native soil | 18.0 hr |
| Chocker course | 0.1 m | Chocker course | 0.1 m |
| Porosity of Chocker course | 40% | Porosity of Chocker course | 40% |
| Storage inchocker course layer | 19.6 m³ | Storage inchocker course layer | 12.8 m³ |
| Total depth of system | 1.18 m | Total depth of system | 1.88 m |
| Total Storage | 291 m³ | Total Storage | 240 m³ |
| Total drawdown time | 28.0 hr | Total drawdown time | 33.0 hr |



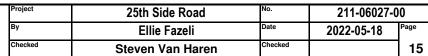
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| Bioswale Catchment 2007 (L): | | Bioswale Catchment 2007 (R): | | |
|---|-----------------------|---|--------------------|--|
| Base Area Catchment 2007 (L) | 648.00 m ² | Base Area Catchment 2007 (R) | 698.00 m² | |
| mulch depth | 0.075 m | mulch depth | 0.075 m | |
| Porosity of mulch | 70% | Porosity of mulch | 70% | |
| Storage in mulch li | 34.020 m³ | Storage in mulch l | 36.645 m³ | |
| Filter Media Depth | 0.70 m | Filter Media Depth | 0.60 m | |
| Porosity of Filter Media | 20% | Porosity of Filter Media | 20% | |
| Storage in voids of filter media | 91 m³ | Storage in voids of filter media | 84 m³ | |
| Percolation rate within gravel layer | 300.0 mm/hr | Percolation rate within gravel layer | 300.0 mm/hr | |
| Drawdown time within gravel layer (filter media and chocker course layer were included) | 2.7 hr | Drawdown time within gravel layer (filter media and chocker course layer were included) | 2.3 hr | |
| Ponding Depth | 0.2 m | Ponding Depth | 0.2 m | |
| Surface Storage | 129.6 m³ | Surface Storage | 139.6 m³ | |
| Percolation rate within filter media layer | 25.0 mm/hr | Percolation rate within filter media layer | 25.0 mm/hr | |
| Drawdown time within filter media (ponding depth and mulch later were included) | 11.0 hr | Drawdown time within filter media (ponding depth and mulch later were included) | 11.0 hr | |
| Gravel layer depth | 0.30 m | Gravel layer depth | 0.40 m | |
| Porosity of Gravel layer | 40% | Porosity of Gravel layer | 40% | |
| Storage in voids of gravel | 77.8 m³ | Storage in voids of gravel | 111.7 m³ | |
| Percolation rate within native soil | 33.3 mm/hr | Percolation rate within native soil | 33.3 mm/hr | |
| Drawdown time within native soil | 9.0 hr | Drawdown time within native soil | 12.0 hr | |
| Chocker course | 0.1 m | Chocker course | 0.1 m | |
| Porosity of Chocker course | 40% | Porosity of Chocker course | 40% | |
| Storage inchocker course layer | 25.9 m³ | Storage inchocker course layer | 27.9 m³ | |
| Total depth of system | 1.18 m | Total depth of system | 1.18 m | |
| Total Storage | 358 m³ | Total Storage | 400 m ³ | |
| Total drawdown time | 22.7 hr | Total drawdown time | 25.3 hr | |



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| Bioswale Catchment 20081 (L): | | Bioswale Catchmen | Bioswale Catchment 20081 (R): | | |
|---|-------------|---|-------------------------------|--|--|
| Base Area Catchment 20081 (L) | 69.21 m² | Base Area Catchment 20081 (R) | 61.12 m² | | |
| mulch depth | 0.075 m | mulch depth | 0.075 m | | |
| Porosity of mulch | 70% | Porosity of mulch | 70% | | |
| Storage in mulch li | 3.634 m³ | Storage in mulch I | 3.209 m³ | | |
| Filter Media Depth | 1.00 m | Filter Media Depth | 0.70 m | | |
| Porosity of Filter Media | 20% | Porosity of Filter Media | 20% | | |
| Storage in voids of filter media | 14 m³ | Storage in voids of filter media | 9 m³ | | |
| Percolation rate within gravel layer | 300.0 mm/hr | Percolation rate within gravel layer | 300.0 mm/hr | | |
| Drawdown time within gravel layer (filter media and chocker course layer were included) | 3.7 hr | Drawdown time within gravel layer (filter media and chocker course layer were included) | 2.7 hr | | |
| Ponding Depth | 0.2 m | Ponding Depth | 0.2 m | | |
| Surface Storage | 13.8 m³ | Surface Storage | 12.2 m³ | | |
| Percolation rate within filter media layer | 25.0 mm/hr | Percolation rate within filter media layer | 25.0 mm/hr | | |
| Drawdown time within filter media (ponding depth and mulch later were included) | 11.0 hr | Drawdown time within filter media (ponding depth and mulch later were included) | 11.0 hr | | |
| Gravel layer depth | 0.40 m | Gravel layer depth | 0.40 m | | |
| Porosity of Gravel layer | 40% | Porosity of Gravel layer | 40% | | |
| itorage in voids of gravel | 11.1 m³ | Storage in voids of gravel | 9.8 m³ | | |
| Percolation rate within native soil | 23.1 mm/hr | Percolation rate within native soil | 23.1 mm/hr | | |
| Drawdown time within native soil | 17.3 hr | Drawdown time within native soil | 17.3 hr | | |
| Chocker course | 0.1 m | Chocker course | 0.1 m | | |
| Porosity of Chocker course | 40% | Porosity of Chocker course | 40% | | |
| Storage inchocker course layer | 2.8 m³ | Storage inchocker course layer | 2.4 m³ | | |
| Total depth of system | 1.58 m | Total depth of system | 1.28 m | | |
| Total Storage | 45 m³ | Total Storage | 36 m³ | | |
| Total drawdown time | 32.0 hr | Total drawdown time | 31.0 hr | | |

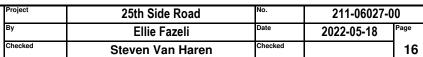


Proposed Bioswale Systems Total Depth, Provided Storage Volumes and Draw Down Time

Bioswale

Subject

| | Bioswale Catchment 2010 (L): | | Bioswale Catchme | nt 2010 (R): |
|-----------------|---|-------------|---|--------------|
| Base Area Catch | hment 2010 (L) | 334.47 m² | Base Area Catchment 2010 (R) | 240.00 m² |
| | mulch depth | 0.075 m | mulch depth | 0.075 m |
| | Porosity of mulch | 70% | Porosity of mulch | 70% |
| | Storage in mulch li | 17.560 m³ | Storage in mulch I | 12.600 m³ |
| | Filter Media Depth | 0.60 m | Filter Media Depth | 0.90 m |
| | Porosity of Filter Media | 20% | Porosity of Filter Media | 20% |
| | Storage in voids of filter media | 40 m³ | Storage in voids of filter media | 43 m³ |
| | Percolation rate within gravel layer | 300.0 mm/hr | Percolation rate within gravel layer | 300.0 mm/hr |
| | Drawdown time within gravel layer (filter media and chocker course layer were included) | 2.3 hr | Drawdown time within gravel layer (filter media and chocker course layer were included) | 3.3 hr |
| | Ponding Depth | 0.2 m | Ponding Depth | 0.2 m |
| | Surface Storage | 66.9 m³ | Surface Storage | 48.0 m³ |
| | Percolation rate within filter media layer | 25.0 mm/hr | Percolation rate within filter media laver | 60.0 mm/hr |
| | Drawdown time within filter media (ponding depth and mulch later were included) | 11.0 hr | Drawdown time within filter media (ponding depth and mulch later were included) | 4.6 hr |
| | Gravel layer depth | 0.40 m | Gravel layer depth | 0.40 m |
| | Porosity of Gravel layer | 40% | Porosity of Gravel layer | 40% |
| torage in voids | of gravel | 53.5 m³ | Storage in voids of gravel | 38.4 m³ |
| ercolation rate | within native soil | 8.0 mm/hr | Percolation rate within native soil | 8.0 mm/hr |
| | Drawdown time within native soil | 50.0 hr | Drawdown time within native soil | 50.0 hr |
| | Chocker course | 0.1 m | Chocker course | 0.1 m |
| | Porosity of Chocker course | 40% | Porosity of Chocker course | 40% |
| | Storage inchocker course layer | 13.4 m³ | Storage inchocker course layer | 9.6 m³ |
| | Total depth of system | 1.18 m | Total depth of system | 1.48 m |
| | Total Storage | 191 m³ | Total Storage | 152 m³ |
| | Total drawdown time | 63 hr | Total drawdown time | 58 hr |



Proposed Bioswale Systems Total Depth, Provided Storage Volumes and Draw Down Time

Bioswale

Subject

| Bioswale Catchment 2011 (L): | | Bioswale Catchmer | nt 2011 (R): |
|---|-------------|---|--------------|
| Base Area Catchment 2011 (L) | 534.00 m² | Base Area Catchment 2011 (R) | 555.00 m² |
| mulch depth | 0.075 m | mulch depth | 0.075 m |
| Porosity of mulch | 70% | Porosity of mulch | 70% |
| Storage in mulch li | 28.035 m³ | Storage in mulch I | 29.138 m³ |
| Filter Media Depth | 0.55 m | Filter Media Depth | 0.55 m |
| Porosity of Filter Media | 20% | Porosity of Filter Media | 20% |
| Storage in voids of filter media | 59 m³ | Storage in voids of filter media | 61 m³ |
| Percolation rate within gravel layer | 300.0 mm/hr | Percolation rate within gravel layer | 300.0 mm/hr |
| Drawdown time within gravel layer (filter media and chocker course layer were included) | 2.2 hr | Drawdown time within gravel layer (filter media and chocker course layer were included) | 2.2 hr |
| Ponding Depth | 0.1 m | Ponding Depth | 0.1 m |
| Surface Storage | 53.4 m³ | Surface Storage | 55.5 m³ |
| Percolation rate within filter media layer | 25.0 mm/hr | Percolation rate within filter media layer | 25.0 mm/hr |
| Drawdown time within filter media (ponding depth and mulch later were included) | 8.0 hr | Drawdown time within filter media (ponding depth and mulch later were included) | 8.0 hr |
| Gravel layer depth | 0.45 m | Gravel layer depth | 0.45 m |
| Porosity of Gravel layer | 40% | Porosity of Gravel layer | 40% |
| torage in voids of gravel | 96.1 m³ | Storage in voids of gravel | 99.9 m³ |
| Percolation rate within native soil | 8.0 mm/hr | Percolation rate within native soil | 8.0 mm/hr |
| Drawdown time within native soil | 56.3 hr | Drawdown time within native soil | 56.3 hr |
| Chocker course | 0.1 m | Chocker course | 0.1 m |
| Porosity of Chocker course | 40% | Porosity of Chocker course | 40% |
| Storage inchocker course layer | 21.4 m³ | Storage inchocker course layer | 22.2 m³ |
| Total depth of system | 1.18 m | Total depth of system | 1.18 m |
| Total Storage | 258 m³ | Total Storage | 268 m³ |
| Total drawdown time | 66 hr | Total drawdown time | 66 hr |



| Project | 25th Side Road | No. | 211-06027-00 | | |
|---------|------------------|---------|--------------|------|--|
| Ву | Ellie Fazeli | Date | 2022-08-04 | Page | |
| Checked | Steven Van Haren | Checked | | 17 | |

Proposed Bioswale Systems Total Depth, Provided Storage Volumes, Draw Down Time & Maintenance cost

Bioswale

| Bioswale Catchment 2012 (L): | | Bioswale Catchme | <mark>nt 2012 (R):</mark> |
|---|-------------|---|---------------------------|
| Base Area Catchment 2012 (L) | 693.00 m² | Base Area Catchment 2012 (R) | 773.00 m² |
| mulch depth | 0.075 m | mulch depth | 0.075 m |
| Porosity of mulch | 70% | Porosity of mulch | 70% |
| Storage in mulch I | 36.383 m³ | Storage in mulch I | 40.583 m³ |
| Filter Media Depth | 0.70 m | Filter Media Depth | 0.65 m |
| Porosity of Filter Media | 20% | Porosity of Filter Media | 20% |
| Storage in voids of filter media | 97 m³ | Storage in voids of filter media | 100 m³ |
| Percolation rate within gravel layer | 300.0 mm/hr | Percolation rate within gravel layer | 300.0 mm/hr |
| Drawdown time within gravel layer (filter media and chocker course layer were included) | 2.7 hr | Drawdown time within gravel layer (filter media and chocker course layer were included) | 2.5 hr |
| Ponding Depth | 0.1 m | Ponding Depth | 0.1 m |
| Surface Storage | 69.3 m³ | Surface Storage | 77.3 m³ |
| Percolation rate within filter media layer | 25.0 mm/hr | Percolation rate within filter media laver | 25.0 mm/hr |
| Drawdown time within filter media (ponding depth and mulch later were included) | 7.0 hr | Drawdown time within filter media (ponding depth and mulch later were included) | 7.0 hr |
| Gravel layer depth | 0.30 m | Gravel layer depth | 0.45 m |
| Porosity of Gravel layer | 40% | Porosity of Gravel layer | 40% |
| itorage in voids of gravel | 83.2 m³ | Storage in voids of gravel | 139.1 m³ |
| Percolation rate within native soil | 8.0 mm/hr | Percolation rate within native soil | 8.0 mm/hr |
| Drawdown time within native soil | 37.5 hr | Drawdown time within native soil | 56.3 hr |
| Chocker course | 0.1 m | Chocker course | 0.1 m |
| Porosity of Chocker course | 40% | Porosity of Chocker course | 40% |
| Storage inchocker course layer | 27.7 m³ | Storage inchocker course layer | 30.9 m³ |
| Total depth of system | 1.18 m | Total depth of system | 1.28 m |
| Total Storage | 314 m³ | Total Storage | 388 m³ |
| Total drawdown time | 47 hr | Total drawdown time | 66 hr |

Bioswale Maintenance Cost

| Total Bioswale Footprint Area (m²) | Cost per 130 m2 | Total Cost |
|------------------------------------|-----------------|-------------|
| 7967.67 | \$952 | \$58,347.86 |

Infiltration Chamber Maintenance Cost

| Total Bioswale Footprint Area (m²) | Cost per 104.7 m2 | Total Cost |
|------------------------------------|----------------------|-------------|
| 2043.39 | \$1,212 | \$23,654.14 |



| Project | 25th Side Road | No. | 211-06027-0 | 00 |
|---------|------------------|---------|-------------|------|
| Ву | Ellie Fazeli | Date | 2022-05-18 | Page |
| Checked | Steven Van Haren | Checked | | 18 |

| Subject | Drain | Pipe | Sizing | Calcu | lations |
|---------|-------|------|--------|-------|---------|
| | | | | | |

| Catchment | 2001.1 | (L)- | Context | 3 |
|-----------|--------|------|---------|---|
| | | | | |

| | $Q = CA\sqrt{2gh}$ | | | 12- hr SCS | 4- hr Chicago Storm |
|--------|---|-------|-------------------|---------------|------------------------|
| Where, | Q ₁₀₀ =Flow Rate (m ³ /s) | 0.041 | m ³ /s | 0.041 | 0.049 |
| | C = Flow Coefficient for Orifice | 0.80 | | | |
| | d = Required Overflow Pipe Size (mm) | 150 | mm | | |
| | A = Cross-section Area of Orifice (m^2) | 0.018 | m^2 | | |
| | g = Gravity Acceleration (m/s ²) | 9.81 | m/s ² | | |
| | h = Water Head above Centerline of Orifice (m) | 0.425 | m | | |
| | Invert of Orifice | 0.00 | m | | |

Catchment 2001.1 R- Context 3

| | $Q = CA\sqrt{2gh}$ | | | 12- hr SCS | 4- hr Chicago Storm |
|--------|---|--------------------------------|------------------|---------------|------------------------|
| Where, | Q ₁₀₀ =Flow Rate (m ³ /s) | 0.036 | m³/s | 0.04 | 0.046 |
| | C = Flow Coefficient for Orifice | 0.80 | | | |
| | d = Required Overflow Pipe Size (mm) | 150 | mm | | |
| | A = Cross-section Area of Orifice (m ²) | 0.018 | m^2 | | |
| | g = Gravity Acceleration (m/s ²) | 9.81 | m/s ² | | |
| | h = Water Head above Centerline of Orifice (m) | 0.325 | m | | |
| | Invert of Orifice | h = Water Head above Centerlii | m | | |

Catchment 2001.2 L-Context 1

| | $Q = CA\sqrt{2gh}$ | | | 12- hr 4- hr Chicago SCS Storm |
|--------|---|-------|------------------|-----------------------------------|
| Where, | Q ₁₀₀ =Flow Rate (m ³ /s) | 0.084 | m³/s | 0.045 0.053 |
| | C = Flow Coefficient for Orifice | 0.80 | | |
| | d = Required Overflow Pipe Size (mm) | 150 | mm | |
| | A = Cross-section Area of Orifice (m ²) | 0.018 | m^2 | |
| | g = Gravity Acceleration (m/s²) | 9.81 | m/s ² | |
| | h = Water Head above Centerline of Orifice (m) | 1.800 | m | |
| | Invert of Orifice | 0.00 | m | |

Catchment 2001.2 R-Context 1

| | $Q = CA\sqrt{2gh}$ | | | 12- hr 4- hr Chicago SCS Storm |
|--------|---|-------|-------------------|-----------------------------------|
| Where, | Q ₁₀₀ =Flow Rate (m ³ /s) | 0.066 | m ³ /s | 0.053 0.063 |
| | C = Flow Coefficient for Orifice | 0.80 | | |
| | d = Required Overflow Pipe Size (mm) | 150 | mm | |
| | A = Cross-section Area of Orifice (m ²) | 0.018 | m^2 | |
| | g = Gravity Acceleration (m/s ²) | 9.81 | m/s ² | |
| | h = Water Head above Centerline of Orifice (m) | 1.100 | m | |
| | Invert of Orifice | 0.00 | m | |



| | | Otovon van ne | | | 1.0 |
|--------------|---|---------------|-------------------|--------|---------------|
| Subject | Drain Pipe Sizing Calculations | | | | |
| Catchment 2 | 002 L-Context 1 | | | 12- hr | 4- hr Chicago |
| outoninont 2 | | | | SCS | Storm |
| | $Q = CA\sqrt{2gh}$ | | | 0.285 | 0.339 |
| Where, | Q ₁₀₀ =Flow Rate (m³/s) | 0.399 | m ³ /s | | |
| | C = Flow Coefficient for Orifice | 0.80 | | | |
| | d = Required Overflow Pipe Size (mm) | 375 | mm | | |
| | A = Cross-section Area of Orifice (m ²) | 0.110 | m^2 | | |
| | g = Gravity Acceleration (m/s²) | 9.81 | m/s ² | | |
| | h = Water Head above Centerline of Orifice (m) | 1.038 | m | | |
| | Invert of Orifice | 0.00 | m | | |
| Catchment 2 | 002 R-Context 1 | | | 12- hr | 4- hr Chicago |
| | $Q = CA\sqrt{2gh}$ | | | SCS | Storm |
| | • | | • | 0.321 | 0.381 |
| Where, | Q ₁₀₀ =Flow Rate (m ³ /s) | 0.399 | m³/s | | |
| | C = Flow Coefficient for Orifice | 0.80 | | | |
| | d = Required Overflow Pipe Size (mm) | 375 | mm | | |
| | A = Cross-section Area of Orifice (m ²) | 0.110 | m ² | | |
| | g = Gravity Acceleration (m/s ²) | 9.81 | m/s ² | | |
| | h = Water Head above Centerline of Orifice (m) | 1.038 | m | | |
| | Invert of Orifice | 0.00 | m | | |
| Catchment 2 | 003 L-Context 1 | | | 12- hr | 4- hr Chicago |
| | $Q = CA\sqrt{2gh}$ | | | SCS | Storm |
| Where, | Q ₁₀₀ =Flow Rate (m³/s) | 0.255 | m³/s | 0.175 | 0.209 |
| | C = Flow Coefficient for Orifice | 0.80 | | | |
| | d = Required Overflow Pipe Size (mm) | 250 | mm | | |
| | A = Cross-section Area of Orifice (m ²) | 0.049 | m^2 | | |
| | g = Gravity Acceleration (m/s²) | 9.81 | m/s ² | | |
| | h = Water Head above Centerline of Orifice (m) | 2.150 | m | | |
| | Invert of Orifice | #REF! | m | | |
| Catchment 2 | 003 R-Context 1 | | | 12- hr | 4- hr Chicago |
| | $Q = CA\sqrt{2gh}$ | | | SCS | Storm |
| Where, | Q ₁₀₀ =Flow Rate (m³/s) | 0.260 | m ³ /s | 0.191 | 0.226 |
| | C = Flow Coefficient for Orifice | 0.80 | | | |
| | d = Required Overflow Pipe Size (mm) | 300 | mm | | |
| | A = Cross-section Area of Orifice (m ²) | 0.071 | m^2 | | |
| | g = Gravity Acceleration (m/s²) | 9.81 | m/s ² | | |
| | h = Water Head above Centerline of Orifice (m) | 1.075 | m | | |
| | Invert of Orifice | 0.00 | m | | |
| | | | | | |



| | _ | Checked | Steven Van Ha | aren | Checked | | 20 |
|--------------|--|---------|---------------|-------------------|---------|--------|---------------|
| Subject | Drain Pipe Sizing Calculations | | | | | | |
| Catchment 20 | 004 L-Context 1 | | | | | 12- hr | 4- hr Chicago |
| | | | | | | SCS | Storm |
| | $Q = CA\sqrt{2gh}$ | | | | | 0.17 | 0.35 |
| Where, | Q ₁₀₀ =Flow Rate (m ³ /s) | | 0.461 | m ³ /s | | | |
| | C = Flow Coefficient for Orifice | | 0.80 | | | | |
| | d = Required Overflow Pipe Size (mm) | | 375 | mm | | | |
| | A = Cross-section Area of Orifice (m ²) | | 0.110 | m^2 | | | |
| | g = Gravity Acceleration (m/s²) | | 9.81 | m/s ² | | | |
| | h = Water Head above Centerline of Orifice (m) | | 1.388 | m | | | |
| | Invert of Orifice | | 0.00 | m | | | |
| Catchment 20 | 004 R-Context 1 | | | | | 12- hr | 4- hr Chicago |
| | $Q = CA\sqrt{2gh}$ | | | | | SCS | Storm |
| Where, | Q ₁₀₀ =Flow Rate (m ³ /s) | | 0.200 | m ³ /s | | 0.146 | 0.172 |
| , | C = Flow Coefficient for Orifice | | 0.63 | | | | |
| | d = Required Overflow Pipe Size (mm) | | 300 | mm | | | |
| | A = Cross-section Area of Orifice (m ²) | | 0.071 | m^2 | | | |
| | g = Gravity Acceleration (m/s²) | | 9.81 | m/s ² | | | |
| | h = Water Head above Centerline of Orifice (m) | | 1.025 | m | | | |
| | Invert of Orifice | | 0.00 | m | | | |
| Catchment 20 | 005 L-Context 1 | | | | | 12- hr | 4- hr Chicago |
| | $Q = CA\sqrt{2gh}$ | | | | | SCS | Storm |
| Where, | Q_{100} =Flow Rate (m ³ /s) | | 0.133 | m ³ /s | | 0.114 | 0.136 |
| vviiele, | C = Flow Coefficient for Orifice | | 0.80 | m /s | | 0.114 | 0.136 |
| | d = Required Overflow Pipe Size (mm) | | 200 | mm | | | |
| | A = Cross-section Area of Orifice (m ²) | | 0.031 | m ² | | | |
| | g = Gravity Acceleration (m/s ²) | | 9.81 | m/s ² | | | |
| | h = Water Head above Centerline of Orifice (m) | | 1.425 | m | | | |
| | Invert of Orifice | | 0.00 | m | | | |
| Catchment 2 | 005 R-Context 1 | | | | | 12- hr | 4- hr Chicago |
| outominom 2 | $Q = CA\sqrt{2gh}$ | | | | | SCS | Storm |
| \A/la a na | · | | 0.054 | 3, | | 0.445 | 0.405 |
| Where, | Q ₁₀₀ =Flow Rate (m ³ /s) C = Flow Coefficient for Orifice | | 0.254 | m ³ /s | | 0.115 | 0.135 |
| | | | 0.80 | mm | | | |
| | d = Required Overflow Pipe Size (mm) | | 300 | mm m² | | | |
| | A = Cross-section Area of Orifice (m ²) | | 0.071 | | | | |
| | g = Gravity Acceleration (m/s²) | | 9.81 | m/s ² | | | |
| | h = Water Head above Centerline of Orifice (m) | | 1.025 | m m | | | |
| | Invert of Orifice | | 0.00 | m | | | |



| | | | Steven van H | aren | | | 21 |
|-------------|--|---|--------------|-------------------|---|---------------|------------------------|
| Subject | Drain Pipe Sizing Calculations | • | | | • | • | • |
| Catchment 2 | 006 L-Context 1 | | | | | 12- hr | 4- hr Chicago |
| | $Q = CA\sqrt{2gh}$ | | | | | SCS | Storm |
| 14/1 | • | | 0.000 | 3. | | 0.00 | 0.04 |
| Where, | Q ₁₀₀ =Flow Rate (m³/s) | | 0.389 | m ³ /s | | 0.26 | 0.31 |
| | C = Flow Coefficient for Orifice | | 0.80 | | | | |
| | d = Required Overflow Pipe Size (mm) | | 375 | mm 2 | | | |
| | A = Cross-section Area of Orifice (m ²) | | 0.110 | m ² | | | |
| | g = Gravity Acceleration (m/s²) | | 9.81 | m/s ² | | | |
| | h = Water Head above Centerline of Orifice (m) Invert of Orifice | | 0.988 | m | | | |
| | invert of Offlice | | 0.00 | m | | | |
| Catchment 2 | 006 R-Context 1 | | | | | 12- hr SCS | 4- hr Chicago Storm |
| | $Q = CA\sqrt{2gh}$ | | | | | 303 | Storm |
| Where, | Q ₁₀₀ =Flow Rate (m ³ /s) | | 0.508 | m ³ /s | | 0.29 | 0.33 |
| | C = Flow Coefficient for Orifice | | 0.80 | | | | |
| | d = Required Overflow Pipe Size (mm) | | 375 | mm | | | |
| | A = Cross-section Area of Orifice (m ²) | | 0.110 | m^2 | | | |
| | g = Gravity Acceleration (m/s²) | | 9.81 | m/s ² | | | |
| | h = Water Head above Centerline of Orifice (m) | | 1.688 | m | | | |
| | Invert of Orifice | | 0.00 | m | | | |
| Catchment 2 | 007 L-Context 1 | | | | | 12- hr | 4- hr Chicago |
| | $Q = CA\sqrt{2gh}$ | | | | | SCS | Storm |
| Where, | Q ₁₀₀ =Flow Rate (m ³ /s) | | 0.389 | m ³ /s | | 0.23 | 0.28 |
| | C = Flow Coefficient for Orifice | | 0.80 | | | | |
| | d = Required Overflow Pipe Size (mm) | | 375 | mm | | | |
| | A = Cross-section Area of Orifice (m ²) | | 0.110 | m^2 | | | |
| | g = Gravity Acceleration (m/s²) | | 9.81 | m/s ² | | | |
| | h = Water Head above Centerline of Orifice (m) | | 0.988 | m | | | |
| | Invert of Orifice | | 0.00 | m | | | |
| Catchment 2 | 007 R-Context 1 | | | | | 12- hr | 4- hr Chicago |
| | $Q = CA\sqrt{2gh}$ | | | | | SCS | Storm |
| Where, | Q ₁₀₀ =Flow Rate (m ³ /s) | | 0.389 | m ³ /s | | 0.26 | 0.28 |
| | C = Flow Coefficient for Orifice | | 0.80 | | | | |
| | d = Required Overflow Pipe Size (mm) | | 375 | mm | | | |
| | A = Cross-section Area of Orifice (m ²) | | 0.110 | m^2 | | | |
| | g = Gravity Acceleration (m/s²) | | 9.81 | m/s ² | | | |
| | h = Water Head above Centerline of Orifice (m) | | 0.988 | m | | | |
| | Invert of Orifice | | 0.00 | m | | | |
| | | | | | | | |
| 1 | | | | | | | |



| Subject | Drain Pipe Sizing Calculations | • | • | • | • |
|-------------|---|-------|-------------------|---------------|------------------------|
| | | | | | |
| Catchment 2 | 0081 L-Context 1 | | | 12- hr SCS | 4- hr Chicago Storm |
| | $Q = CA\sqrt{2gh}$ | | | 000 | Otom |
| Where, | Q ₁₀₀ =Flow Rate (m ³ /s) | 0.034 | m ³ /s | 0.028 | 0.033 |
| | C = Flow Coefficient for Orifice | 0.80 | | | |
| | d = Required Overflow Pipe Size (mm) | 100 | mm | | |
| | A = Cross-section Area of Orifice (m ²) | 0.008 | m^2 | | |
| | g = Gravity Acceleration (m/s ²) | 9.81 | m/s ² | | |
| | h = Water Head above Centerline of Orifice (m) | 1.525 | m | | |
| | Invert of Orifice | 0.00 | m | | |
| | | | | | |
| Catchment 2 | 0082 L-Context 1 | | | 12- hr | 4- hr Chicago |
| | $Q = CA\sqrt{2gh}$ | | | SCS | Storm |
| | • | | 2 | | |
| Where, | Q ₁₀₀ =Flow Rate (m ³ /s) | 0.353 | m ³ /s | 0.147 | 0.163 |
| | C = Flow Coefficient for Orifice | 0.80 | | | |
| | d = Required Overflow Pipe Size (mm) | 375 | mm | | |
| | A = Cross-section Area of Orifice (m ²) | 0.110 | m ² | | |
| | g = Gravity Acceleration (m/s²) | 9.81 | m/s ² | | |
| | h = Water Head above Centerline of Orifice (m) | 0.813 | m | | |
| | Invert of Orifice | 0.00 | m | | |
| Catchment 2 | 0081 R -Context 1 | | | 12- hr | 4- hr Chicago |
| | $Q = CA\sqrt{2gh}$ | | | SCS | Storm |
| Where, | Q ₁₀₀ =Flow Rate (m³/s) | 0.069 | m³/s | 0.033 | 0.07 |
| | C = Flow Coefficient for Orifice | 0.80 | | | |
| | d = Required Overflow Pipe Size (mm) | 150 | mm | | |
| | A = Cross-section Area of Orifice (m ²) | 0.018 | m^2 | | |
| | g = Gravity Acceleration (m/s ²) | 9.81 | m/s ² | | |
| | h = Water Head above Centerline of Orifice (m) | 1.200 | m | | |
| | Invert of Orifice | 0.00 | m | | |
| | | | | | |
| Catchment 2 | 0082 R-Context 1 | | | 12- hr SCS | 4- hr Chicago Storm |
| | $Q = CA\sqrt{2gh}$ | | | | 3.3 |
| Where, | Q ₁₀₀ =Flow Rate (m³/s) | 0.353 | m ³ /s | 0.151 | 0.39 |
| | C = Flow Coefficient for Orifice | 0.80 | | | |
| | d = Required Overflow Pipe Size (mm) | 375 | mm | | |
| | A = Cross-section Area of Orifice (m ²) | 0.110 | m^2 | | |
| | g = Gravity Acceleration (m/s²) | 9.81 | m/s ² | | |
| | h = Water Head above Centerline of Orifice (m) | 0.813 | m | | |
| | Invert of Orifice | 0.00 | m | | |
| 1 | | | | | |
| | | | | | |



| | - | | Steven van H | aren | | | 23 |
|-------------|---|---|--------------|-------------------|---|--------|---------------|
| Subject | Drain Pipe Sizing Calculations | • | • | | • | | • |
| | | | | | | 12- hr | 4- hr Chicago |
| Catchment 2 | 009 L-Context 1 | | | | | SCS | Storm |
| | $Q = CA\sqrt{2gh}$ | | | | | | |
| Where, | Q ₁₀₀ =Flow Rate (m ³ /s) | | 0.219 | m ³ /s | | 0.157 | 0.179 |
| | C = Flow Coefficient for Orifice | | 0.80 | | | | |
| | d = Required Overflow Pipe Size (mm) | | 375 | mm | | | |
| | A = Cross-section Area of Orifice (m ²) | | 0.110 | m^2 | | | |
| | g = Gravity Acceleration (m/s²) | | 9.81 | m/s ² | | | |
| | h = Water Head above Centerline of Orifice (m) | | 0.313 | m | | | |
| | Invert of Orifice | | 0.00 | m | | | |
| Catchment 2 | 009 R-Context 1 | | | | | 12- hr | 4- hr Chicago |
| | $Q = CA\sqrt{2gh}$ | | | | | SCS | Storm |
| Where, | Q_{100} =Flow Rate (m ³ /s) | | 0.219 | m ³ /s | | 0.25 | 0.296 |
| , | C = Flow Coefficient for Orifice | | 0.80 | ,0 | | | |
| | d = Required Overflow Pipe Size (mm) | | 375 | mm | | | |
| | A = Cross-section Area of Orifice (m ²) | | 0.110 | m^2 | | | |
| | g = Gravity Acceleration (m/s²) | | 9.81 | m/s ² | | | |
| | h = Water Head above Centerline of Orifice (m) | | 0.313 | m | | | |
| | Invert of Orifice | | 0.00 | m | | | |
| Catchment 2 | 010 L -Context 1 | | | | | 12- hr | 4- hr Chicago |
| | $Q = CA\sqrt{2gh}$ | | | | | SCS | Storm |
| Where, | Q ₁₀₀ =Flow Rate (m ³ /s) | | 0.389 | m ³ /s | | 0.284 | 0.325 |
| William, | C = Flow Coefficient for Orifice | | 0.80 | 111 /3 | | 0.204 | 0.020 |
| | d = Required Overflow Pipe Size (mm) | | 375 | mm | | | |
| | A = Cross-section Area of Orifice (m²) | | 0.110 | m ² | | | |
| | g = Gravity Acceleration (m/s²) | | 9.81 | m/s ² | | | |
| | h = Water Head above Centerline of Orifice (m) | | 0.988 | m | | | |
| | Invert of Orifice | | 0.00 | m | | | |
| Catchment 2 | 010 R-Context 1 | | | | | 12- hr | 4- hr Chicago |
| | $Q = CA\sqrt{2gh}$ | | | | | SCS | Storm |
| Whore | $Q_{100} = \text{Flow Rate } (\text{m}^3/\text{s})$ | | 0.444 | 3,- | | 0.20 | 0.440 |
| Where, | C = Flow Coefficient for Orifice | | 0.444 | m ³ /s | | 0.38 | 0.449 |
| | | | 0.80 | mm | | | |
| | d = Required Overflow Pipe Size (mm) | | 375 0.110 | mm m² | | | |
| | A = Cross-section Area of Orifice (m ²) | | 0.110 | m ² | | | |
| | g = Gravity Acceleration (m/s²) | | 9.81 | m/s ² | | | |
| | h = Water Head above Centerline of Orifice (m) | | 1.288 | m | | | |
| | Invert of Orifice | | 0.00 | m | | | |
| | | | | | | | |



Subject Drain Pipe Sizing Calculations

| | Brain ripe dizing daloatations | | | | |
|-------------|---|---------------|-------------------|---------------|------------------------|
| Catchment 2 | 011 L-Context 1 | | | 12- hr SCS | 4- hr Chicago Storm |
| | $Q = CA\sqrt{2gh}$ | | | 0.331 | 0.364 |
| Where, | Q ₁₀₀ =Flow Rate (m ³ /s) | 0.389 | m ³ /s | | |
| | C = Flow Coefficient for Orifice | 0.80 | | | |
| | d = Required Overflow Pipe Size (mm) | 375 | mm | | |
| | A = Cross-section Area of Orifice (m ²) | 0.110 | m^2 | | |
| | g = Gravity Acceleration (m/s²) | 9.81 | m/s ² | | |
| | h = Water Head above Centerline of Orifice (m) | 0.988 | m | | |
| | Invert of Orifice | 0.00 | m | | |
| Catchment 2 | 011 R-Context 1 | | | 12- hr | 4- hr Chicago |
| | $Q = CA\sqrt{2gh}$ | | | SCS 0.356 | Storm 0.409 |
| Where, | Q ₁₀₀ =Flow Rate (m ³ /s) | 0.389 | m ³ /s | 0.000 | 0.100 |
| | C = Flow Coefficient for Orifice | 0.80 | | | |
| | d = Required Overflow Pipe Size (mm) | 375 | mm | | |
| | A = Cross-section Area of Orifice (m ²) | 0.110 | m^2 | | |
| | g = Gravity Acceleration (m/s²) | 9.81 | m/s ² | | |
| | h = Water Head above Centerline of Orifice (m) | 0.988 | m | | |
| | Invert of Orifice | 0.00 | m | | |
| Catchment 2 | 012 L -Context 1 | | | 12- hr | 4- hr Chicago |
| | $Q = CA\sqrt{2gh}$ | | | SCS | Storm |
| Where, | Q ₁₀₀ =Flow Rate (m ³ /s) | 0.389 | m ³ /s | 0.398 | 0.417 |
| | C = Flow Coefficient for Orifice | 0.80 | | | |
| | d = Required Overflow Pipe Size (mm) | 375 | mm | | |
| | A = Cross-section Area of Orifice (m ²) | 0.110 | m^2 | | |
| | g = Gravity Acceleration (m/s²) | 9.81 | m/s ² | | |
| | h = Water Head above Centerline of Orifice (m) | 0.988 | m | | |
| | Invert of Orifice | 0.00 | m | | |
| Catchment 2 | 012 R-Context 1 | | | 12- hr | 4- hr Chicago |
| | $Q = CA\sqrt{2gh}$ | | | SCS | Storm |
| Where, | Q ₁₀₀ =Flow Rate (m ³ /s) | 0.408 | m ³ /s | 0.44 | 0.506 |
| | C = Flow Coefficient for Orifice | 0.80 | | | |
| | d = Required Overflow Pipe Size (mm) | 375 | mm | | |
| | - · · · · · · · · · · · · · · · · · · · | | • | | |
| | A = Cross-section Area of Orifice (m ²) | 0.110 | m^2 | | |
| | | 0.110 9.81 | m² m/s² | | |
| | A = Cross-section Area of Orifice (m ²) | | | | |



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Subject Water Qualiy Control

Require long-term average removal of 80% TSS on an annual loading basis from all runoff leaving the site.

7.1.1 Infiltraiton

The TSS removal efficiency of the Infiltration System shall be evaluated per Table 3.2 of 2003 MOECP SWMPDM.

| | | Storage Volume (m³/ha) for Impervious Level | | | for |
|-------------------------------|-------------------------|--|-----|-----|-----|
| Protection Level | SWMP Type | 35% | 55% | 70% | 85% |
| Enhanced | Infiltration | 25 | 30 | 35 | 40 |
| 80% long-term S.S. removal | Wetlands | 80 | 105 | 120 | 140 |
| S.S. Tellio vai | Hybrid Wet Pond/Wetland | 110 | 150 | 175 | 195 |
| | Wet Pond | 140 | 190 | 225 | 250 |

Quality Control Required Storage Volumes

| Catchment | Area (ha) | IMP Imp (%) | Required Infiltration Volume | | TSS Removal (%) |
|---------------------------------|--------------|----------------|------------------------------|---------|-----------------------|
| | | | (m ³) | (m³/ha) | |
| Catchment 2001.1(L)- Context 3 | 0.10 | 90 | 5.37 | 53.67 | 80.00 |
| Catchment 2001.1 R- Context 3 | 0.10 | 79 | 3.78 | 38.15 | 80.00 |
| Catchment 2001.2(L)- Context 1 | 0.11 | 95 | 7.67 | 69.73 | 80.00 |
| Catchment 2001.2(R)- Context 1 | 0.13 | 96 | 1.25 | 72.31 | 80.00 |
| Catchment 2002L (R) -Context 1 | 0.70 | 94 | 46.39 | 66.27 | 80.00 |
| Catchment 2002R (R) (Context 1) | 0.80 | 95 | 54.83 | 68.54 | 80.00 |
| Catchment 2003L (R) (Context 1) | 0.43 | 90 | 23.08 | 53.67 | 80.00 |
| Catchment 2003R (R) (Context 1) | 0.47 | 87 | 21.07 | 44.84 | 80.00 |
| Catchment 2004L (R) (Context 1) | 0.35 | 89 | 18.06 | 51.60 | 80.00 |
| Catchment 2004R (R) (Context 1) | 0.36 | 85 | 14.85 | 41.26 | 80.00 |
| Catchment 2005L (R) (Context 1) | 0.28 | 90 | 15.03 | 53.67 | 80.00 |
| Catchment 2005R (R) (Context 1) | 0.29 | 78 | 10.93 | 37.69 | 80.00 |
| Catchment 2006L (R) (Context 1) | 0.65 | 88 | 31.11 | 47.86 | 80.00 |
| Catchment 2006R (R) (Context 1) | 0.73 | 80 | 27.95 | 38.28 | 80.00 |
| Catchment 2007L (R) (Context 1) | 0.58 | 85 | 23.40 | 40.35 | 80.00 |
| Catchment 2007R (R) (Context 1) | 0.64 | 84 | 22.81 | 35.64 | 80.00 |
| Catchment 20081-L (Context 1) | 0.07 | 84 | 2.54 | 37.87 | 80.00 |
| Catchment 20082-L (Context 3) | 0.38 | 70 | 13.34 | 34.84 | 80.00 |
| Catchment 20081-R (Context 1) | 0.07 | 83 | 2.55 | 34.86 | 80.00 |
| Catchment 20082-R (Context 3) | 0.39 | 59 | 12.13 | 31.33 | 80.00 |
| Catchment 2009-L (Context 3) | 0.40 | 77 | 14.92 | 37.29 | 80.00 |
| Catchment 2009-R (Context 3) | 0.39 | 77 | 14.53 | 37.26 | 80.00 |
| Catchment 20101-L (Context 3) | 0.25 | 82 | 9.75 | 39.00 | 80.00 |
| Catchment 20102-L (Context 1) | 0.47 | 74 | 17.15 | 36.49 | 80.00 |
| Catchment 20101-R (Context 3) | 0.25 | 82 | 9.75 | 39.00 | 80.00 |
| Catchment 20102-R (Context 1) | 0.47 | 86 | 18.93 | 40.28 | 80.00 |
| Catchment 2011-L (Context 3,2) | 0.87 | 86 | 29.58 | 34.00 | 80.00 |
| Catchment 2011-R (Context 3,2) | 0.90 | 85 | 35.89 | 39.88 | 80.00 |
| Catchment 2012-L (Context 2) | 1.11 | 56 | 33.67 | 30.33 | 80.00 |
| Catchment 2012-R (Context 2) | 1.11 | 93 | 47.37 | 42.68 | 80.00 |
| Total | | | 589.68 | | |



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Subject

Post to Pre Control (4 -hr Chicago Strom)

| Catchment Name | Pre-development Flow 4- hr Chicago Storm (m3/s) | Post-development Flow 4- hr Chicago Storm (m3/s) | Required Storage Volume (m3) | Available Storage Volume for Quantity Control (m3) |
|----------------------------------|--|---|------------------------------------|--|
| Catchment 2001 (L)- Contexts 1&3 | 0.098 | 0.102 | 25 | 29.2 |
| Catchment 2001 R- Contexts 1& 3 | 0.107 | 0.109 | 24 | 31.5 |
| Catchment 2002 (L)- Context 1 | 0.314 | 0.339 | 83 | 126.1 |
| Catchment 2002(R)- Context 1 | 0.366 | 0.381 | 84 | 119.5 |
| Catchment 2003 (L)- Context 1 | 0.159 | 0.209 | 80 | 94.5 |
| Catchment 2003(R)- Context 1 | 0.182 | 0.226 | 79 | 156.5 |
| Catchment 2004 (L)- Context 1 | 0.149 | 0.17 | 51 | 54.1 |
| Catchment 2004(R)- Context 1 | 0.167 | 0.172 | 38 | 215.7 |
| Catchment 2005 (L)- Context 1 | 0.155 | 0.136 | N.A | 17.5 |
| Catchment 2005(R)- Context 1 | 0.142 | 0.135 | 91 | 146.2 |
| Catchment 2006 (L)- Context 1 | 0.269 | 0.31 | 91 | 188.6 |
| Catchment 2006 (R)- Context 1 | 0.26 | 0.332 | 114 | 139.2 |
| Catchment 2007 (L)- Context 1 | 0.28 | 0.277 | 50 | 272.9 |
| Catchment 2007 (R)- Context 1 | 0.319 | 0.304 | N.A | 310.0 |
| Catchment 2008 (L)- Context 1&3 | 0.078 | 0.197 | 122 | 162.3 |
| Catchment 2008 (R)- Context 1&3 | 0.101 | 0.184 | 90 | 157.6 |
| Catchment 2009 (L)- Context 3 | 0.22 | 0.179 | N.A | 9.6 |
| Catchment 2009 (R)- Context 3 | 0.296 | 0.296 | N.A | 15.4 |
| Catchment 2010 (L)- Contexts 1&3 | 0.34 | 0.325 | N.A | 138.6 |
| Catchment 2010 (R)- Contexts 1&3 | 0.38 | 0.449 | 140 | 161.8 |
| Catchment 2011 (L)- Context 3,2 | 0.407 | 0.364 | N.A | 134.8 |
| Catchment 2011 (R)- Context 3,2 | 0.435 | 0.109 | N.A | 136.7 |
| Catchment 2012 (L)- Context 2 | 0.508 | 0.417 | N.A | 202.4 |
| Catchment 2012 (R)- Context 2 | 0.516 | 0.506 | N.A | 212.0 |
| Total | | | | |



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Post to Pre Control (12-hr SCS II)

| Catchment Name | Pre-development Flow 12-hr SCS II (m3/s) | Post-development Flow 12- hr SCS II (m3/s) | Required Storage Volume (m3) | Available Storage Volume for Quantity Control (m3) |
|----------------------------------|---|---|------------------------------------|--|
| Catchment 2001 (L)- Contexts 1&3 | 0.083 | 0.085 | 25 | 29.2 |
| Catchment 2001 R- Contexts 1& 3 | 0.091 | 0.092 | 27 | 31.5 |
| Catchment 2002 (L)- Context 1 | 0.282 | 0.285 | 40 | 126.1 |
| Catchment 2002(R)- Context 1 | 0.324 | 0.321 | N.A | 119.5 |
| Catchment 2003 (L)- Context 1 | 0.142 | 0.175 | 94 | 94.5 |
| Catchment 2003(R)- Context 1 | 0.154 | 0.191 | 102 | 156.5 |
| Catchment 2004 (L)- Context 1 | 0.135 | 0.142 | 51 | 54.1 |
| Catchment 2004(R)- Context 1 | 0.148 | 0.146 | N.A | 215.7 |
| Catchment 2005 (L)- Context 1 | 0.138 | 0.114 | N.A | 17.5 |
| Catchment 2005(R)- Context 1 | 0.133 | 0.115 | N.A | 146.2 |
| Catchment 2006 (L)- Context 1 | 0.241 | 0.263 | 99 | 188.6 |
| Catchment 2006 (R)- Context 1 | 0.243 | 0.289 | 135 | 139.2 |
| Catchment 2007 (L)- Context 1 | 0.263 | 0.234 | N.A | 272.9 |
| Catchment 2007 (R)- Context 1 | 0.285 | 0.256 | N.A | 310.0 |
| Catchment 2008 (L)- Context 1&3 | 0.075 | 0.175 | 162 | 162.3 |
| Catchment 2008 (R)- Context 1&3 | 0.085 | 0.171 | 141 | 157.6 |
| Catchment 2009 (L)- Context 3 | 0.195 | 0.157 | N.A | 9.6 |
| Catchment 2009 (R)- Context 3 | 0.25 | 0.25 | N.A | 15.4 |
| Catchment 2010 (L)- Contexts 1&3 | 0.326 | 0.284 | N.A | 138.6 |
| Catchment 2010 (R)- Contexts 1&3 | 0.34 | 0.38 | 159 | 161.8 |
| Catchment 2011 (L)- Context 3,2 | 0.385 | 0.331 | N.A | 134.8 |
| Catchment 2011 (R)- Context 3,2 | 0.382 | 0.356 | N.A | 136.7 |
| Catchment 2012 (L)- Context 2 | 0.461 | 0.398 | N.A | 202.4 |
| Catchment 2012 (R)- Context 2 | 0.466 | 0.44 | N.A | 212.0 |



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Subject Water Balnce Calculations Pre-Development Conditions

| | Percipitation | 932.9 | mm | According to Compreh | ensive Stormwater Managemnt Master Plan |
|--|--------------------------------|----------------|------------------|--------------------------------------|---|
| Average Annual Precipitation Annual Evapotranspiration | | 932.9 598.2 | mm, or mm, or | 0 m ³ 0 m ³ | |
| Available Water Surplus (or excess of pred | cipitation over evapotranspira | tion) 334.7 | mm, or | 0 m ³ | |

Then, infiltration factors are used to determine the fraction of water surplus that infiltrates into the ground and the fraction that runs off the site. Infiltration factor is determined by summing a factor for topography, soil, and cover.

Table 3.1: Hydrologic Cycle Component Values

| | ation of which some discharges back to the stream as base g a factor for topography, soils and cover. | e flow. The infiltration factor is |
|--------------|--|------------------------------------|
| Topography | Flat Land, average slope < 0.6 m/km | 0.3 |
| | Rolling Land, average slope 2.8 m to 3.8 m/km | 0.2 |
| | Hilly Land, average slope 28 m to 47 m/km | 0.1 |
| <u>Soils</u> | Tight impervious clay | 0.1 |
| | Medium combinations of clay and loam | 0.2 |
| | Open Sandy loam | 0.4 |
| Cover | Cultivated Land | 0.1 |
| | Woodland | 0.2 |

| SWM Planning & Design Manual | - 3-4 - | Environmental Design Criteria |
|------------------------------|---------|-------------------------------|
| | | |

Pervious Area Pre-Devlopment Conditions 4.87 ha
Impervious Area Pre-Devlopment Conditions 10.42 ha

| Pervious Area Pre-Devlopment Conditions | | 4. | .87 | |
|--|--------|-------|-------------------|-----------------------|
| Topography Factor | | 0.20 | | |
| Soil Factor | | 0.30 | silt | |
| Cover | | 0.15 | <u></u> | |
| Therefore, the total infiltration factor is | | 0.65 | _ | |
| Therefore, the annual infiltration amount is | | 388.8 | mm, or | 18,936 |
| and the annual runoff amount is | | 209.4 | mm, or | 10,196 |
| | (%) | (mm) | (m ³) | Comments/Assumptions: |
| Infiltration | 41.7% | 388.8 | 18,936 | |
| Evapotranspiration | 35.9% | 334.7 | 16,300 | |
| Runoff | 22.4% | 209.4 | 10,196 | |
| Precipitation | 100.0% | 932.9 | 45,432 | |



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Subject

Water Balnce Calculations Pre-Development Conditions

| vious Area Pre-Devlopment Conditions | | 10.42 | ! | |
|--------------------------------------|-------|-------|-------------------|-----------------------|
| | (%) | (mm) | (m ³) | Comments/Assumptions: |
| Infiltration | 0.0 | 0.0 | 0 | |
| Evapotranspiration | 12.5 | 116.6 | 12,151 | 1 mm depression. |
| Runoff | 87.5 | 816.3 | 85,057 | |
| Precipitation | 100.0 | 932.9 | 97,208 | |

Pre-Development Conditions

| Hydrologic Cycle Components | Pre-development Conditions (m³) |
|--------------------------------|---------------------------------------|
| Infiltration | 18,936 |
| Evapotranspiration | 28,451 |
| Runoff | 95,253 |
| Precipitation | 142,640 |



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Subject Water Balnce Calculations Post-Development Conditions

| Pervious Area Pre-Devlopment Conditions | 2.91 ha |
|---|----------------|
| Impervious Area Pre-Devlopment Conditions | 12.38 ha |

| Pervious Area Pre-Devlopment Conditions | | 2. | 91 | |
|--|--------|-------|-------------------|-----------------------|
| Topography Factor | | 0.20 | | |
| Soil Factor | | 0.30 | silt | |
| Cover | | 0.15 | | |
| Therefore, the total infiltration factor is | | 0.65 | _ | |
| Therefore, the annual infiltration amount is | | 388.8 | mm, or | 11,315 |
| and the annual runoff amount is | | 209.4 | mm, or | 6,093 |
| | (%) | (mm) | (m ³) | Comments/Assumptions: |
| Infiltration | 41.7% | 388.8 | 11,315 | |
| Evapotranspiration | 35.9% | 334.7 | 9,740 | |
| Runoff | 22.4% | 209.4 | 6,093 | |
| Precipitation | 100.0% | 932.9 | 27,147 | |

| pervious Area Pre-Devlopment Conditions | 12.38 | | | |
|---|-------|-------|-------------------|-----------------------|
| | (%) | (mm) | (m ³) | Comments/Assumptions: |
| Infiltration | 0.0 | 0.0 | 0 | |
| Evapotranspiration | 12.5 | 116.6 | 14,437 | 1 mm depression. |
| Runoff | 87.5 | 816.3 | 101,056 | |
| Precipitation | 100.0 | 932.9 | 115,493 | |

Post-Development Conditions

| Hydrologic Cycle Components | Pre-development Conditions (m³) |
|--------------------------------|---------------------------------------|
| Infiltration | 11,315 |
| Evapotranspiration | 24,176 |
| Runoff | 107,149 |
| Precipitation | 142,640 |

Infiltration Deficit

7,621 m3



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Subject Water Balance with Mitigation Measures

Ratios of impervious drainage areas to bioswales:

Ratios of impervious drainage areas to underground chambers.

14.5 10.7

51,176

| Land Use | Area (ha) | Cover % |
|---|-----------|---------|
| Drainage Areas to Bioswales | 9.944 | 65.0 |
| Drainage Areas to the Underground Chamber | 3.160 | 20.7 |
| Remaining Pervious Area of the Road | 2.184 | 14.3 |
| Total Study Area | 15.29 | 100.0 |

 Infiltration Deficit
 7,621
 m3/year

 Average Annual Precipitation
 932.9
 mm, or
 142,640
 m³

 Annual Evapotranspiration
 598.2
 mm, or
 91,465
 m³

 Available Water Surplus (or excess of precipitation over evapotranspiration)

Bioswale Units 70.0 % runoff reduction

334.7

(mm)

279.9

279.9

373.2

932.9

m3

8845

8845

11794

29484

mm, or

(%) тЗ (mm) Infiltration 35.0 326.5 32470 35.0 326.5 32470 Evapotranspiration Runoff 30.0 279.9 27831 Precipitation 100.0 932.9 92771

Table 4.5.2 Volumetric runoff reduction achieved by bioretention

 m^3

| LID Practice | Location | % Runoff Reduction ¹ | Reference |
|--|--------------------------------|------------------------------------|--|
| Bioretention without underdrain | Connecticut | 99% | Dietz and Clausen (2005) |
| | Pennsylvania | 80% | Ermilio (2005) |
| underdrain | Pennsylvania | 70% | Emerson and Traver (2004) |
| | North Carolina | 40 to 60% | Smith and Hunt (2007) |
| Bioretention with | North Carolina | 33 to 50% | Hunt and Lord (2006) |
| underdrain | Maryland and North Carolina | 20 to 50% | Li et al. (2009) |
| Runoff Reduction Estimate ² | | | % without underdrain 5% with underdrain |

Infiltration Chamber

| Precipitation | 100.0 |
|--------------------|-------|
| Runoff | 40.0 |
| Evapotranspiration | 30.0 |
| Infiltration | 30.0 |
| | (%) |

60.0 % runoff reduction

Table 4.4.2 Volumetric runoff reduction¹ achieved by infiltration trenches and perforated pipe systems

| Location | Runoff Reduction ¹ | Reference |
|--|--|--|
| Virginia | 60% | Schueler (1983) |
| Ontario | 73% | J.F. Sabourin and Associates (2008a) |
| Ontario | 86% | J.F. Sabourin and Associates (2008a) |
| Ontario | 95% | SWAMP (2005) |
| Ontario | 89% | SWAMP (2005) |
| Runoff Reduction Estimate ² | | 85% |
| | Virginia Ontario Ontario Ontario Ontario | Virginia 60% Ontario 73% Ontario 86% Ontario 95% Ontario 89% |



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Subject Water Balance with Mitigation Measures

Pervious Area

| | (%) | (mm) | m3 |
|--------------------|-------|-------|-------|
| Infiltration | 41.7 | 388.8 | 8492 |
| Evapotranspiration | 35.9 | 334.7 | 7310 |
| Runoff | 22.4 | 209.4 | 4573 |
| Precipitation | 100.0 | 932.9 | 20376 |

Water Balance Components with Mitigation Measures

| Hydrologic Cycle Components | Area #1 Drainage Areas to Bioswales | Area#2 Drainage Areas to Chamber Systems | Area#3 Remaining Pervious Area of the Road |
|-----------------------------|---|--|--|
| % Land-Use Coverage | 65.0% | 20.7% | 14.3% |
| Infiltration | 326.5 | 279.9 | 388.8 |
| Evapotranspiration | 326.5 | 279.9 | 334.7 |
| Runoff | 279.9 | 373.2 | 209.4 |
| Precipitation | 932.9 | 932.9 | 932.9 |

Post-Development Condition Water Balance Relationship with Mitigation Measures

| Hydrologic Cycle Components | | st-Development Condition Water Bar Relationship with Mitigation Measu | | |
|-----------------------------|-------|--|---------|--|
| | mm | % | m³ | |
| % Land-Use Coverage | | 100.0% | | |
| Infiltration | 325.8 | 34.9% | 49,808 | |
| Evapotranspiration | 318.0 | 34.1% | 48,625 | |
| Runoff | 289.1 | 31.0% | 44,198 | |
| Precipitation | 932.9 | 100.0% | 142,640 | |

Pre-development Infiltration (Hyrogeology Report):

Post-development Infiltration without Mitigation Measures (Hyrogeology Report):

919 m3

m3

1375

Post-development Infiltration with Mitigation Measures:

49808 m3



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Subject

Phosphorus Loading Study - Calculation Summary Sheet

| Catchment Description | Land Cover Classification | Proposed Treatment Method(s) | Area | 'P' Export Coefficient | SWM Treatment Reduction | Annual 'P' Loading |
|------------------------------------|---------------------------------|------------------------------|----------|---------------------------|----------------------------|-----------------------|
| | | | (ha) | (kg/ha/yr) | (%) | (kg/yr) |
| PRE-DEVELOPMENT CONDITIONS: | | | | | | |
| Road Impervious Areas | High Residential | | 10.42 | 1.32 | - | 13.75 |
| Road Pervious Areas | Hay-pasture | | 4.87 | 0.07 | | 0.34 |
| Totals | - | | 15.29 | | - | 14.10 |
| POST-DEVELOPMENT CONDITIONS (wit | hout water quality controls): | | | | | |
| Road Impervious Areas | High Residential | | 12.38 | 1.32 | - | 16.34 |
| Road Pervious Areas | Hay-pasture | | 2.91 | 0.07 | | 0.20 |
| Totals | - | | 15.29 | | - | 16.55 |
| | | | Target R | emoval Efficieny: | 14.8 | |
| POST-DEVELOPMENT CONDITIONS (wit | <u>:h</u> mitigation measures): | | | | | |
| Road Areas to Infiltration Chamber | High Residential | Infiltration Trench | 3.16 | 1.32 | 100.0 | 0.00 |
| Remaining Road Pervious Areas | Hay-pasture | | 2.19 | 0.07 | | 0.15 |
| Road Impervious to Bioswales | High Residential | | 9.94 | 1.32 | 80.0 | 2.62 |
| Totals | - | | 15.29 | | | 2.78 |
| | | | Target R | emoval Efficieny: | 83.2 | |

 * From LSCRA Phosphorous Offsetting Policy (2017):

Net Effect on 'P' Load (kg/year)

* Offset Ratio (-)

* Offset Cost (/kg/year)

\$35,000

15% LSRCA Administration Fee \$5,250

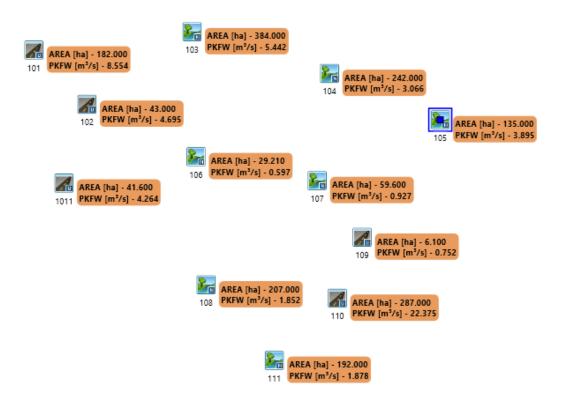
Total \$248,256

APPENDIX

C

Visual OTTHYMO Results

25- year 4 hour Chicago Storm existing conditions



```
PEAK FLOW (Cms)= 3.895
TIME TO PEAK (hrs)= 1.750
RUNOFF VOLUME (mm)= 14.818
TOTAL RAINFALL (mm)= 71.237
RUNOFF COEFFICIENT = 0.208
                                                                 I SSSSS U U A L
I SS U U AAAA L
I SS U U AAAAA L
I SS U U AAAA L
I SSS U U A A L
I SSSSS UUUUU A A LLLLL
                                                                                                                                                                                                                                                                        (v 6.1.2002)
                                      / v
v
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                        ***** DETAILED OUTPUT *****
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NSFORMED H
RAIN |
36.37 | 2
36.37 | 2
36.37 | 2
148.15
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TIME
hrs
1.083
1.167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
          Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\Vo2\voin.dat
Output filename: C:\User$\caef070146\appoata\Loca\\civica\\H5\$0564c49-8c07-4086-8157-8729fb3caba3\f0359d21
summary filename: C:\User$\caef070146\appoata\Loca\\civica\\H5\$0564c49-8c07-4086-8157-8729fb3caba3\f0359d21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5.22 | 1.167

5.94 | 1.250

5.94 | 1.333

6.93 | 1.417

6.93 | 1.500

8.42 | 1.583

8.42 | 1.667

10.91 | 1.750

10.91 | 1.833

16.13 | 1.917

16.13 | 2.000
                                                                                                                                                                                                         TIME: 08:38:27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Unit Hyd Qpeak (cms)= 1.829
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PEAK FLOW (cms)= 0.597 (i)
TIME TO PEAK (hrs)= 2.083
RUNOFF VOLUME (mm)= 14.821
TOTAL RAINFALL (mm)= 71.237
RUNOFF COEFFICIENT = 0.208
            ** SIMULATION : Run 04
                                                                                                         Filename: C:\Users\caef070146\AppD
ata\Local\Temp\
71794fb4-24ae-4ald-bl1d-298611ff8a03\53217781
Comments: 25-year, 4 hr-Chicago, City of Barrie
                 READ STORM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                              TIME RAIN | TIME R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | CALIB | NASHYD ( 0107) | Area (ha) = 59.60 | Curve Number (CN) = 53.4 | ID= 1 DT= 5.0 min | Ia (mm) = 6.01  # of Linear Res.(N) = 3.00 | U.H. Tp(hrs) = 0.93 |
                                                                                                                                                                                                                                                                                                                                                    mm/h
6.15
5.74
5.38
5.08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RANSFORMEI
RAIN
mm/hr
36.37
148.15
148.15
148.06
47.06
47.06
25.72
25.72
18.11
14.17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RAIN TIME mm/hr hrs 5.22 1.083 5.22 1.167 5.94 1.250 5.94 1.333 8.42 1.687 10.91 1.750 10.91 1.833 16.13 1.917 16.13 2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
     NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                              RAIN | TIME RAIN | TIME | TIME
                                                                          TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.750
0.750
0.750
                                                                                                                                                                                                                                                                                                                                                 RAIN
mm/hr
6.15
6.15
5.74
5.38
5.38
5.08
5.08
4.80
4.80
4.57
4.57
                                                                                                                                                                                                                                                                                                           TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                     RAIN
mm/hr
11.74
11.74
10.09
10.09
8.89
8.89
7.96
7.96
7.24
7.24
6.65
6.65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Unit Hyd Qpeak (cms)= 2.448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PEAK FLOW (cms)= 0.927 (i)
TIME TO PEAK (hrs)= 2.583
RUNOFF VOLUME (mm)= 14.821
TOTAL RAINFALL (mm)= 71.237
RUNOFF COEFFICIENT = 0.208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                        Unit Hyd Qpeak (cms)= 14.732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | CALIB
| NASHYD ( 0108) | Area (ha)= 207.00 Curve Number (CN)= 51.3
 RAIN TIME
mm/hr hrs
5.22 1.083
5.222 1.167
5.94 1.333
6.93 1.417
6.93 1.500
8.42 1.687
10.91 1.750
10.91 1.833
16.13 1.917
16.13 2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
                                          NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                      RAIN TIME mm/hr hrs 5.22 1.083 5.22 1.167 5.94 1.250 5.94 1.353 8.42 1.667 10.91 1.750 10.91 1.833 16.13 1.917 16.13 2.000
                                                                                                                                                                                RANSFORMED HYETOG

RAIN | TIM

mm/hr | harmonia

36.37 | 2.083

36.37 | 2.167

148.15 | 2.250

148.15 | 2.353

47.06 | 2.417

47.06 | 2.500

25.72 | 2.683

25.72 | 2.683

25.72 | 2.667

18.11 | 2.833

14.17 | 2.917

14.17 | 3.000
                                                                                                                                                                                                                                TIME
hrs
2.083
2.167
2.250
2.333
2.417
                                                                                                                                                                                                                                                                                                                                                   RAIN
mm/hr
6.15
6.15
5.74
5.38
5.38
5.08
4.80
4.57
4.57
                                                                          TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                             TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                         8.89
7.96
7.96
7.24
7.24
6.65
6.65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                        Unit Hyd Qpeak (cms)= 4.251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
RUNOFF COEFFICIENT =
                         PEAK FLOW (cms)= 1.852 (i)
TIME TO PEAK (hrs)= 3.917
RUNOFF VOLUME (mm)= 13.490
TOTAL RAINFALL (mm)= 71.237
RUNOFF COEFFICIENT = 0.189
                         (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
     CALIB
STANDHYD ( 0102)
ID= 1 DT= 5.0 min
                                          NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (ha)=
(mm)=
(%)=
(m)=
=
                                                                                                             Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                RAIN
mm/hr
11.74 |
11.74 |
10.09
10.09
8.89
7.96
7.96
7.24
6.65
6.65
                                                                          TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                           TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                    mm/h
6.15
6.15
5.74
5.38
5.38
5.08
4.80
4.80
4.57
4.57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                        Unit Hyd Qpeak (cms)= 2.696
                         PEAK FLOW (cms)= 1.878 (i)
TIME TO PEAK (hrs)= 4.833
RUNOFF VOLUME (mm)= 19.421
TOTAL RAINFALL (mm)= 71.237
RUNOFF COEFFICIENT = 0.273
                          (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
    PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                         PERVIOUS (i)
27.04
3.67
2.00
                                          NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
```

TRANSFORMED HYETOGRAPH
ME RAIN | TIME | MRS | 36.37 | 2.083 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | 11.05 | RAIN mm/hr 11.74 11.74 10.09 10.09 8.89 7.96 7.96 7.24 7.24 6.65 6.65 RAIN mm/hr 6.15 6.15 5.74 5.38 5.38 5.08 5.08 4.80 4.57 4.57 148.15 16.54 5.00 115.00 6.58 (ii) 111.43 (ii) 5.00 0.18 0.01 *TOTALS*
4.264 (iii)
1.33
35.35
71.24
0.50 4.25 1.33 64.97 71.24 0.91 0.46 3.42 22.66 71.24 0.32 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^{\circ}=63.6$ Ia = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. Area (ha)= 43.00Total Imp(%)= 39.00 Dir. Conn.(%)= 31.00IMPERVIOUS PERVIOUS (i) 16.77 26.23 6.27 3.49 1.00 0.87 535.41 1000.00 0.013 0.250 NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. RAIN TIME RAIN 'TIME
mm/hr hr hrs mm/hr ' hrs mr
5.22 1.083 36.37 2.063 11
5.94 1.250 148.15 2.250 10
6.93 1.337 148.15 2.333 10
6.93 1.337 148.15 2.333 10
6.93 1.337 148.15 2.333 10
6.93 1.337 148.15 2.333 10
6.93 1.350 47.06 2.430 8
6.93 1.450 47.06 2.430 8
6.94 1.550 1.550 10
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6.93 RAIN mm/hr 11.74 11.74 10.09 8.89 8.89 7.96 7.96 7.24 6.65 6.65 TIME hrs 3.08 3.17 3.25 3.33 3.42 3.50 3.58 3.67 3.75 3.83 3.92 4.00 RAIN mm/hr 6.15 6.15 5.74 5.38 5.38 5.08 4.80 4.80 4.57 4.57 148.15 5.00 5.97 (ii) 5.00 0.19 19.55 130.00 126.05 (ii) 130.00 0.01 *TOTALS*
4.695 (iii)
1.33
37.66
71.24
0.53 4.68 1.33 64.97 71.24 0.91 0.49 3.67 25.39 71.24 0.36 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $\text{CM}^{\circ} = 66.2$ Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.

D HYETOGR TIME hrs 2.083 2.167 2.250 2.333 2.417 2.500 2.583 2.667 2.750 2.833 2.917 3.000

HYETOGR TIME hrs 2.083 2.167 2.250 2.333 2.417 2.500 2.583 2.667 2.750 2.833 2.917 3.000

TIME hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00

TIME hrs 3.08 3.17 3.25 3.33 3.42 3.50 3.58 3.67 3.75 3.83 3.92 4.00

RAIN mm/hr 6.15 6.15 5.74 5.38 5.38 5.08 4.80 4.80 4.57 4.57

RAIN mm/hr 6.15 6.15 5.74 5.38 5.38 5.08 5.08 4.80 4.80 4.57 4.57

```
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
 | CALIB | NASHYD ( 0103) | Area ( ha)= 384.00 | Curve Number (CN)= 65.0 | Ia ( mm)= 5.50 | # of Linear Res.(N)= 3.00 | U.H. Tp(hrs)= 1.87
                                   NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                         RAIN | TIME RAIN |
                                                                                                                                                                                                                                                                   TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                               TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                         5.74
5.38
5.38
5.08
5.08
4.80
4.80
4.57
                  Unit Hyd Qpeak (cms)= 7.843
                  PEAK FLOW (cms)= 5.442 (i)
TIME TO PEAK (hrs)= 3.833
RUNOFF VOLUME (mm)= 21.339
TOTAL RAINFALL (mm)= 71.237
RUNOFF COEFFICIENT = 0.300
                   (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                  TIRE ( 0104) | Area ( ha)= 242.00 | Curve Number ( CN)= 59.0 | To Te S.0 min | Ta ( mm)= 5.90 | # of Linear Res.(N)= 3.00 | U.H. Tp(hrs)= 1.66
                                   NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                              TRANSFORMED
TIME RAIN
hrs mm/hr
1.083 36.37
1.167 36.37
1.167 36.37
1.250 148.15
1.333 148.15
1.417 47.06
1.500 47.06
1.500 47.06
1.500 85.72
1.667 25.72
1.667 25.72
1.683 18.11
1.833 18.11
1.833 18.11
1.917 14.17
                                                                                                                                                                                               HYETOGR
TIME
1.083
2.167
2.250
2.333
2.417
2.500
2.583
2.667
2.750
2.833
2.917
3.000
                                                                                                                                                                                                                                                                    TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                mm/hr
5.22
5.22
5.94
5.94
6.93
6.93
                                                               hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                        5.94 | 1.333
6.93 | 1.417
6.93 | 1.500
8.42 | 1.583
8.42 | 1.667
10.91 | 1.750
10.91 | 1.833
16.13 | 1.917
16.13 | 2.000
                  Unit Hyd Qpeak (cms)= 5.568
                 PEAK FLOW (cms)= 3.066 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 17.651
TOTAL RATNFALL (mm)= 71.237
RUNOFF COEFFICIENT = 0.248
                   (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
     CALIB

STANDHYD ( 0101) | Area (ha)= 182.00 pir. conn.(%)= 18.00

IMPERVIOUS PERVIOUS (i)

142.78
                  Surface Area (ha)= 38.22 143.78
Dep. Storage (mm)= 6.27 6.50
Average Slope (%)= 0.70 2.00
                 TOTAL RAINFALL (mm)= 71.24
RUNOFF COEFFICIENT = 0.92
                                                                                                                                                                                         71.24
0.41
***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^+ = 72.0 Ia = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
 NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                --- TRANSFORMED HYETOGR.
TIME RAIN ' TIME
hrs mm/hr ' hrs
1.083 36.37 | 2.083
1.167 36.37 | 2.167
1.250 148.15 | 2.250
1.333 148.15 | 2.333
                                                                                                                                                                                                                                                                   TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                            RAIN
mm/hr
5.22
5.22
5.94
6.93
6.93
8.42
8.42
10.91
16.13
16.13
                                                                                                                                                                                                                                   mm/hr
11.74
11.74
10.09
                                                               hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                           148.15 | 2.333

47.06 | 2.417

47.06 | 2.500

25.72 | 2.583

25.72 | 2.667

18.11 | 2.750

18.11 | 2.833

14.17 | 2.917

14.17 | 3.000
                                                                                                                                                                                                                                                                                                       5.74
5.38
5.38
5.08
5.08
4.80
4.80
4.57
4.57
                                                                                                                                1.333
1.417
1.500
1.583
1.667
1.750
1.833
1.917
2.000
                   Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

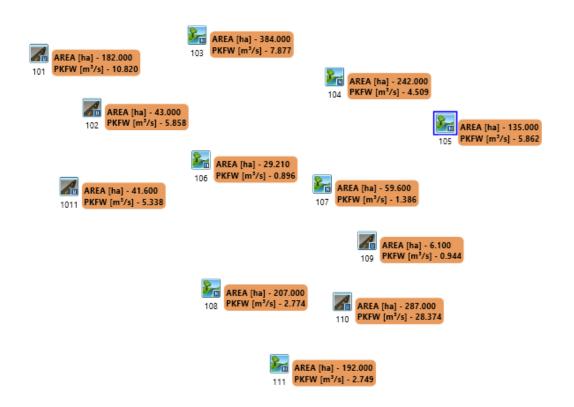
Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                148.15
10.00
10.56 (ii)
10.00
0.11
                                                                                                                                                                                       22.34
105.00
104.61 (ii)
105.00
0.01
                                                                                                                                                                                                                                                *TOTALS*
22.375 (iii)
1.42
39.98
71.24
0.56
                   PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                    22.06
1.42
64.93
71.24
0.91
                                                                                                                                                                                         4.36
3.17
29.29
71.24
0.41
                  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \mathbb{C}^{N^+} = 72.0 I as -20.0 Ta = -20.0 Ta = -20.0 Ta = -20.0 Than Than THE STORAGE CODEFTICIENT. (iii) PEAR DOES NOT INCLUDE BASEFLOW IF ANY.
  FINISH
```

(m)= 1101.51 = 0.013 Length Mannings n NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. ---- TRANSFORMED HYETOGRAPH
TIME RAIN | TIME |
hrs mm/hr | hrs mm
1.083 36.37 | 2.083 | 11
1.250 148.15 | 2.250 | 10
1.250 148.15 | 2.250 | 10
1.333 148.15 | 2.333 | 10
1.417 47.06 | 2.417 8
1.833 15.81 | 2.333 | 10
1.450 | 47.06 | 2.417 8
1.667 | 25.72 | 2.667 7
1.750 18.11 | 2.750 7
1.833 | 18.11 | 2.833 | 7
1.833 | 18.11 | 2.833 | 7
1.833 | 18.11 | 2.833 | 7
1.917 | 14.17 | 2.917 | 6
2.000 | 14.17 | 3.000 | 6 RAIN | TIME mm/hr hrs 5.22 | 1.083 | 5.22 | 1.167 | 5.94 | 1.250 | 5.94 | 1.333 | 1.500 | 8.42 | 1.687 | 1.750 | 10.91 | 1.750 | 10.91 | 1.833 | 1.6.13 | 1.917 | 16.13 | 2.000 TIME hrs 0.083 0.167 0.250 0.333 0.417 0.500 0.583 0.667 0.750 0.833 0.917 1.000 RAIN mm/hr 6.15 6.15 5.74 5.38 5.38 5.08 5.08 4.80 4.80 4.57 4.57 148.15 11.09 10.00 135.00 10.25 (1) 135.20 (1) 10.25 (1) 135.00 10.11 0.01 8.49 1.45 1.42 3.83 64.97 15.92 71.24 71.24 0.91 0.22 Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= *TOTALS* 8.554 (iii) 1.42 24.75 71.24 0.35 PEAK FLOW (cms) =
TIME TO PEAK (hrs) =
RUNOFF VOLUME (mm) =
TOTAL RAINFALL (mm) =
RUNOFF COEFFICIENT = ***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20% YOU SHOULD CONSIDER SPLITTING THE AREA. (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^{\circ}=55.0$ Ia = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. Surface Area (ha)= 2.26 3.84
Dep. Storage (mn)= 6.05 3.92
Average Slope (%)= 1.00 2.40
Length (ann)= 201.66 296.00
Mannings n = 0.013 0.250 NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. RAIN TIME RAIN THE PRINCE THE PRI TIME hrs 0.083 0.167 0.250 0.333 0.417 0.500 0.583 0.667 0.750 0.833 0.917 1.000 RAIN mm/hr 6.15 6.15 5.74 5.38 5.38 5.08 4.80 4.80 4.57 4.57 Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= 148.15 5.00 3.33 (ii) 5.00 0.26 29.10 40.00 39.71 40.00 0.03

PEAK FLOW (cms)= TIME TO PEAK (hrs)= RUNOFF VOLUME (mm)= *TOTALS* 0.752 (iii) 1.33 40.04

100-year 4 hour Chicago storm existing conditions



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                                                                                                                                                                                                                                                                                                                                                                               (v 6.1.2002)
                                                   .
V V
***** DETAILED OUTPUT *****
              Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\V02\voin.dat
Output filename: C:\User$\caef070146\Apppata\Loca\\Civica\\H5\\050564c49-8c07-4086-8157-8729fb3caba\cflf105e
summary filename: C:\User$\caef070146\Apppata\Loca\\Civica\\H5\\050564c49-8c07-4086-8157-8729fb3caba\cflf105e
 DATE: 09-14-2021
                                                                                                                                                                                                                                                                                       TIME: 08:43:00
                Filename: C:\Users\caef070146\AppD
ata\Loca\\Temp\
balc97d1-3fce-403b-892b-c79a1f826375\4c83eb39
Comments: 100-year, 4 hr-chicago, City of Barrie
                        READ STORM
                                                                                                                                                  RAIN | TIME | RAIN | TIME | RAIN | TIME | TI
                                                                                                               TIME
hrs
0.17
0.33
0.50
0.67
0.83
1.00
     NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                         ---- TRANSFORMED HYETOGR.
RAIN | TIME | RAIN | TIME |
mm/hr | hrs | mm/hr | hrs |
6.41 | 1.083 | 45.22 | 2.083 |
6.43 | 1.165 | 46.25 | 2.167 |
7.29 | 1.33 | 180.15 | 2.33 |
8.52 | 1.417 | 58.54 | 2.417 |
8.52 | 1.500 | 58.54 | 2.500 |
10.36 | 1.583 | 31.96 | 2.687 |
10.36 | 1.667 | 31.96 | 2.687 |
11.441 | 1.733 | 22.44 | 2.500 |
13.44 | 1.733 | 22.45 | 2.733 |
13.49 | 1.733 | 2.245 | 2.733 |
13.99 | 2.100 | 17.52 | 3.000 |
                                                                                                       TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                               TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RAIN
mm/hr
7.56
7.56
7.04
7.04
6.60
6.62
6.22
5.89
5.59
5.59
                                                                                                                                                                                                                                                                                                                                                                           RAIN
mm/hr
14.50
12.44
12.44
10.94
10.94
9.80
9.80
8.90
8.90
8.16
8.16
                                 Unit Hyd Qpeak (cms)= 14.732
 NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                RAIN TIME mm/hr hrs 6.41 1.083 6.41 1.1083 6.41 1.150 7.29 1.353 8.52 1.417 8.52 1.500 10.36 1.687 13.45 1.750 13.45 1.833 19.96 1.917 19.96 2.000
                                                                                                                                                                                                                                                                                                                       TIME
hrs
2.083
2.167
2.250
2.333
2.417
                                                                                                       TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                            RAIN
mm/hr
45.22
45.22
180.15
180.15
58.54
58.54
31.96
31.96
22.45
22.45
17.52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RAIN
mm/hr
7.56
7.56
7.04
7.04
6.60
6.60
6.22
5.89
5.59
5.59
                                                                                                                                                                                                                                                                                                                                                                           RAIN
mm/hr
14.50
12.44
12.44
10.94
10.94
9.80
9.80
8.90
8.90
8.16
8.16
                                                                                                                                                                                                                                                                                                                                                                                                                                  TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                   2.417
2.500
2.583
2.667
2.750
2.833
2.917
3.000
                                 Unit Hyd Qpeak (cms)= 4.251
                                   PEAK FLOW (cms)= 2.774 (i)
TIME TO PEAK (hrs)= 3.917
RUNOFF VOLUME (mm)= 20.155
TOTAL RAINFALL (mm)= 87.578
RUNOFF COEFFICIENT = 0.230
                                   (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
     | CALIB | NASHYD ( 0111) | Area (ha)= 192.00 | Curve Number (CN)= 63.3 | Curve Number (DN)= 63.3
                                                           NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                       TRANSFORMED HYETOGRAPH
ME RAIN | ' TIME R
83 45.22 | 2.083 | 14.
67 45.22 | 2.083 | 14.
50 180.15 | 2.250 | 12.
170 58.54 | 2.437 | 10.
180.55 | 2.45 | 2.333 | 12.
170 58.54 | 2.437 | 10.
180.55 | 3.65 | 2.66 | 3.
180.55 | 3.65 | 3.
180.55 | 3.65 | 3.
180.55 | 3.65 | 3.
180.55 | 3.65 | 3.
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180.55 | 3.
180.55 | 3.
180.55 | 3.
180.55 | 3.
180.55 | 3.
180.55 | 3.
180.55 |
                                                                                                                                                    RAIN TIME
mm/hr hrs
6.41 1.05
7.72 1.1250
7.72 1.1250
7.72 1.133
8.52 1.417
8.52 1.500
10.36 1.583
10.36 1.667
13.45 1.750
13.45 1.833
19.96 1.917
19.96 2.000
                                                                                                                                                                                                                                                                                                                                                                     RAIN
mm/hr
14.50 |
14.50 |
12.44 |
10.94
10.94
10.94
9.80
9.80
8.90
8.90
8.16
8.16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RAIN
mm/hr
7.56
7.56
7.04
7.04
6.60
6.22
6.22
5.89
5.59
5.59
                                                                                                       TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                 TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                 Unit Hyd Qpeak (cms)= 2.696
                                   PEAK FLOW (cms)= 2.749 (i)
TIME TO PEAK (hrs)= 4.750
RUNOFF VOLUME (mm)= 28.394
TOTAL RAINFALL (mm)= 87.578
RUNOFF COEFFICIENT = 0.324
                                   (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Max.Ef
                                                                                                                                                  Area (ha)= 41.60
Total Imp(%)= 35.00 Dir. Conn.(%)= 30.00
                                                                                                                                                                                             IMPERVIOUS
14.56
6.27
0.70
526.62
0.013
                                                                                                                                                                                                                                                                     PERVIOUS (i)
27.04
3.67
2.00
1082.00
0.250
                                     Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                   (ha)=
(mm)=
(%)=
(m)=
=
                                                           NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
```

| PEAK FLOW (cms)= 5.862 (i) TIME TO PEAK (hrs)= 1.750 RUNOFF VOLUME (mm)= 21.755 TOTAL (mm)= 25.758 RUNOFF COFFICIENT = 0.250 (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. |
|--|
| (1) PEAK FLOW DUES NOT INCLUDE BASEFLOW IF ANY. |
| CALIB NASHYD (0106) Area (ha)= 29.21 Curve Number (CN)= 53.4 |
| TRANSFORMED HYETOGRAPH TIME RAIN TIME RAIN 'TIME RAIN TIME RAIN hrs mm/hr hrs mm/hr hrs mm/hr hrs mm/hr |
| $ \begin{array}{ c c c c c c c c c c c c c c c c c c c$ |
| Unit Hyd Qpeak (cms)= 1.829 |
| PEAK FLOW (cms)= 0.896 (i) TIME TO PEAK (hrs)= 2.083 RINDOFF VOLUME (mm)= 21.929 TOTAL RAIN-ALL (mm)= 87.578 RINDOFF COEFFICIENT = 0.250 (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. |
| |
| CALIB NASHVD (0107) Area (ha)= 59.60 Curve Number (CN)= 53.4 NASHVD DT NASHVD CON NashVD NAS |
| TRANSFORMED HYETOGRAPH TIME RAIN TIME RAIN 'TIME RAIN TIME RAIN hrs mm/hr hrs mm/hr hrs mm/hr hrs mm/hr hrs mm/hr |
| $ \begin{array}{ c c c c c c c c c c c c c c c c c c c$ |
| Unit Hyd Qpeak (cms)= 2.448 |
| PEAK FLOW (ms)= 1.385 (i) TIME TO PEAK (hrs)= 2.583 RIUNOFF VOLLIME (mm)= 21.929 TOTAL RAINFALL (mm)= 87.578 RUNOFF COEFFICIENT = 0.250 |
| (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. |
| CALIB NASHYD (0108) Area (ha)= 207.00 Curve Number (CN)= 51.3 |
| TRANSFORMED HYETOGRAPH |
| TIME RAIN TIME R |
| 0.833 13.45 1.833 22.45 2.833 8.90 3.83 5.89 0.917 19.96 1.917 17.52 2.917 8.16 3.92 5.95 1.000 19.96 2.000 17.52 3.000 8.16 4.00 5.59 |
| Max.Eff.Inten.(mm/hr)= 180.15 23.66 over (min) 5.00 100.00 Storage Coeff. (min)= 6.09 (ii) 96.94 (ii) Unit Hyd. Tpeak (min)= 5.00 100.00 Unit Hyd. peak (cms)= 0.19 0.01 **TOTALS* |
| PEAK FLOW (cms)= 5.30 0.73 5.338 (iii) TIME TO PEAK (hrs)= 1.33 3.08 1.33 RUNOFF VOLUME (mm)= 81.31 32.30 47.00 TOTAL RAINFALL (mm)= 87.58 87.58 87.58 RUNOFF COEFFICIENT = 0.93 0.37 0.54 |
| (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN [±] = 63.6 Ia = Dep. Storage (Above) (ii) TIME STEP (PT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. |
| CALIB STANDHYD (0102) Area (ha)= 43.00 Dir. Conn.(%)= 31.00 CONN.(%)= 31. |
| Surface Area (ha)= IMPERVIOUS PREVIOUS (1) Dep. Storage (mm)= 6.27 26.23 Average Slope (%)= 535.01 1000.80 Length (m)= 0.013 0.250 |
| NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. |
| TRANSFORMED HYETOGRAPH TIME RAIN |

| | TIME | RAIN | TIME | RAIN | ' TIME | RAIN | TIME | RAIN |
|------|-----------|-------|--------|--------|--------|-------|------|-------|
| | hrs | mm/hr | hrs | | ' hrs | mm/hr | hrs | mm/hr |
| | 0.083 | 6.41 | 1.083 | 45.22 | 2.083 | 14.50 | 3.08 | 7.56 |
| | 0.167 | 6.41 | 1.167 | 45.22 | 2.167 | 14.50 | 3.17 | 7.56 |
| | 0.250 | 7.29 | 1.250 | 180.15 | 2.250 | 12.44 | 3.25 | 7.04 |
| | 0.333 | 7.29 | 1.333 | 180.15 | 2.333 | 12.44 | 3.33 | 7.04 |
| | 0.417 | 8.52 | 1.417 | 58.54 | 2.417 | 10.94 | 3.42 | 6.60 |
| | 0.500 | 8.52 | 1.500 | 58.54 | 2.500 | 10.94 | 3.50 | 6.60 |
| | 0.583 | 10.36 | 1.583 | 31.96 | 2.583 | 9.80 | 3.58 | 6.22 |
| | 0.667 | 10.36 | 1.667 | 31.96 | 2.667 | 9.80 | 3.67 | 6.22 |
| | 0.750 | 13.45 | 1.750 | 22.45 | 2.750 | 8.90 | 3.75 | 5.89 |
| | 0.833 | 13.45 | 1.833 | 22.45 | 2.833 | 8.90 | 3.83 | 5.89 |
| | 0.917 | 19.96 | 1.917 | 17.52 | 2.917 | 8.16 | 3.92 | 5.59 |
| | 1.000 | 19.96 | 2.000 | 17.52 | 3.000 | 8.16 | 4.00 | 5.59 |
| f Tn | ten.(mm/ | hr)- | 180.15 | | 27.69 | | | |
| | over (m | | 5.00 | | 10.00 | | | |
| | over (III | !!!? | 3.00 | ± | 10.00 | | | |

over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)= *TOTALS*
5.858 (iii)
1.33
49.93
87.58
0.57 5.83 1.33 81.31 87.58 0.93 PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT = 0.76 3.25 35.83 87.58

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $\text{CN}^* = 66.2$ Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.

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(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
 | CALIB | NASHYD ( 0103) | Area ( ha)= 384.00 | Curve Number (CN)= 65.0 | Ia ( mm)= 5.50 | # of Linear Res.(N)= 3.00 | U.H. Tp(hrs)= 1.87
                                  NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                       RAIN | TIME RAIN |
                                                                                                                                                                                                                                                                                               RAIN
mm/hr
7.56
7.56
7.04
7.04
6.60
6.60
6.22
6.22
                                                                                                                                                                                                                                                                TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.50
3.67
3.75
                                                              TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                  Unit Hyd Qpeak (cms)= 7.843
                  PEAK FLOW (cms)= 7.877 (i)
TIME TO PEAK (hrs)= 3.833
RUNOFF VOLUME (mm)= 30.783
TOTAL RAINFALL (mm)= 87.578
RUNOFF COEFFICIENT = 0.351
                   (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                  TIRE ( 0104) | Area ( ha)= 242.00 | Curve Number ( CN)= 59.0 | To Te S.0 min | Ta ( mm)= 5.90 | # of Linear Res.(N)= 3.00 | U.H. Tp(hrs)= 1.66
                                  NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                            TRANSFORMED
TIME RAIN
hrs mm/hr mm/hr
1.083 45.22
1.167 45.22
1.167 45.22
1.250 180.15
1.333 180.15
1.417 58.54
1.500 58.54
1.500 58.54
1.500 58.54
1.500 22.45
1.683 31.96
1.667 31.96
1.687 31.96
1.687 31.96
1.750 22.45
                                                                                                                                                                                           HYETOGR
TIME
1 hrs
2.083
2.167
2.250
2.333
2.417
2.500
2.583
2.667
2.750
2.833
2.917
3.000
                                                                                                                                                                                                                                                                TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                             mm/hr
6.41
7.29
7.29
8.52
8.52
                                                              hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                      7.29 | 1.333
8.52 | 1.417
8.52 | 1.500
10.36 | 1.583
10.36 | 1.667
13.45 | 1.750
13.45 | 1.833
19.96 | 1.917
19.96 | 2.000
                  Unit Hyd Qpeak (cms)= 5.568
                 PEAK FLOW (cms)= 4.509 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 25.839
TOTAL RATNFALL (mm)= 87.578
RUNOFF COEFFICIENT = 0.295
                   (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
    Surface Area (ha)= 38.22 143.78
Dep. Storage (mm)= 6.27 6.50
Average Slope (%)= 0.70 2.00
                 TOTAL RAINFALL (mm)= 87.58
RUNOFF COEFFICIENT = 0.93
                                                                                                                                                                                      87.58
0.47
***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^+ = 72.0 Ia = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
 NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                          D HYETOGRAPH
|' TIME
|' hrs m
| 2.083 14
| 2.167 14
| 2.250 12
                                                                                                                            --- TRANS-FORMED HYETOG
TIME RAIN 'TIME
hrs mm/hr' hrs.
1.083 45.22 2.083
1.166 48.25 2.1650
1.333 80.15 2.333
1.417 88.54 2.417
1.500 58.54 2.50
1.583 31.96 2.583
1.667 31.99 2.666
1.633 22.45 2.833
1.917 17.52 2.917
2.000 17.52 3.000
                                                                                                                                                                                                                                                              3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                              hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                          mm/hr
6.41
7.29
7.29
8.52
8.52
10.36
10.36
13.45
13.45
19.96
                                                                                                                                                                                                                                                                                                   6.60
6.60
6.22
6.22
5.89
5.59
                   Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

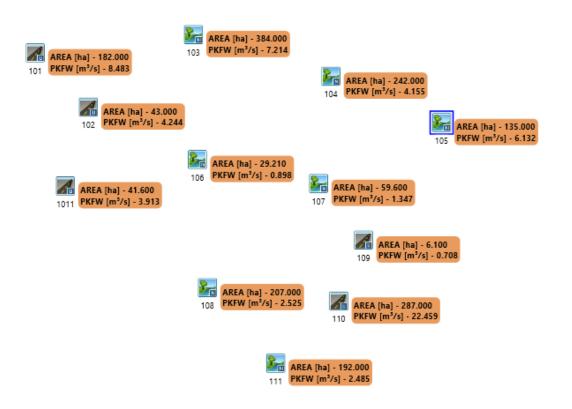
Unit Hyd. Tpeak (min)=

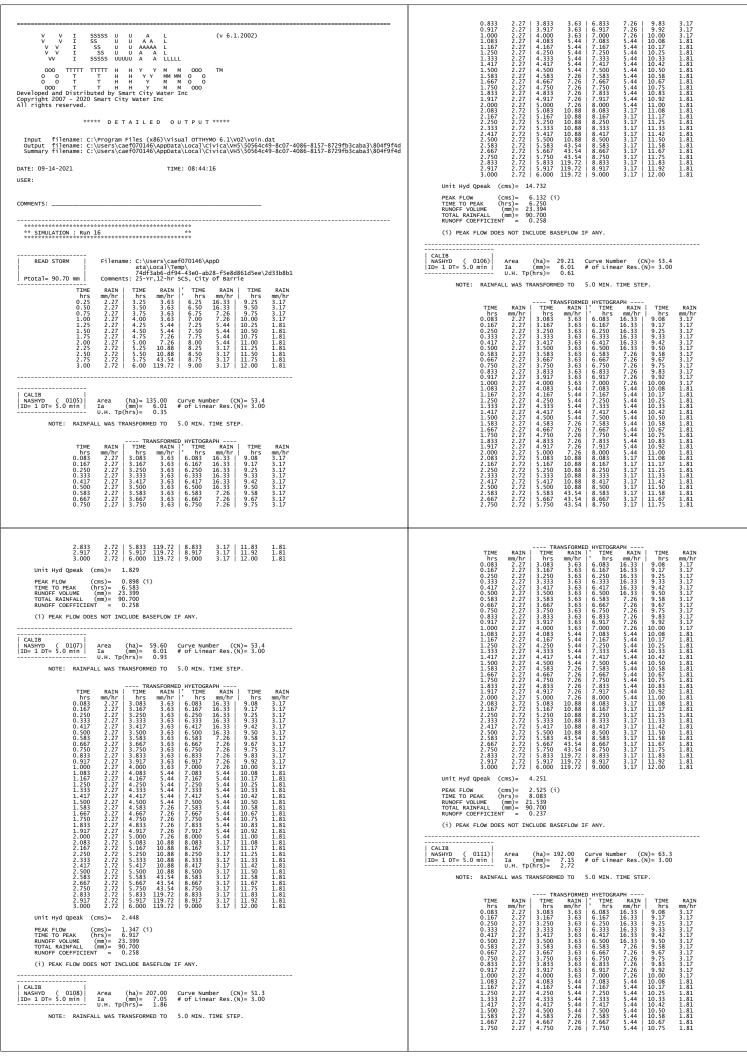
Unit Hyd. peak (cms)=
                                                                                                                             180.15
10.00
9.76 (ii)
10.00
0.11
                                                                                                                                                                                      31.34
95.00
91.90 (ii)
95.00
0.01
                                                                                                                                                                                                                                           *TOTALS*
28.374 (iii)
1.42
52.98
87.58
0.60
                   PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                27.80
1.42
81.27
87.58
0.93
                                                                                                                                                                                      6.70
3.00
40.86
87.58
0.47
                  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \mathbb{C}^{N^+} = 72.0 I as -20.0 Ta = -20.0 Ta = -20.0 Ta = -20.0 Than Than THE STORAGE CODEFTICIENT. (iii) PEAR DOES NOT INCLUDE BASEFLOW IF ANY.
  FINISH
```

(m)= 1101.51 = 0.013 Length Mannings n NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. TRANSFORMED HYETOGRAPH
ME RAIN | TIME |
ME RAIN | TIME |
ME RAIN | THE |
ME RA RAIN | TIME mm/hr | hrs 6.41 | 1.083 6.41 | 1.167 7.29 | 1.333 8.52 | 1.500 10.36 | 1.687 10.36 | 1.687 13.45 | 1.833 19.96 | 1.917 19.96 | 2.000 TIME hrs 0.083 0.167 0.250 0.333 0.417 0.500 0.583 0.667 0.750 0.833 0.917 1.000 RAIN mm/hr 7.56 7.56 7.04 6.60 6.22 6.22 5.89 5.59 2.000 17.32 | 3.600 180.15 16.46 10.00 115.00 9.48 (ii) 114.54 (ii) 10.00 10.12 0.01 10.69 2.39 11.42 3.50 81.31 23.49 87.58 87.58 0.93 0.27 Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= *TOTALS* 10.820 (iii) 1.42 33.89 87.58 0.39 PEAK FLOW (CMS) =
TIME TO PEAK (hrs) =
RUNOFF VOLUME (mm) =
TOTAL RAINFALL (mm) =
RUNOFF COEFFICIENT = ***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20% YOU SHOULD CONSIDER SPLITTING THE AREA. (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^{\circ}=55.0$ Ia = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. Surface Area (ha)= 2.26 3.84
Dep. Storage (mn)= 6.05 3.92
Average Slope (%)= 1.00 2.40
Length (ann)= 201.66 296.00
Mannings n = 0.013 0.250 NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. RAIN TIME RAIN THE PRINT T TIME hrs 0.083 0.167 0.250 0.333 0.417 0.500 0.583 0.667 0.750 0.833 0.917 1.000 RAIN mm/hr 14.50 14.50 12.44 12.44 10.94 10.94 9.80 9.80 9.80 8.90 8.90 8.16 8.16 RAIN mm/hr 7.56 7.56 7.04 6.60 6.60 6.22 6.22 5.89 5.59 Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)= 180.15 5.00 3.08 (ii) 5.00 0.27 49.08 35.00 32.59 35.00 0.03

PEAK FLOW (cms)= TIME TO PEAK (hrs)= RUNOFF VOLUME (mm)= *TOTALS* 0.944 (iii) 1.33 53.05

25 hour 12 hour SCS Type II Existing Conditions





```
2.27 | 4.833
2.27 | 4.917
2.27 | 5.000
2.72 | 5.083
2.72 | 5.5250
2.72 | 5.5250
2.72 | 5.533
2.72 | 5.5417
2.72 | 5.583
2.72 | 5.583
2.72 | 5.683
2.72 | 5.750
2.72 | 5.833
2.72 | 5.683
2.72 | 5.583
2.72 | 5.6917
2.72 | 5.833
2.72 | 5.600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                              1.833
1.917
2.000
2.083
2.167
2.250
2.333
2.417
2.500
2.583
2.667
2.750
2.833
2.917
3.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        7.26
7.26
7.26
10.88
10.88
10.88
10.88
10.88
43.54
43.54
43.54
4119.72
119.72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          7.917
8.000
8.083
8.167
8.250
8.333
8.417
8.500
8.583
8.667
8.750
8.750
8.917
9.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=63.6 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                            Unit Hyd Qpeak (cms)= 2.696
                                                                                      PEAK FLOW (cms)= 2.485 (i)
TIME TO PEAK (hrs)= 9.167
RUNOFF VOLUME (mm)= 30.227
TOTAL RAINFALL (mm)= 90.700
RUNOFF COEFFICIENT = 0.333
                                                                                            (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Area (ha)= 41.60
Total Imp(%)= 35.00 Dir. Conn.(%)= 30.00
                                                                                            Surface Area (ha)= 14.56
Dep. Storage (mm)= 6.27
Average Slope (%)= 0.70
Length (m)= 526.62
Mannings n = 0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PERVIOUS (i)
27.04
3.67
2.00
1082.00
0.250
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over (min)
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5.00
                                                                                                  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^\circ = 66.2 Ia = bep. Storage (Above) if IME STEP (bT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE CORFEICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
     | CALIB | (0103) | Area (ha)= 384.00 | Curve Number (CN)= 65.0 | (1D=1 DT= 5.0 min | Ia (mm)= 5.50 # of Linear Res.(N)= 3.00 | U.H. Tp(hrs)= 1.87
                                                                                                                                                                                   NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TRANSFORMED MYETOGRAPH
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                                                                                                  Unit Hyd Qpeak (cms)= 7.843
                                                                                                  PEAK FLOW (CmS)= 7.214 (i)
TIME TO PEAK (hrs)= 8.083
RUNOFF VOLUME (mm)= 32.703
TOTAL RAINFALL (mm)= 90.700
RUNOFF COEFFICIENT = 0.361
```

| CALIB STANDHYD (ID= 1 DT= 5.0 | 0102) min | Area Total I | (ha)= mp(%)= | 43.00 39.00 | Dir. Com | 1.(%)= | 31.00 | |
|--|--|--|--|---|--|--|---|--|
| Surface A Dep. Stor. Average S Length Mannings | rea (age (lope | ha)= mm)= (%)= | 16.77 6.27 1.00 | US PE | RVIOUS (*26.23 3.49 0.87 | i) | | |
| Mannings I | n RAINFAL | L WAS T | 0.013 | ED TO | 0.250 5.0 MIN. | TIME ST | EP. | |
| | | | | | | | _ | |
| | TIME hrs 0.083 0.167 | RAIN mm/hr 2.27 2.27 | 3.083 | ANSFORMEI RAIN mm/hr 3.63 3.63 | 6.083 | RAIN mm/hr 16.33 16.33 | hrs 9.08 9.17 | RAI mm/h 3.17 3.17 |
| | 0.250 0.333 0.417 | 2.27 | 3.250 3.333 3.417 3.500 | 3.63 3.63 3.63 3.63 | 6.250 6.333 6.417 6.500 | 16.33 | 9.25 | 3.17 3.17 3.17 |
| | 0.500 0.583 0.667 | 2.27 2.27 2.27 2.27 2.27 2.27 | 3.500 3.583 3.667 3.750 | 3.63 | 6.583 | 16.33 16.33 7.26 7.26 7.26 | 9.42 9.50 9.58 9.67 9.75 | 3.17 3.17 3.17 3.17 |
| | 0.750 0.833 0.917 | 2.27 | 3.750 3.833 3.917 4.000 | 3.63 3.63 3.63 3.63 | 6.750 6.833 6.917 | 7.26 7.26 | 9.83 | 3.17 3.17 |
| | 1.000 1.083 1.167 1.250 | 2.27 2.27 2.27 2.27 2.27 | 4.083 4.167 4.250 4.333 | 5.44 5.44 5.44 | 7.000 7.083 7.167 | 5.44 | 10.00 10.08 10.17 10.25 10.33 | 3.17 1.81 1.81 1.81 |
| | 1.250 1.333 1.417 1.500 | 2.27 | 1 4 417 | 5.44 5.44 5.44 5.44 5.44 5.44 7.26 | 7.333 7.417 7.500 | 5.44 5.44 5.44 5.44 5.44 | 10.42 10.50 | 1.81 1.81 1.81 |
| | 1.583 1.667 1.750 | 2.27 2.27 2.27 | 4.500 4.583 4.667 4.750 | 7.26 7.26 7.26 | 7.750 | 5.44 5.44 5.44 5.44 | 10.58 10.67 10.75 | 1.81 1.81 1.81 1.81 |
| | 1.833 1.917 2.000 2.083 2.167 | 2.27 2.27 2.27 2.27 2.27 2.72 2.72 2.72 | 4.833 4.917 5.000 5.083 5.167 | 7.26 7.26 | 7.917 | 5.44 | 10.83 10.92 11.00 | 1.81 |
| | 2.250 | 2.72 2.72 2.72 | 5.250 | 10.88 | 8.083 8.167 8.250 8.333 | 3.17 3.17 3.17 3.17 | 11.08 11.17 11.25 11.33 | 1.81 1.81 1.81 |
| | 2.417 2.500 2.583 2.667 | 2.72 | 5.417 5.500 5.583 | 10 88 | 8.417 8.500 8.583 | 3.17 3.17 3.17 | 11.42 11.50 11.58 | 1.81 1.81 1.81 1.81 |
| | 2.750 2.833 2.917 3.000 | 2.72 2.72 2.72 2.72 | 5.667 5.750 5.833 5.917 6.000 | 43.54 43.54 43.54 119.72 119.72 119.72 | 8.750 8.833 8.917 9.000 | 3.17 3.17 3.17 3.17 3.17 3.17 3.17 | 11.67 11.75 11.83 11.92 12.00 | 1.81 1.81 1.81 |
| Max.Eff.I | | 2.72 hr)= | 119.72 | | 25.78 | | 12.00 | 1.81 |
| Max.Eff.In Storage Co Unit Hyd. Unit Hyd. | over (m oeff. (m Tpeak (m peak (c | in)= in)= ms)= | 6.51 5.00 0.18 | (ii) 1 | 15.00 14.00 (i 15.00 0.01 | | T.1. C* | |
| PEAK FLOW TIME TO PI RUNOFF VOI TOTAL RAII | (c EAK (h LUME (| ms)= rs)= mm)= | 4.14 6.00 84.43 90.70 0.93 | : | 0.71 7.83 37.93 | 5: | TALS* .244 (iii 6.00 2.35 |) |
| TOTAL RAII RUNOFF CO | NFALL (EFFICIENT | mm)= = | 90.70 0.93 | • | 90.70 0.42 | 9 | 0.70 0.58 | |
| | | | | | | | | |
| | 0.333 0.417 0.500 | 2.27 2.27 2.27 | 3.333 3.417 3.500 | 3.63 3.63 3.63 3.63 | 6.333 6.417 6.500 | 16 33 | 9.33 9.42 9.50 9.58 | 3.17 3.17 3.17 3.17 |
| | 0.583 0.667 0.750 0.833 | 2.27 2.27 2.27 2.27 2.27 | 3.583 3.667 3.750 3.833 3.917 4.000 | 3.63 3.63 3.63 | 6.583 6.667 6.750 6.833 6.917 | 7.26 7.26 7.26 7.26 7.26 | 9.67 9.75 9.83 | 3.17 3.17 3.17 |
| | 0.917 1.000 1.083 1.167 | 2.27 | 3.917 4.000 4.083 4.167 | 3.63 | 7.000 | 7.20 | 9.92 10.00 | 3.17 3.17 1.81 1.81 |
| | 1.250 1.333 1.417 | 2.27 2.27 2.27 2.27 | 4.250 4.333 4.417 | 5.44 5.44 5.44 | 7.167 7.250 7.333 7.417 7.500 | 5.44 5.44 5.44 | 10.17 10.25 10.33 10.42 | 1.81 1.81 1.81 |
| | 1.500 1.583 1.667 | 2.27 | 4.500 4.583 4.667 | 5.44 7.26 7.26 | 7.667 | 5.44 5.44 5.44 | 10.50 10.58 10.67 | 1.81 1.81 1.81 |
| | 1.750 1.833 1.917 2.000 | 2.27 2.27 2.27 2.27 2.27 2.72 | 4.750 4.833 4.917 | 7.26 | 7.750 7.833 7.917 8.000 | 5.44 5.44 5.44 5.44 3.17 | 10.75 10.83 10.92 | 1.81 1.81 1.81 1.81 |
| | 2.083 2.167 2.250 | 2.72 | 5.000 5.083 5.167 5.250 | 10.88 10.88 10.88 | 8.083 8.167 8.250 | 3.17 | 11.08 11.17 | 1.81 1.81 |
| | 2.333 2.417 2.500 2.583 | 2.72 2.72 2.72 2.72 | 5.333 5.417 5.500 5.583 5.667 | 10.88 10.88 10.88 43.54 43.54 | 8.333 8.417 8.500 8.583 8.667 | 3.17 3.17 3.17 3.17 3.17 | 11.33 11.42 11.50 11.58 11.67 | 1.81 1.81 1.81 1.81 |
| | 2.667 2.750 2.833 | 2.72 2.72 2.72 | 5.750 | 43.54 119.72 | 8.750 | 3.17 3.17 | 11.75 | 1.81 1.81 1.81 |
| Unit Hyd (| 2.917 3.000 Dneak (c | 2.72 | 5.917 6.000 | 119.72 119.72 | 8.917 9.000 | 3.17 3.17 | 11.92 | 1.81 |
| PEAK FLOW TIME TO PI RUNOFF VOI | (c | ms)= | 4.155 (i) 7.833 7.519 |) | | | | |
| TOTAL RAII RUNOFF CO | NFALL (EFFICIENT | = (11111) | 0.303 | | | | | |
| (i) PEAK | | | CLUDE BAS | | | | | |
| CALIB STANDHYD (0 ID= 1 DT= 5.0 | 0101) min | | (ha)= 18 mp(%)= 2 | 21.00 | Dir. Com | | 18.00 | |
| Surface A Dep. Stor Average S Length | rea (| ha)= mm)= (%)= | 38.22 6.27 0.70 1101.51 | 1. | RVIOUS (* 43.78 6.50 | i) | | |
| Mannings i | 1 | = | 0.013 | | 2.00 32.00 0.250 | | | |
| NOTE: | RAINFAL | | TD | | | RAPH | _ | |
| | TIME hrs 0.083 | RAIN mm/hr 2.27 2.27 | TIME hrs 3.083 3.167 | | TIME hrs 6.083 | RAIN mm/hr 16.33 | TIME hrs 9.08 | RAI mm/h 3.17 |
| | 0.167 0.250 0.333 0.417 | 2.27 2.27 2.27 2.27 | 3.167 3.250 3.333 3.417 | 3.63 3.63 3.63 3.63 | 6.333 | 16.33 16.33 16.33 16.33 | 9.17 9.25 9.33 9.42 | 3.17 3.17 3.17 3.17 |
| | 0.500 0.583 0.667 | 2.27 2.27 2.27 | 3.500 3.583 3.667 | 3.63 3.63 3.63 | 6.500 6.583 6.667 | 7.26 | 9.58 | 3.17 3.17 3.17 |
| | 0.750 0.833 0.917 | 2.27 2.27 2.27 | 3.750 3.833 3.917 4.000 | 3.63 3.63 3.63 | 6.750 6.833 6.917 | 7.26 7.26 7.26 7.26 | 9.75 | 3.17 3.17 3.17 3.17 |
| | 1.000 1.083 1.167 | 2.27 2.27 2.27 | 4.000 4.083 4.167 | 3.63 5.44 5.44 | 7.000 7.083 7.167 | 5.44 5.44 | 10.00 10.08 10.17 | 1.81 |
| | 1.167 | 2 27 | 4 250 | 5 44 | 7 250 | 5 44 | 1 10 25 | 1 21 |
| | 1.167 1.250 1.333 1.417 1.500 1.583 | 2.27 | 4.250 | 5.44 5.44 5.44 7.26 7.26 7.26 | 7.000 7.083 7.167 7.250 7.333 7.417 7.500 7.583 | 5.44 5.44 5.44 5.44 | 10.25 10.33 10.42 10.50 10.58 10.67 10.75 | 1.81 1.81 1.81 1.81 1.81 1.81 |

TOTALS
3.913 (iii)
6.00
49.31
90.70
0.54

3.81 6.00 84.43 90.70 0.93

| 1.833 2.27 1.917 2.27 2.000 2.27 2.083 2.72 2.167 2.73 | 4.917 7.26 5.000 7.26 5.083 10.88 | 7.917 8.000 8.083 | 5.44 10.83 5.44 10.92 5.44 11.00 3.17 11.08 3.17 11.17 | 1.81 1.81 1.81 1.81 1.81 |
|---|---|---|--|--|
| 2.333 2.72 2.417 2.72 2.500 2.72 2.583 2.72 2.667 2.72 2.750 2.72 2.833 2.72 2.917 2.73 | 5.250 10.88 5.333 10.88 5.417 10.88 5.500 10.88 5.583 43.54 5.667 43.54 5.750 43.54 5.833 119.72 5.917 119.72 | 8.250 8.333 8.417 8.500 8.583 8.667 8.750 8.833 8.917 | 3.17 11.25 3.17 11.33 3.17 11.42 3.17 11.50 3.17 11.58 3.17 11.67 3.17 11.83 3.17 11.83 | 1.81 1.81 1.81 1.81 1.81 1.81 1.81 1.81 |
| 3.000 2.72 Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= PEAK FLOW (cms)= TIME TO PEAK (hrs)= | 119.72 1 10.00 1 11.16 (ii) 1 | 9.000 15.42 20.00 18.99 (ii) 20.00 0.01 2.22 7.92 | 3.17 12.00 *TOTALS* 8.483 (iii) 6.00 | 1.81 |
| RUNOFF VOLUME (mm)= TOTAL RAINFALL (mm)= RUNOFF COEFFICIENT = | 84.43 90.70 0.93 | 25.05 90.70 0.28 BELOW 20% | 35.74 90.70 0.39 | |
| | | | | |

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $\text{CN}^* = 55.0$ I as pep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB STANDHYD (0109) ID= 1 DT= 5.0 min | Area Total | (ha)= 6.10 Imp(%)= 37.00 | Dir. Conn.(%)= | 30.00 |
|---|-------------------------------------|---|---|-------|
| Surface Area Dep. Storage Average Slope Length Mannings n | (ha)= (mm)= (%)= (m)= = | 1MPERVIOUS 2.26 6.05 1.00 201.66 0.013 | PERVIOUS (i) 3.84 3.92 2.40 296.00 0.250 | |
| | | | F 0 | |

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

| | | TR | ANSFORME | HYETOGR | ΔΡΗ | _ | |
|----------------|-------|----------------|----------|----------------|--------------|----------------|--------------|
| TIME | RAIN | l TIME | RAIN | ' TIME | RAIN | TIME | RAIN |
| hrs | mm/hr | hrs | mm/hr | ' hrs | mm/hr | hrs | mm/hr |
| 0.083 | 2,27 | 3.083 | 3,63 | 6.083 | 16.33 | 9.08 | 3.17 |
| 0.167 | 2.27 | 3.167 | 3.63 | 6.167 | 16.33 | 9.17 | 3.17 |
| 0.250 | 2.27 | 3.250 | 3.63 | 6.250 | 16.33 | 9.25 | 3.17 |
| 0.333 | 2.27 | 3.333 | 3.63 | 6.333 | 16.33 | 9.33 | 3.17 |
| 0.417 | 2.27 | 3.417 | 3.63 | 6.417 | 16.33 | 9.42 | 3.17 |
| 0.500 | 2.27 | 3.500 | 3.63 | 6.500 | 16.33 | 9.50 | 3.17 |
| 0.583 | 2.27 | 3.583 | 3.63 | 6.583 | 7.26 | 9.58 | 3.17 |
| 0.667 | 2.27 | 3.667 | 3.63 | 6.667 | 7.26 | 9.67 | 3.17 |
| 0.750 | 2.27 | 3.750 | 3.63 | 6.750 | 7.26 | 9.75 | 3.17 |
| 0.833 | 2.27 | 3.833 | 3.63 | 6.833 | 7.26 | 9.83 | 3.17 3.17 |
| 0.917 1.000 | 2.27 | 3.917 4.000 | 3.63 | 6.917 | 7.26 | 9.92 | 3.17 |
| 1.000 | 2.27 | 4.000 | 5.44 | 7.000 | 5.44 | 10.00 | 1.81 |
| 1.167 | 2.27 | 4.167 | 5.44 | 7.167 | 5.44 | 10.08 | 1.81 |
| 1.250 | 2.27 | 4.250 | 5.44 | 7.250 | 5.44 | 10.25 | 1.81 |
| 1.333 | 2.27 | 4.333 | 5.44 | 7.333 | 5.44 | 10.33 | 1.81 |
| 1.417 | 2.27 | 4.417 | 5.44 | 7.417 | 5.44 | 10.42 | 1.81 |
| 1.500 | 2.27 | 4.500 | 5.44 | 7.500 | 5.44 | 10.50 | 1.81 |
| 1.583 | 2.27 | 4.583 | 7.26 | 7.583 | 5.44 | 10.58 | 1.81 |
| 1.667 | 2.27 | 4.667 | 7.26 | 7.667 | 5.44 | 10.67 | 1.81 |
| 1.750 | 2.27 | 4.750 | 7.26 | 7.750 | 5.44 | 10.75 | 1.81 |
| 1.833 | 2.27 | 4.833 | 7.26 | 7.833 | 5.44 | 10.83 | 1.81 |
| 1.917 | 2.27 | 4.917 | 7.26 | 7.917 | 5.44 | 10.92 | 1.81 |
| 2.000 | 2.27 | 5.000 | 7.26 | 8.000 | 5.44 | 11.00 | 1.81 |
| 2.083 | 2.72 | 5.083 | 10.88 | 8.083 | 3.17 | 11.08 | 1.81 |
| 2.167 | 2.72 | 5.167 | 10.88 | 8.167 | 3.17 | 11.17 | 1.81 |
| 2.250 | 2.72 | 5.250 | 10.88 | 8.250 8.333 | 3.17 3.17 | 11.25 11.33 | 1.81 |
| 2.333 | 2.72 | 0.333 | 10.88 | 0.333 | 5.1/ | 11.33 | 1.81 |

| Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= | 119.72 10.00 11.50 (ii) 10.00 0.10 | 29.08 100.00 96.13 (ii) 100.00 0.01 | |
|--|--|---|---|
| PEAK FLOW (CMS)= TIME TO PEAK (hrs)= RUNOFF VOLUME (mm)= TOTAL RAINFALL (mm)= RUNOFF COEFFICIENT = | 21.38 6.00 84.39 90.70 0.93 | 6.21 7.58 43.17 90.70 0.48 | *TOTALS* 22.459 (iii) 6.00 55.54 90.70 0.61 |

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $\mathbb{C} N^2 = 72.0$ Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

FINISH

| 2.417 2.72 2.500 2.72 2.583 2.72 2.667 2.72 2.750 2.72 2.833 2.72 2.833 2.72 2.917 2.72 3.000 2.72 | 5.500 10.88 5.583 43.54 5.667 43.54 5.750 43.54 5.833 119.72 5.917 119.72 | 8.500 8.583 8.667 8.750 8.833 8.917 | 3.17 11.42 |
|--|--|--|---|
| Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= | 119.72 5.00 3.62 (ii) 5.00 0.25 | 41.22 40.00 35.27 (ii) 40.00 0.03 | |
| PEAK FLOW (CMS)= TIME TO PEAK (hrs)= RUNOFF VOLUME (mm)= TOTAL RAINFALL (mm)= RUNOFF COEFFICIENT = | 0.60 6.00 84.65 90.70 0.93 | 0.27 6.50 43.16 90.70 0.48 | *TOTALS* 0.708 (iii) 6.00 55.60 90.70 0.61 |
| *** WARNING: STORAGE COEFF. I | | | |

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^{\circ} = 72.0$ Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

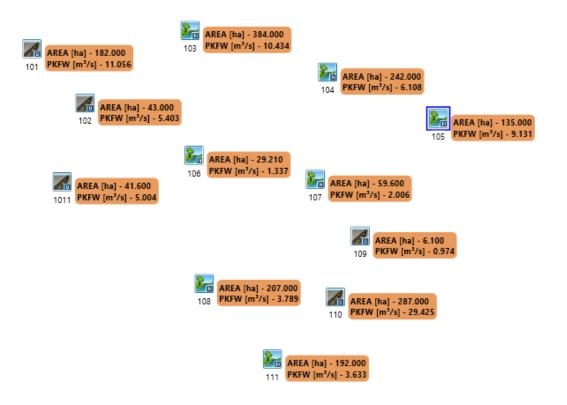
| CALIB | STANDHYD (0110) | Area (ha)= 287.00 | ID= 1 DT= 5.0 min | Total Imp(%)= 37.00 | Dir. Conn.(%)= 30.00

(ha) = 106.19 | The previous (i) | 106.19 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180.81 | 180. Surface Area Dep. Storage Average Slope Length Mannings n

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

| | | тр | ANCEODME | HYETOGR | ADU | _ | |
|----------------|-------|----------------|-----------------|----------------|----------------|------------------|--------------|
| TIME | RAIN | TIME | RAIN | ' TIME | RAIN | TIME | RAIN |
| hrs | mm/hr | hrs | mm/hr | ' hrs | mm/hr | hrs | mm/hr |
| 0.083 | 2.27 | 3.083 | 3.63 | 6.083 | 16.33 | 9.08 | 3.17 |
| 0.167 | 2.27 | 3.167 | 3.63 | 6.167 | 16.33 | 9.17 | 3.17 |
| 0.250 | 2.27 | 3.250 | 3.63 | 6.250 | 16.33 | 9.25 | 3.17 |
| 0.333 | 2.27 | 3.333 | 3.63 | 6.333 | 16.33 | 9.33 | 3.17 |
| 0.417 0.500 | 2.27 | 3.417 | 3.63 3.63 | 6.417 | 16.33 16.33 | 9.42 | 3.17 3.17 |
| 0.583 | 2.27 | 3.583 | 3.63 | 6.583 | 7.26 | 9.58 | 3.17 |
| 0.667 | 2.27 | 3.667 | 3.63 | 6.667 | 7.26 | 9.67 | 3 17 |
| 0.750 | 2.27 | 3.750 | 3.63 | 6.750 | 7.26 | 9.75 | 3.17 3.17 |
| 0.833 | 2.27 | 3.833 | 3.63 | 6.833 | 7.26 | 9.83 | 3.17 |
| 0.917 | 2.27 | 3.917 | 3.63 | 6.917 | 7.26 | 9.92 | 3.17 |
| 1.000 | 2.27 | 4.000 | 3.63 | 7.000 | 7.26 | 10.00 | 3.17 |
| 1.083 | 2.27 | 4.083 | 5.44 | 7.083 | 5.44 | 10.08 | 1.81 |
| 1.167 | 2.27 | 4.167 | 5.44 | 7.167 | 5.44 | 10.17 | 1.81 |
| 1.250 | 2.27 | 4.230 | 5.44 5.44 | 7.250 | 5.44 5.44 | 10.25 | 1.81 |
| 1.417 | 2.27 | 4.417 | 5.44 | 7.417 | 5.44 | 10.33 | 1.81 |
| 1.500 | 2.27 | 4.500 | 5.44 | 7.500 | 5.44 | 10.50 | 1.81 |
| 1.583 | 2.27 | 4.583 | 7.26 | 7.583 | 5.44 | 10.58 | 1.81 |
| 1.667 | 2.27 | 4.667 | 7.26 7.26 | 7.667 | 5.44 | 10.67 | 1.81 |
| 1.750 | 2.27 | 4.750 | 7.26 | 7.750 | 5.44 | 10.75 | 1.81 |
| 1.833 | 2.27 | 4.833 | 7.26 7.26 | 7.833 | 5.44 | 10.83 | 1.81 |
| 1.917 | 2.27 | 4.917 | 7.26 | 7.917 | 5.44 | 10.92 | 1.81 |
| 2.000 | 2.27 | 5.000 | 7.26 10.88 | 8.000 | 5.44 | 11.00 | 1.81 |
| 2.167 | 2.72 | 5.167 | 10.88 | 8.167 | 3.17 3.17 | 11.17 | 1.81 |
| 2.250 | 2.72 | 5.250 | 10.88 | 8.250 | 3.17 | 11.25 | 1.81 |
| 2.333 | 2.72 | 5.333 | 10.88 | 8.333 | 3.17 | 11.33 | 1.81 |
| 2.417 | 2.72 | 5.417 | 10.88 | 8.417 | 3.17 | 11.42 | 1.81 |
| 2.500 | 2.72 | 5.500 | 10.88 | 8.500 | 3.17 | 11.50 | 1.81 |
| 2.583 | 2.72 | 5.583 | 43.54 | 8.583 | 3.17 | 11.58 | 1.81 |
| 2.667 | 2.72 | 5.667 | 43.54 | 8.667 | 3.17 3.17 | 11.67 | 1.81 |
| 2.750 2.833 | 2.72 | 5.750 5.833 | 43.54 119.72 | 8.750 8.833 | 3.17 | 11.75 11.83 | 1.81 |
| 2.917 | 2.72 | 5.917 | 119.72 | 8.917 | 3.17 | 11.03 | 1.81 |
| 3.000 | 2.72 | 6.000 | 119.72 | 9.000 | 3.17 | 12.00 | 1.81 |
| 000 | | , | | | | | 01 |

100-year 12 hour SCS Type II Existing Conditions



```
4.50
4.50
6.75
6.75
6.75
6.75
9.00
9.00
9.00
9.00
13.50
13.50
13.50
13.50
148.50
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Output filename: C:\User$\caef070146\apppata\Loca\\Civica\H5\0564c49-8c07-4086-8157-8729fb3caba3\d6628499
summary filename: C:\User$\caef070146\apppata\Loca\\Civica\H5\0564c49-8c07-4086-8157-8729fb3caba3\d6628499
              DATE: 09-14-2021
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TIME TO PEAK (hrs) = 6.250
RUNOFF VOLUME (mm) = 34.532
TOTAL RAINFALL (mm) = 112.500
RUNOFF COEFFICIENT = 0.307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                     ** SIMULATION : Run 18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CALIBO (0106) Area (ha)= 29.21 Curve Number (CN)= 53.4

NASHYO (0106) Ia (mm)= 6.01 # of Linear Res.(N)= 3.00

U.H. Tp(hrs)= 0.61
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Comments: 100-Yr,12-hr SCS, City of Barrie
                                                                             READ STORM
                                      Ptotal=112.50 mm
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       r, 12-hr SCS, Citi
RAIN | TIME
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                        NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
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RAZIN | TIME

3 4.50 | 6.083 | 20

7 4.50 | 6.167 | 20

0 4.50 | 6.333 | 20

7 4.50 | 6.333 | 20

0 4.50 | 6.333 | 20

0 4.50 | 6.333 | 20

0 4.50 | 6.500 | 20

3 4.50 | 6.500 | 20

3 4.50 | 6.500 | 20

3 4.50 | 6.500 | 20

0 4.50 | 6.500 | 20

0 4.50 | 6.500 | 20

0 4.50 | 6.500 | 20

0 4.50 | 6.500 | 20

0 4.50 | 6.500 | 20

0 4.50 | 6.500 | 20

0 4.50 | 6.500 | 20

0 4.50 | 6.667 | 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4.750
4.833
4.917
5.000
5.083
5.167
5.250
5.333
5.417
5.500
5.583
5.667
5.750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TIME
hrs
3.083
3.167
3.250
3.333
3.417
3.500
3.583
3.667
3.750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RAIN
mm/hr
20.25
20.25
20.25
20.25
20.25
20.25
9.00
9.00
                                                                                                                                                                                                                                                                                         TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
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hrs
9.08
9.17
9.25
9.33
9.42
9.50
9.58
9.67
9.75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RAIN
mm/hr
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3.94
3.94
3.94
3.94
3.94
3.94
                                                                                                                                                                                                                                                                                                                                                                                                                                      2.833 3.37 | 5.833 148.50 | 8.833
2.917 3.37 | 5.917 148.50 | 8.917
3.000 3.37 | 6.000 148.50 | 9.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3.94 | 11.83
3.94 | 11.92
3.94 | 12.00
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hrs
3.083
3.167
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                                                                                                                                                                                                                       RAIN | mm/hr | 4 .500 | 4 .500 | 4 .500 | 4 .500 | 4 .500 | 4 .500 | 4 .500 | 4 .500 | 4 .500 | 4 .500 | 4 .500 | 4 .500 | 4 .500 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755 | 6 .755
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                                                                                                     Unit Hyd Qpeak (cms)= 1.829
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                                                                                                 PEAK FLOW (cms)= 1.337 (i)
TIME TO PEAK (hrs)= 6.583
RUNOFF VOLUME (mm)= 34.539
TOTAL RAINFALL (mm)= 112.500
RUNOFF COEFFICIENT = 0.307
                                                                                                          (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                             CALIB | Area (ha)= 59.60 Curve Number (CN)= 53.4 | Liberator (Liberator CN)= 53.4 | Liberator (Libe
                                                                                                                                                                         NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                           RAIN TIME
mm/hr hr hr
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mm/hr

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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PEAK FLOW (cms)= 3.789 (i)
TIME TO PEAK (hrs)= 8.083
RUNOFF VOLUME (mm)= 32.075
TOTAL RAINFALL (mm)= 112.500
RUNOFF COEFFICIENT = 0.285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                              1.833
1.917
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TIME
hrs
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hrs
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6.167
6.250
6.333
6.417
                                                                                                 Unit Hyd Qpeak (cms)= 2.448
                                                                                                     PEAK FLOW (cms)= 2.006 (i)
TIME TO PEAK (hrs)= 6.917
RUNOFF VOLUME (mm)= 34.539
TOTAL RAINFALL (mm)= 112.500
RUNOFF COEFFICIENT = 0.307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3.500
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6.583
6.667
6.750
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7.000
7.083
7.167
7.250
7.333
7.417
7.503
7.583
7.667
7.750
                                                                                                     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                           CALIB
                        1.250
1.333
1.417
1.500
1.583
                                                                                                                                                                     NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
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2.81 | 4.833

2.81 | 4.917

2.81 | 5.000

3.37 | 5.083

3.37 | 5.5250

3.37 | 5.533

3.37 | 5.5417

3.37 | 5.583

3.37 | 5.583

3.37 | 5.667

3.37 | 5.750

3.37 | 5.750

3.37 | 5.833

3.37 | 5.683

3.37 | 5.683

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3.37 | 6.000
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1.917
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7.917
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9.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Unit Hyd Qpeak (cms)= 2.696
                                                                                                 PEAK FLOW (cms)= 3.633 (i)
TIME TO PEAK (hrs)= 9.083
RUNOFF VOLUME (mm)= 43.913
TOTAL RAINFALL (mm)= 112.500
RUNOFF COEFFICIENT = 0.390
                                                                                                       (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Area (ha)= 41.60
Total Imp(%)= 35.00 Dir. Conn.(%)= 30.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PERVIOUS (i)
27.04
3.67
2.00
1082.00
0.250
                                                                                                 Surface Area (ha) = Dep. Storage (mm) = Average Slope Length (m) = Mannings n =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         IMPERVIOUS
14.56
6.27
0.70
526.62
0.013
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over (min)
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5.00
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90.00
                                                                                                             (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^\circ = 66.2 Ia = bep. Storage (Above) if IME STEP (bT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE CORFEICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
            | CALIB | (0103) | Area (ha)= 384.00 | Curve Number (CN)= 65.0 | (1D=1 DT= 5.0 min | Ia (mm)= 5.50 # of Linear Res.(N)= 3.00 | U.H. Tp(hrs)= 1.87
                                                                                                                                                                                                   NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TRANSFORMED MYETOGRAPH
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WE RAIN | 'TIME | "
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                                                                                                       Unit Hyd Qpeak (cms)= 7.843
                                                                                                       PEAK FLOW (cms) = 10.434 (i)
TIME TO PEAK (hrs) = 8.000
RUNOFF VOLUME (mm) = 46.967
TOTAL RAINFALL (mm) = 112.500
RUNOFF COEFFICIENT = 0.417
                                                                                                             (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
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| Unit | : Hyd. Tpeak : Hyd. peak (FLOW E TO PEAK OFF VOLUME AL RAINFALL OFF COEFFICI | (cms)= | 0.18 | | 1.08 7.42 18.72 12.50 0.43 | 5. 65 112 | ALS* 004 (iii) 0.00 0.97 0.50 | ı |
|--|--|--|--|---|--|---|---|---|
| (ii (iii | i) CN PROCEDI CN* = 1 i) TIME STEP THAN THE : i) PEAK FLOW | URE SELECT 63.6 Ia (DT) SHOU STORAGE CO DOES NOT | ED FOR PE L = Dep. S LD BE SMA DEFFICIENT INCLUDE B | RVIOUS I torage LLER OR | OSSES: (Above) EQUAL IF ANY. | | | |
| CALIB STANDHY | /D (0102) T= 5.0 min | Area Total I | (ha)= 4 mp(%)= 3 | 3.00 9.00 t | Dir. Conr | .(%)= 3 | 1.00 | |
| Suri Dep Aver Leng | Face Area Storage rage Slope jth nings n | (ha)= (mm)= (%)= (m)= = | 16.77 6.27 1.00 535.41 0.013 | 100 | RVIOUS (i 26.23 3.49 0.87 00.00 0.250 |) | | |
| | NOTE: RAIN | E RAIN | | | HYETOGR | APH | TTME | RAIN |
| | hr: 0.08 | 3 2.8117 2.813 3 2.8116 3 3 2.8117 2 2.813 3 2 2.813 3 2 2.813 3 2 2.813 3 3 2 2.813 3 3 2 2.813 3 3 2 2.813 3 3 2 2.813 3 3 2 2.813 3 3 2 2.813 3 3 2 2.813 3 3 2 2.813 3 3 2 2.813 3 3 2 2.813 3 3 2 2.813 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 | 3.083 3.167 3.253 3.333 3.417 3.500 3.583 3.667 3.753 3.667 4.000 4.000 4.167 4.250 4.167 4.500 4.667 4.750 4.833 4.417 5.000 5.167 5.000 5.167 5.333 5.333 | 4.50 4.50 4.50 4.50 4.50 4.50 4.50 4.50 | 6. 083 6. 167 6. 250 6. 333 6. 417 6. 500 6. 583 6. 507 6. 750 6. 750 6. 917 7. 083 7. 167 7. 250 7. 333 7. 667 7. 7. 583 7. 667 7. 7. 583 7. 670 7. 833 7. 167 7. 833 7. 167 8. 083 8. 167 8. 083 8. 167 8. 083 8. 167 8. 083 | 20. 25 20. 25 20. 25 20. 25 20. 25 9.00 9.00 9.00 9.00 9.00 9.00 6. 75 6. 75 6. 75 6. 75 6. 75 6. 75 6. 75 6. 75 6. 75 | 9.56 9.58 9.67 9.75 9.83 9.92 10.00 10.08 10.17 10.23 10.58 10.67 10.58 10.75 11.08 11.17 11.13 11.125 | mm/hr 3.94 3.94 3.94 3.94 3.94 3.94 3.94 3.94 |
| | 2.50 2.58 2.66 2.75 2.83 | 3 3.37 7 3.37 0 3.37 3 3.37 | 5.500 | 13.50 13.50 54.00 54.00 54.00 148.50 148.50 | 8.500 8.583 8.667 8.750 8.833 | | 11.50 11.58 11.67 11.75 11.83 | 2.25 2.25 2.25 2.25 2.25 2.25 2.25 |
| Max. | 2.91 3.00 Eff.Inten.(i over age Coeff. Hyd. Tpeak Hyd. peak | 7 3.37 3.37 nm/hr)= (min) | 5.917 6.000 148.50 5.00 | 148.50 148.50 | 8.917 9.000 36.44 00.00 99.56 (ii | 3.94 | 11.92 12.00 | 2.25 |
| Unit Unit PEAR TIME RUNC TOTA RUNC | E Hyd. Tpeak Hyd. peak FLOW TO PEAK TO PEAK L RAINFALL OFF COEFFICI | (min)= (cms)= (cms)= (hrs)= (mm)= (mm)= ENT = | 5.00 0.19 5.21 6.00 106.23 112.50 0.94 | 10 | 0.00 0.01 1.11 7.58 53.40 12.50 0.47 | *TOT | ALS* 403 (iii) 6.00 1.78 1.50 1.62 | ı |
| | 0.33 0.41 0.50 0.88 0.66 0.757 0.891 1.08 1.16 1.257 1.33 1.41 1.35 1.41 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.2 | 0 2 . 81 1 | 3.500 3.583 3.657 3.750 3.837 4.007 4.083 4.1067 4.250 4.333 4.417 4.500 4.883 4.417 4.500 5.083 5.000 5.083 5.167 5.250 5.333 5.450 5.667 5.833 5.667 5.833 | 6.75 9.00 9.00 9.00 9.00 9.00 13.50 13.50 13.50 13.50 13.50 13.50 14.00 54.00 54.00 | 6.500 6.583 6.667 6.750 6.833 6.917 7.000 7.083 7.167 7.250 7.333 7.417 7.500 | 20. 25 20. 25 20. 25 20. 25 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.0 | 9.58 9.67 9.75 9.83 9.92 10.00 10.08 10.17 10.25 10.33 10.42 10.58 10.67 10.83 10.67 10.83 11.08 11.17 11.17 11.13 11.14 11.13 | 3.94 3.94 3.94 3.94 3.94 3.94 3.94 3.94 |
| PEAR TIME RUNG TOTA RUNG | E Hyd Qpeak C FLOW E TO PEAK DFF VOLUME AL RAINFALL DFF COEFFICI | (cms)= (hrs)= (mm)= 4 (mm)= 11 ENT = | 5.568 6.108 (i) 7.750 0.139 2.500 0.357 | | | | | |
| Suri Dep. Aver Lend | TD (0101) T= 5.0 min Face Area Storage age Slope th lings n | (ha)= (mm)= (%)= (m)= = | 38.22 6.27 0.70 1101.51 0.013 | 108 108 | RVIOUS (i 13.78 6.50 2.00 32.00 0.250 |) | | |
| | TIM 0 hrs 0 .186 0 .256 0 .257 0 .33 0 .41 0 .500 0 .588 0 .666 0 .755 0 .83 1 .088 1 .108 1 .10 | 7 2.81 2.81 3 2.81 7 2.81 3 2.81 7 2.81 6 2.81 7 2.81 | 3.583 | 4.50 4.50 4.50 4.50 4.50 4.50 4.50 4.50 | 6.167 6.250 6.333 6.417 6.500 6.583 6.667 6.750 6.833 7.167 7.000 7.083 7.167 | 20.25 20.25 20.25 20.25 20.25 9.00 9.00 9.00 9.00 9.00 6.75 6.75 6.75 6.75 | 9.17 9.25 9.33 9.42 9.50 9.58 9.67 9.75 9.83 9.92 10.00 10.08 10.17 10.25 10.33 | RAIN mm/hr 3.94 3.94 3.94 3.94 3.94 3.94 3.94 3.94 |

Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=

6.58 (ii) 87.57 (ii) 5.00 90.00 0.18 0.01

| 1.833 2.81 1 1.917 2.88 1 2.000 2.81 2.003 3.37 2.167 3.37 2.250 3.37 2.250 3.37 2.333 3.37 2.500 3.37 2.500 3.37 2.500 3.37 2.500 3.37 2.500 3.37 2.500 3.37 2.500 3.37 2.500 3.37 2.500 3.37 3.37 2.500 3.37 3.37 2.500 3.37 3.37 3.300 3.37 3.300 3.37 3.300 3.37 3.300 3.37 3.300 | 4.917 5.000 5.083 1 5.167 1 5.250 1 5.333 1 5.417 1 5.500 1 5.583 5 5.667 5 5.750 5 5.833 14 | 9.00 7.917 9.00 8.000 3.50 8.083 3.50 8.167 3.50 8.250 3.50 8.417 3.50 8.503 4.00 8.667 4.00 8.667 4.00 8.667 4.00 8.833 8.50 8.833 8.50 8.833 | 6.75 10.92 6.75 11.00 3.94 11.08 3.94 11.17 3.94 11.25 3.94 11.23 3.94 11.33 3.94 11.58 3.94 11.58 3.94 11.58 3.94 11.58 3.94 11.75 3.94 11.75 3.94 11.75 | 2.25 2.25 2.25 2.25 2.25 2.25 2.25 2.25 |
|---|---|--|--|--|
| Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= PEAK FLOW (cms)= TIME TO PEAK (hr.s)= RUNOFF VOLUME (mm)= TOTAL RAINFALL (mm)= RUNOFF COEFFICIENT = *** WARNING:FOR AREAS WITH IM YOU SHOULD CONSID | 148.50 10.00 10.24 (i 10.00 0.11 10.53 6.00 106.23 112.50 0.94 PERVIOUS R | 22.81 105.00 i) 102.43 (ii) 105.00 0.01 3.68 7.67 36.83 112.50 0.33 | *TOTALS* 11.056 (iii) 6.00 49.32 112.50 0.44 | 2.25 |

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^{\circ} = 55.0$ Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR REQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB | STANDHYD (0109) | Total Imp(%) = 37.00 | Dir. Conn. (%) = 30.00 |
| Surface Area | Chap | 2.26 | 3.84 |
| Dep. Storage | (mm) = 6.15 | 3.92 |
| Average Slope | (%) = 1.00 | 2.40 |
| Mannings n | m = 0.013 | 0.250 | NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

TIME horses of the control of the co

| Max.Eff.Inten.(r over Storage Coeff. Unit Hyd. Tpeak Unit Hyd. peak | (min) (min)= (min)= | 148.50 10.00 10.55 (ii) 10.00 0.11 | 40.53 85.00 84.65 (ii) 85.00 0.01 | |
|---|---------------------------|--|---|--------------|
| onic nyu. peak | (CIII3)= | 0.11 | 0.01 | Amama, a4 |
| | | | | *TOTALS* |
| PEAK FLOW | (cms)= | 27.38 | 9.64 | 29.425 (iii) |
| TIME TO PEAK | (hrs)= | 6.00 | 7.25 | 6.00 |
| RUNOFF VOLUME | (mm)= | 106.19 | 60.03 | 73.88 |
| | | | | |
| TOTAL RAINFALL | (mm)= | 112.50 | 112.50 | 112.50 |
| DINNE COFFETCT | ENT - | 0.94 | 0.53 | 0.66 |

FINISH

| | 2.417 2.500 2.583 2.667 2.750 2.833 2.917 3.000 | 3.37 3.37 3.37 3.37 3.37 | 5.500 5.583 5.667 5.750 5.833 5.917 | 13.50 54.00 54.00 54.00 148.50 | 8.500 8.583 8.667 8.750 8.833 8.917 | 3.94 11 3.94 11 3.94 11 3.94 11 3.94 11 3.94 11 | . 42 . 50 . 58 . 67 . 75 . 83 . 92 . 00 | 2.25 2.25 2.25 2.25 2.25 2.25 2.25 2.25 |
|---|--|--------------------------------------|--|--|--|--|--|--|
| Max.Eff.I Storage C Unit Hyd. Unit Hyd. | over (m oeff. (m Tpeak (m | in) in)= in)= | 148.50 5.00 3.32 5.00 0.26 | (ii) | 64.77 30.00 29.74 (ii) 30.00 0.04 | *TOTALS | | |
| PEAK FLOW TIME TO P RUNOFF VO TOTAL RAI RUNOFF CO | EAK (h LUME (i NFALL (i | ms)= rs)= nm)= nm)= = | 106.45 | : | 0.43 6.33 60.01 112.50 0.53 | | (iii) | |
| (ii) TIM THA | STORAGE PROCEDURE * = 72.1 E STEP (D' N THE STO K FLOW DO | SELECTE) Ia T) SHOUL | ED FOR PI = Dep. S D BE SM | ERVIOUS Storage ALLER O | LOSSES: (Above) R EQUAL | | | |

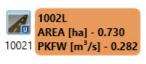
| CALIB STANDHYD (0110) ID= 1 DT= 5.0 min | Area Total | (ha)= 287.00 Imp(%)= 37.00 | | 30.00 |
|---|-------------------------------------|--|--|-------|
| Surface Area Dep. Storage Average Slope Length Mannings n | (ha)= (mm)= (%)= (m)= = | IMPERVIOUS 106.19 6.31 1.00 1383.23 0.013 | PERVIOUS (i) 180.81 3.90 2.00 1103.00 0.250 | |

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

| | | TP | ANSEODME | HYETOGR | ADU | _ | |
|----------------|--------------------------------------|-------|----------------|----------------|--------------|----------------|--------------|
| TIME | RAIN | TIME | RAIN | ' TTME | RAIN | TIME | RAIN |
| hrs | mm/hr | hrs | mm/hr | ' hrs | mm/hr | hrs | mm/hr |
| 0.083 | 2.81 | 3.083 | 4,50 | 6.083 | 20.25 | 9.08 | 3.94 |
| 0.167 | 2.81 | 3.167 | 4.50 | 6.167 | 20.25 | 9.17 | 3.94 |
| 0.250 | 2.81 | 3.250 | 4.50 | 6.250 | 20.25 | 9.25 | 3.94 |
| 0.333 | 2.81 | 3.333 | 4.50 | 6.333 | 20.25 | 9.33 | 3.94 |
| 0.417 | 2.81 | 3.417 | 4.50 | 6.417 | 20.25 | 9.42 | 3.94 |
| 0.500 | 2.81 | 3.500 | 4.50 | 6.500 | 20.25 | 9.50 | 3.94 |
| 0.583 | 2.81 | 3.583 | 4.50 | 6.583 | 9.00 | 9.58 | 3.94 |
| 0.667 0.750 | 2.81 | 3.667 | 4.50 4.50 | 6.667 | 9.00 | 9.67 9.75 | 3.94 3.94 |
| 0.730 | 2.01 | 3.833 | 4.50 | 6.833 | 9.00 | 9.73 | 3.94 |
| 0.917 | 2.81 | 3.917 | 4.50 4.50 | 6.917 | 9.00 | 9.92 | 3.94 |
| 1.000 | 2.81 | 4.000 | 4.50 | 7.000 | 9.00 | 10.00 | 3.94 |
| 1.083 | 2.81 | 4.083 | 6.75 | 7.083 | 6.75 | 10.08 | 2.25 |
| 1.167 | 2.81 | 4.167 | 6.75 6.75 | 7.167 | 6.75 | 10.17 | 2.25 |
| 1.250 | 2.81 | 4.250 | 6.75 6.75 | 7.250 | 6.75 | 10.25 | 2.25 |
| 1.333 | 2.81 | 4.333 | 6.75 | 7.333 | 6.75 | 10.33 | 2.25 |
| 1.417 | 2.81 | 4.417 | 6.75 | 7.417 | 6.75 | 10.42 | 2.25 |
| 1.500 | 2.81 | 4.500 | 6.75 | 7.500 | 6.75 | 10.50 | 2.25 |
| 1.583 | 2.81 | 4.583 | 9.00 | 7.583 | 6.75 | 10.58 10.67 | 2.25 |
| 1.667 1.750 | 2.81 2.81 2.81 2.81 | 4.667 | 9.00 | 7.750 | 6.75 | 10.67 | 2.25 |
| 1.833 | 2.01 | 4.833 | 9.00 | 7.833 | 6.75 | 10.73 | 2.23 |
| 1.917 | 2 81 | 4.917 | 9.00 | 7.917 | 6.75 | 10.92 | 2.25 |
| 2.000 | 2 81 | 5.000 | 9.00 | 8.000 | 6.75 | 11.00 | 2.25 |
| 2.083 | 3.37 | 5.083 | 13.50 13.50 | 8.083 | 3.94 3.94 | 11.08 | 2.25 |
| 2.167 | 3.37 | 5.167 | 13.50 | 8.167 | 3.94 | 11.17 | 2.25 |
| 2.250 2.333 | 3.37 3.37 3.37 3.37 3.37 | 5.250 | 13.50 | 8.250 | 3.94 3.94 | 11.25 | 2.25 |
| 2.333 | 3.37 | 5.333 | 13.50 | 8.333 | 3.94 | 11.33 | 2.25 |
| 2.417 | 3.37 | 5.417 | 13.50 | 8.417 | 3.94 | 11.42 | 2.25 |
| 2.500 | 3.37 3.37 | 5.500 | 13.50 54.00 | 8.500 8.583 | 3.94 3.94 | 11.50 11.58 | 2.25 |
| 2.565 | 3.37 | 5.667 | 54.00 | 8.667 | 3.94 | 11.67 | 2.25 |
| 2.750 | 3.37 3.37 3.37 | 5.750 | 54.00 | 8.750 | 3.94 | 11.75 | 2.25 |
| 2.833 | 3.37 | 5.833 | 148.50 | 8.833 | 3.94 | 11.83 | 2.25 |
| 2.917 | 3.37 | 5.917 | 148.50 | 8.917 | 3.94 | 11.92 | 2.25 |
| 3.000 | 3.37 | 6.000 | 148.50 | 9.000 | 3.94 | 12.00 | 2.25 |
| | | | | | | | |

100-Yr Pre-Developmet Roadway Drainage Area Flows (12-hr SCSII)

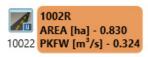


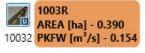










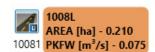


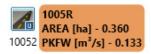


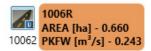




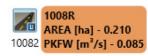


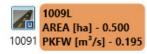


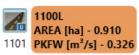




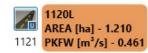








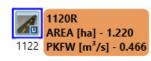


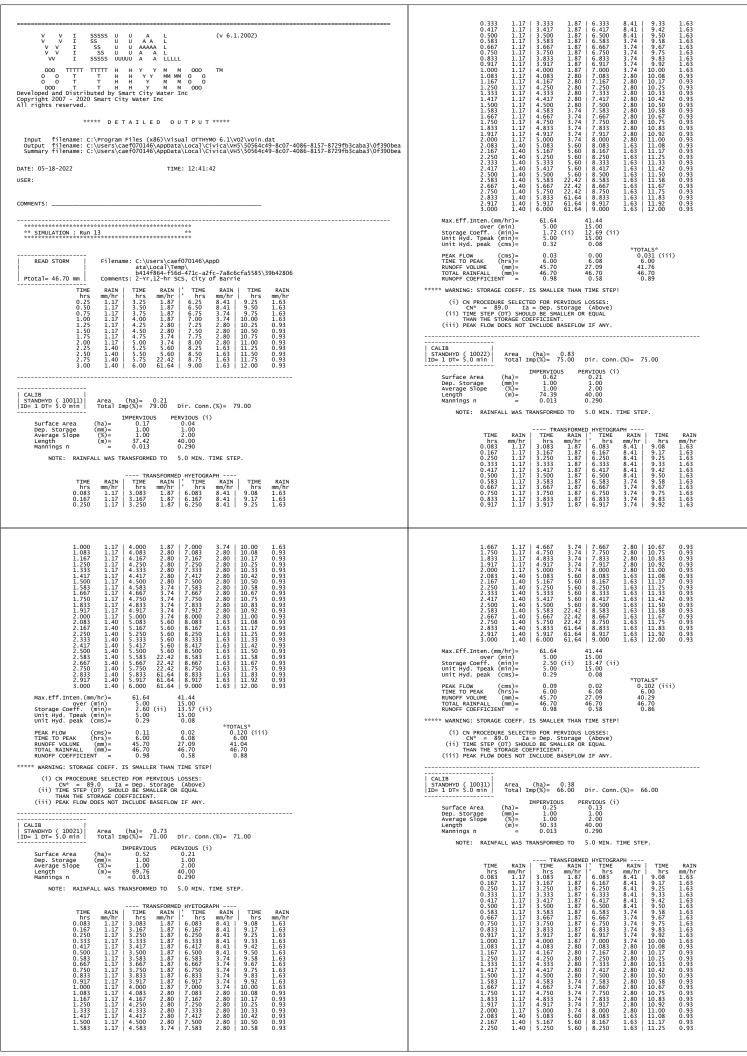












```
1.40
1.40
1.40
1.40
1.40
1.40
1.40
1.40
                                                                                                                                                                                                                                                                                                                                                                                                   5.333
5.417
5.500
5.583
5.667
5.750
5.833
5.917
6.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1.63
1.63
1.63
1.63
1.63
1.63
1.63
                                                                                                                                                                                                     2.333
2.417
2.500
2.583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5.60
5.60
5.60
22.42
22.42
22.42
61.64
61.64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8.333
8.417
8.500
8.583
8.667
8.750
8.833
8.917
9.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              11.33
11.42
11.50
11.58
11.67
11.75
11.83
11.92
12.00
                                                                                                                                                                                                     2.667
2.750
2.833
2.917
3.000
                                                        Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                          61.64
5.00
2.05 (ii)
5.00
0.31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                41.44
15.00
13.03 (ii)
15.00
0.08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      *TOTALS*
0.052 (iii)
6.00
39.35
46.70
0.84
                                                           PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                          0.04
6.00
45.70
46.70
0.98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0.01
6.08
27.09
46.70
0.58
***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN* = 89.0 Ia = Dep. Storage (Above)

(i) TIME STEP (DT) SMOULD BE SMALLER OR EQUAL

THAN THE STORAGE COEFFICIENT.

(iii) PEAK FLOW DOES NOT INCLIDE BASEFLOW IF ANY.
       | CALIB | STANDHYD ( 10032) | Area (ha)= 0.39 | Total Imp(%)= 79.00 | Dir. conn.(%)= 79.00 | IMPERVIOUS | PERVIOUS (i)
                                                                                                                                                                                                                                                                                                                                                                IMPERVIOUS 0.31 0.08 1.00 1.00 1.00 1.00 50.99 40.00 0.013 0.290
                                                           Surface Area
Dep. Storage (mm)=
Average Slope
Length (m)=
Mannings n =
                                                                                                                                                                                                                                                                                                                                                                              0.31
1.00
1.00
50.99
0.013
                                                                                                             NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                 TRANSFORMED TO 5.0 MIN. TIME

TRANSFORMED HYETOGRAPH

MES MIN, 1 TIME

RAITN | TIME

TRANSFORMED HYETOGRAPH

MES MIN, 1 TIME

RAITN | TIME

RA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TIME hrs 0.083 0.167 0.250 0.333 0.417 0.500 0.750 0.750 0.750 1.000 1.083 1.167 1.250 1.333 1.417 1.500 1.583 1.417 1.500 1.583 1.667 1.750 1.833 1.917
                                                                                                                                                                                                                                                                                                        TIME
3.083
3.167
3.250
3.333
3.417
3.500
3.583
3.667
3.750
4.083
4.167
4.080
4.250
4.333
4.167
4.500
4.583
4.450
4.583
4.750
4.750
4.750
4.750
4.750
                                                                                                                                                                                                     2.000
2.083
2.167
2.250
2.333
2.417
2.500
2.583
2.667
2.750
2.833
2.917
                                                                                                                                                                                                                                                                                                                                                                                                   5.000
5.083
5.167
5.250
5.333
5.417
5.500
5.583
5.667
5.750
5.833
5.917
                                                                                                                                                                                                                                                                                                                                                                                                                 0.04
6.00
45.70
46.70
0.98
                                                                          WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                           (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^\circ = 89.0 Ia = Dep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
       Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                             NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                        TRANSFORMED HYFTOGRAPH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TIME hrs 0.083 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RAIN mm/hr 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 1.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 | 8.41 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TIME hrss 9.08 9.17 9.253 9.450 9.58 9.58 9.58 9.58 9.58 9.58 9.58 10.67 9.97 5.10 10.58 10.67 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 10.75 1
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over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                              61.64
5.00
2.05 (ii)
5.00
0.31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                41.44
15.00
13.03 (ii)
15.00
0.08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  *TOTALS*
0.055 (iii)
6.00
40.84
46.70
0.87
                                                           PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                 0.05
6.00
45.70
46.70
0.98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0.01
6.08
27.09
46.70
0.58
   ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
```

| 11 11 11 11 11 11 11 11 11 11 11 11 11 | 12.00 0.93 |
|--|---|
| over (min) 5.00 15.00 Storage Coeff. (min)= 2.07 (ii) 13.04 (ii) Unit Hyd. Tpeak (min)= 5.00 15.00 Unit Hyd. neak (cms)= 0.31 0.08 | |
| PEAK FLOW (cms)= 0.05 0.01 TIME TO PEAK (hrs)= 6.00 6.08 6 RUNGEF VOLUME (mm)= 45.70 27.09 44 TOTAL RANDRALI (mm)= 46.70 46.70 46.70 | ALS* 058 (iii) .00 77 |
| RUNOFF COEFFICIENT = 0.98 0.58 ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! | .89 |
| | |
| (i) ON PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN° = 89.0 I a Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFTICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. | |
| CALIB | |
| Surface Area (ha) = 0.24 0.11 | |
| Mannings n = 40.30 40.00 = 0.013 0.290 NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STE | Ρ. |
| TRANSFORMED HYETOGRAPH | |
| | TIME RAIN hrs mm/hr 9.08 1.63 9.17 1.63 9.25 1.63 9.33 1.63 9.42 1.63 |
| 0.167 1.17 3.167 1.87 6.167 8.41 0.250 1.17 3.250 1.187 6.250 8.41 0.250 1.17 3.250 1.187 6.250 8.41 0.331 1.73 3.250 1.87 6.250 8.41 0.331 1.73 3.250 1.87 6.250 8.41 0.301 1.77 3.250 1.87 6.250 8.41 0.583 1.17 3.250 1.87 6.250 8.41 0.583 1.17 3.583 1.87 6.583 3.74 0.667 1.17 3.667 1.87 6.650 3.74 0.750 1.17 3.750 1.87 6.650 3.74 0.750 1.17 3.750 1.87 6.650 3.74 0.750 1.17 3.750 1.87 6.653 3.74 0.931 1.17 3.833 1.87 6.833 3.74 1.083 1.17 3.833 1.87 6.833 3.74 1.083 1.17 4.083 2.80 7.083 2.80 1.167 1.17 4.083 2.80 7.083 2.80 1.167 1.17 4.167 2.80 7.167 2.80 1.150 1.17 4.167 2.80 7.167 2.80 1.250 1.17 4.417 2.80 7.167 2.80 1.250 1.17 4.417 2.80 7.417 2.80 1.250 1.17 4.417 2.80 7.417 2.80 1.250 1.17 4.417 2.80 7.417 2.80 1.250 1.17 4.417 2.80 7.417 2.80 1.250 1.17 4.417 2.80 7.417 2.80 1.250 1.17 4.417 2.80 7.417 2.80 1.250 1.17 4.417 2.80 7.417 2.80 1.250 1.17 4.417 2.80 7.417 2.80 1.250 1.17 4.417 2.80 7.417 2.80 1.250 1.17 4.417 2.80 7.417 2.80 1.250 1.17 4.417 2.80 7.417 2.80 1.250 1.17 4.417 2.80 7.417 2.80 1.250 1.17 4.417 2.80 7.417 2.80 1.250 1.17 4.417 2.80 7.417 2.80 1.250 1.17 4.417 2.80 7.417 2.80 1.250 1.17 4.417 2.80 7.417 2.80 1.250 1.17 4.417 2.80 7.417 2.80 1.25 | 9.25 1.63 9.33 1.63 9.42 1.63 9.50 1.63 9.57 1.63 9.67 1.63 9.75 1.63 9.83 1.63 9.83 1.63 |
| 0.917 1.17 3.917 1.87 6.917 3.74 1.000 1.17 4.000 1.87 7.000 3.74 1.083 1.17 4.083 2.80 7.083 2.80 1.167 1.17 4.167 2.80 7.167 2.80 1.250 1.17 4.250 2.80 7.250 2.80 1.333 1.17 4.250 2.80 7.33 2.80 | 9.92 1.63 10.00 1.63 10.08 0.93 10.17 0.93 10.25 0.93 10.33 0.93 |
| 1.167 1.17 4.167 2.80 7.167 2.80 1.17 1.18 | 10.33 0.93 10.42 0.93 10.50 0.93 10.58 0.93 10.67 0.93 10.75 0.93 |
| 1.667 1.17 4.667 3.74 7.7667 2.80 1.750 1.17 4.750 3.74 7.7667 2.80 1.833 1.17 4.833 3.74 7.783 2.80 1.917 1.17 4.917 3.74 7.79 2.80 2.000 1.77 5.000 3.74 8.000 2.80 2.003 1.40 5.083 5.68 8.083 1.63 2.083 1.40 5.083 5.68 8.083 1.63 2.250 1.40 5.250 5.60 8.250 1.63 2.250 1.40 5.250 5.60 8.325 1.63 2.417 1.40 5.417 5.60 8.31 1.63 2.417 1.40 5.417 5.60 8.31 1.63 | 10.83 0.93 10.92 0.93 11.00 0.93 |
| 2.083 1.40 3.083 5.60 8.083 1.63 2.165 1.63 2.167 1.40 5.167 | 11.08 0.93 11.17 0.93 11.25 0.93 11.33 0.93 11.42 0.93 11.50 0.93 |
| 2.417 1.40 5.417 5.60 8.417 1.63 2.500 1.40 5.500 5.60 8.500 1.63 2.583 1.40 5.583 22.42 8.583 1.63 2.667 1.40 5.667 22.42 8.567 1.63 2.750 1.40 5.750 22.42 8.567 1.63 2.750 1.40 5.750 22.42 8.750 1.63 2.750 1.63 2.750 1.63 2.750 2.85 | 11.58 0.93 |
| 2.937 1.40 5.937 61.64 8.937 1.63 2.917 1.40 5.917 61.64 8.917 1.63 | 11.75 0.93 11.83 0.93 11.92 0.93 12.00 0.93 |
| Max.Eff.Inten.(mm/hr)= 61.64 41.44 over (min) 5.00 15.00 storage Coeff. (min)= 2.00 (ii) 12.98 (ii) unit Hyd. Tpeak (min)= 5.00 15.00 unit Hyd. peak (cms)= 0.31 0.08 *TOI | |
| Unit Hyd. Tpeak (min)= 5.00 15.00 Unit Hyd. peak (cms)= 0.31 0.08 *TOI | ALS* |
| | |
| (i) CM PROCEDURE SELECTED FOR PERVIOUS LOSSES: CM = 89.0 Ia = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASFELOW IF ANY. | |
| | |
| CALIB STANDHYD (10012) Area (ha)= 0.23 | 8.00 |
| Surface Area (ha) | |

| CALIB STANDHYD (10012) ID= 1 DT= 5.0 min | Area Total | (ha)= 0.23 Imp(%)= 78.00 | | 78.00 |
|---|-------------------------------------|--|--|-------|
| Surface Area Dep. Storage Average Slope Length Mannings n | (ha)= (mm)= (%)= (m)= = | IMPERVIOUS 0.18 1.00 1.00 39.16 0.013 | PERVIOUS (i) 0.05 1.00 2.00 40.00 0.290 | |

| mannings n | = | 0.013 | 0.290 | | |
|---|--|---|--|--|---|
| NOTE: | RAINFALL WAS | TRANSFORMED TO | 5.0 MIN. T | TIME STEP. | |
| | 0.250 1.17 0.410 1.17 0.4110 1.17 0.4110 1.17 0.4110 1.17 0.613 1.17 0.683 1.17 0.833 1.17 0.833 1.17 0.833 1.17 1.1003 1.17 1.2000 1.17 1 | hrs mm/, a hrs mm/, a hrs mm/, a hrs mm/, a hrs hrs | RMED HYETOGRA: TIME: 1 | mm/hr 9 ns 9 ns 8 41 9 ns 9 ns 8 41 9 ns 1 | RAIN mm//lr 1.63 1.63 1.63 1.63 1.63 1.63 1.63 1.63 |
| Storage Co Unit Hyd. | ten.(mm/hr)= over (min) eff. (min)= Tpeak (min)= peak (cms)= | 61.64 5.00 1.77 (ii) 5.00 0.32 | 15.00 0.08 | *TOTALS* | |
| PEAK FLOW TIME TO PE RUNOFF VOL TOTAL RAIN RUNOFF COE | UME (mm)= FALL (mm)= | 0.03 6.00 45.70 46.70 0.98 | 0.00 6.08 27.09 46.70 0.58 | 0.034 (iii) 6.00 41.57 46.70 0.89 | 1 |
| ***** WARNING: | STORAGE COEFF. | IS SMALLER TH | AN TIME STEP! | ! | |
| CN* (ii) TIME THAN | ROCEDURE SELECT = 89.0 I; STEP (DT) SHOWN THE STORAGE CONTROL FLOW DOES NOT | a = Dep. Stora ULD BE SMALLER DEFFICIENT. | ige (Above) R OR EQUAL | | |
| | | | | | |

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Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (m)=
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0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        40.00
0.290
                                                                                                                                                                                                                                                             Area (ha)= 0.37 Total Imp(\%)= 66.00 Dir. Conn.(\%)= 66.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                            IMPERVIOUS
0.24
1.00
1.00
49.67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PERVIOUS (i)
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2.00
40.00
0.290
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WE RAIN | TIME
RAIN | TAME
RAIN
                                                    Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TIME
0.083
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0.250
0.333
0.417
0.500
0.750
0.750
0.750
0.1000
1.083
1.167
1.253
1.417
1.500
1.583
1.417
1.253
1.417
1.750
1.833
1.917
2.083
2.166
2.253
2.250
2.333
2.2150
2.333
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1.63
1.63
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0.013
                                                                                                      NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3.417
3.500
3.583
3.667
3.750
                                                                                                                                                                                                                                                                                                                                                                          TIME hrs 3.083 3.067 3.250 3.083 3.417 3.500 4.083 4.167 4.083 4.167 4.083 4.167 5.080 5.687 5.583 5.667 5.583 5.667 5.750 6.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TIME
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9.17
9.25
9.33
9.42
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9.75
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9.75
9.87
10.08
10.17
10.25
10.33
10.42
10.50
10.50
10.50
                                                                                                                                                                                 mm/hr | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1
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over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61.64
5.00
2.02 (ii)
5.00
0.31
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15.00
12.99 (ii)
15.00
0.08
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0.047 (iii)
6.00
38.61
46.70
0.83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0.04
6.00
45.70
46.70
0.98
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6.08
27.09
46.70
0.58
                                                        Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                 61.64
5.00
2.04 (ii)
5.00
0.31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        41.44
15.00
13.01 (ii)
15.00
0.08
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   *TOTALS*
0.050 (iii)
6.00
39.35
46.70
0.84
                                                                                                                                                                                                                                                                                                                                                                                 0.04
6.00
45.70
46.70
0.98
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6.08
27.09
46.70
0.58
                                                        PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \mathbb{C}\mathbb{N}^{\circ} = 89.0. If a pep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                              WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                    (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0   Ia=\text{Dep}. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Area (ha)= 0.66 Total Imp(\%)= 62.00 Dir. Conn.(\%)= 62.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         IMPERVIOUS PERVIOUS (i)
0.41 0.25
1.00 1.00
1.00 2.00
66.33 40.00
0.013 0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Surface Area
Dep. Storage
Average Slope
Length
Mannings n
             CALIB
STAMPHO (10052)
| Area (ha)= 0.36
| Del Diric Stommin | Total Imp(%)= 62.00 | Dir. Conn.(%)= 62.00 |
| IMPERVIOUS | PERVIOUS (i)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                       Surface Area
Dep. Storage
Average Slope
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TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN
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8.41 | 9.08
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over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
PEAK FLOW (cms)=
PEAK FLOW (cms)=
TIME FO VELWE (hrs)=
RUNOFF COEFFICIENT =
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61.64
5.00
2.41 (ii)
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13.39 (ii)
15.00
0.08
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0.087 (iii)
6.00
39.17
46.70
0.84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0.07
6.00
45.70
46.70
0.98
                                                    Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                 61.64
5.00
2.42 (ii)
5.00
0.30
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15.00
13.40 (ii)
15.00
0.08
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      *TOTALS*
0.086 (iii)
6.00
38.61
46.70
0.83
                                                        PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                    0.07
6.00
45.70
46.70
0.98
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6.08
27.09
46.70
0.58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                    (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | CALIB
| STANDHYD ( 10072) | Area (ha) = 0.74
| ID= 1 DT= 5.0 min | Total Imp(%) = 71.00 | DIF. Conn. (%) = 71.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           \begin{array}{c|cccc} (ha) = & & & & & & \\ (ha) = & & & & & & \\ (mm) = & & & & & & \\ (\%) = & & & & & & \\ 1.00 & & & & & \\ (\%) = & & & & & \\ 1.00 & & & & & \\ (\%) = & & & & & \\ 0.013 & & & & & \\ 2.00 & & & & \\ m) = & & & & & \\ 0.013 & & & & & \\ 2.00 & & & & \\ 0.290 & & & & \\ \end{array} 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Surface Area
Dep. Storage
Average Slope
Length
Mannings n
   | CALIB | STANDHYD ( 10061) | Area (ha) = 0.65 | Dir. Conn.(%) = 65.00 | Dir. Conn.(%) = 65.00 | Conn.(%) = 
                                                                                                                                                                                                                                                       Surface Area
Dep. Storage
Average Slope
Length
Mannings n
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9.08
9.17
9.25
9.33
9.42
9.50
9.58
9.67
9.75
9.83
9.92
10.00
10.08
10.17
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0.083
0.167
0.250
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0.500
0.583
0.667
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0.833
0.917
1.000
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6.083
6.167
6.250
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6.750
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6.917
7.000
7.083
7.167
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3.333
3.417
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3.667
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3.833
3.917
4.000
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4.167
4.250
                                                                                                                                                                                                                                                                                                                                                                                                                               TRANSFORME
E RAIN
S mm/hr
3 1.87
7 1.87
0 1.87
3 1.87
7 1.87
0 1.87
3 1.87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HYETOGRAPH
TIME
hrs 1
6.083
6.167
6.250
6.333
6.417
6.500
6.583
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hrs
3.083
3.167
3.250
3.333
3.417
3.500
3.583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RAIN
mm/hr
8.41 |
8.41 |
8.41 |
8.41 |
8.41 |
8.41 |
8.41 |
3.74 |
                                                                                                                                                                                     TIME
hrs
0.083
0.167
0.250
0.333
0.417
                                                                                                                                                                                                                                                                                 RAIN
mm/hr
1.17
1.17
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1.17
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hrs
9.08
9.17
9.25
9.33
9.42
9.50
9.58
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2.80 | 7.333

2.80 | 7.477

2.80 | 7.500

3.74 | 7.583

3.74 | 7.7653

3.74 | 7.7653

3.74 | 7.7837

3.74 | 7.833

5.60 | 8.083

5.60 | 8.450

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2.80 | 10.58

2.80 | 10.93

2.80 | 10.93

2.80 | 11.00

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1.17 | 4.917

1.17 | 4.917

1.17 | 5.000

1.140 | 5.083

1.140 | 5.420

1.140 | 5.583

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5.417
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5.750
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over (min)=
over (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
PEAK FLOW (cms)=
PEAK FLOW (cms)=
TIME FO PEAK (hrs)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61.64
5.00
2.49 (ii)
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0.29
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6.00
45.70
46.70
0.98
                                                               Max.Eff.Inten.(mm/h;
over (min)
Storage Coeff. (min)
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
PEAK FLOW (cms)=
PEAK FLOW (hrs)=
RINOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RINOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61.64
5.00
2.51 (ii)
5.00
0.29
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15.00
13.48 (ii)
15.00
0.08
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         *TOTALS*
0.104 (iii)
6.00
40.29
46.70
0.86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0.09
6.00
45.70
46.70
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6.08
27.09
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***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                   (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | CALIB | STANDHYD ( 10081) | Area (ha) = 0.21 | Total Imp(%) = 52.00 | Dir. Conn.(%) = 52.00 | IMPERVIOUS | PERVIOUS (i)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | CALIB
| STANDHYD ( 10071) | Area (ha)= 0.72
| ID= 1 DT= 5.0 min | Total Imp(%)= 60.00 Dir. Conn.(%)= 60.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                   Surface Area (ha)= 0.43 0.29

Dep. Storage (mm)= 1.00 1.00

Average Slope (%)= 1.00 2.00

Length (m)= 69.28 40.00

Mannings n = 0.013 0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             --- TRANSFORMED HYTEOGRAPH
TIME RAIN | TIME |
hrs | mm/hr | 1 |
1.87 | 6.83 | 8 |
3.167 | 1.87 | 6.853 | 8 |
3.150 | 1.87 | 6.253 | 8 |
3.250 | 1.87 | 6.253 | 8 |
3.250 | 1.87 | 6.253 | 8 |
3.250 | 1.87 | 6.253 | 8 |
3.250 | 1.87 | 6.253 | 8 |
3.250 | 1.87 | 6.253 | 8 |
3.250 | 1.87 | 6.250 | 8 |
3.250 | 1.87 | 6.250 | 8 |
3.250 | 1.87 | 6.253 | 8 |
3.250 | 1.87 | 6.253 | 8 |
3.250 | 1.87 | 6.253 | 8 |
3.250 | 1.87 | 6.253 | 8 |
3.250 | 1.87 | 6.533 | 3 |
3.250 | 1.87 | 6.533 | 3 |
3.250 | 1.87 | 6.533 | 3 |
3.250 | 1.87 | 6.533 | 3 |
3.250 | 1.87 | 6.533 | 3 |
3.250 | 1.87 | 6.353 | 3 |
3.250 | 1.87 | 6.353 | 3 |
3.250 | 1.87 | 6.533 | 3 |
3.250 | 1.87 | 6.353 | 3 |
3.250 | 1.87 | 6.353 | 3 |
3.250 | 1.87 | 6.353 | 3 |
3.250 | 1.87 | 6.353 | 3 |
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3.250 | 1.87 | 6.353 | 3 |
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3.250 | 1.87 | 6.353 | 3 |
3.250 | 1.87 | 6.253 | 3 |
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3.250 | 1.87 | 6.253 | 3 |
3.250 | 1.87 | 6.253 | 3 |
3.250 | 1.87 | 6.253 | 3 |
3.250 | 1.87 | 6.253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                hrs
3.083
3.167
3.250
3.333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.917
1.083
1.167
1.250
1.333
1.417
1.500
1.833
1.917
2.083
2.167
2.250
2.250
2.250
2.250
2.2583
                                                                                                                                  NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MED HYETOGRAPH
N | TIME
r | hrs m
r 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3.417
3.500
3.583
3.6750
3.7670
3.833
3.9100
4.083
4.167
4.250
4.431
4.450
4.4417
4.500
4.833
4.417
5.000
5.083
5.167
5.250
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4.083
4.167
4.250
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9.17
9.25
9.33
9.42
9.50
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9.67
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9.83
9.92
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10.17
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10.42
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1.167
1.250
1.333
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1.500
1.583
1.667
1.750
1.833
1.917
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           22.42 | 8.667
22.42 | 8.750
61.64 | 8.833
61.64 | 8.917
61.64 | 9.000
                                                                                                                                                                                                                                                                                                                                                                      1.40 | 5.667
1.40 | 5.750
1.40 | 5.833
1.40 | 5.917
1.40 | 6.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1.63 | 11.67
1.63 | 11.75
1.63 | 11.83
1.63 | 11.92
1.63 | 12.00
                                                                   Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61.64
5.00
1.72 (ii)
5.00
0.32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          41.44
15.00
12.69 (ii)
15.00
0.08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN° = 89.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                   PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0.02
6.00
45.70
46.70
0.98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0.01
6.08
27.09
46.70
0.58
                                                               * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                   (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN° = 89.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SMOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Surface Area
Dep. Storage
Average Slope
Length
Mannings n
    NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                          (ha)= IMPERVIOUS (1) (1) (ma)= 0.18 0.03 (mm)= 1.00 1.00 (%)= 1.00 2.00 (m)= 37.42 40.00 = 0.013 0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TRANSFORMED HYETOGRAPH
ME RAIN | TIME |
FS mm/hr | hrs mm
83 | 1.87 | 6.083 | 8.667 | 1.87 | 6.150 | 8.95 |
1.87 | 6.150 | 8.95 | 8.67 | 1.87 | 6.250 | 8.95 |
1.87 | 6.150 | 8.95 | 8.95 | 8.95 |
1.87 | 6.150 | 8.95 | 8.95 | 8.95 |
1.87 | 6.583 | 3.67 | 6.583 | 3.67 |
1.87 | 6.667 | 3.57 | 6.667 | 3.57 | 6.50 |
33 | 1.87 | 6.667 | 3.57 | 6.65 |
35 | 1.87 | 6.70 | 3.55 | 6.70 | 3.55 |
35 | 1.87 | 6.70 | 3.55 | 6.70 | 3.55 |
35 | 1.87 | 6.70 | 3.55 | 6.70 | 3.55 |
35 | 1.87 | 6.70 | 3.70 | 3.70 | 3.70 |
35 | 1.87 | 6.70 | 3.70 | 3.70 | 3.70 |
37 | 1.87 | 7.70 | 3.70 | 3.70 | 3.70 | 3.70 |
38 | 3.70 | 7.083 | 2.25 | 3.70 | 3.70 | 3.70 | 3.70 |
38 | 3.70 | 7.750 | 2.25 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 | 3.70 |
                                                                   Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TIME
hrs
3.083
3.167
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                                                                                                                              NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
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over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61.64
5.00
2.39 (ii)
5.00
0.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PEAK FLOW
TIME TO PEAK
RUNOFF VOLUME
TOTAL RAINFALL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (cms)=
(hrs)=
(mm)=
(mm)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0.09
6.00
45.70
46.70
                                                               Max.Eff.Inten.(mm/hr)=
    over (min)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61.64
5.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   43.41
10.00
```

2.80 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.63 | 1.

TOTALS 0.093 (iii) 6.00 38.25 46.70 0.82

8.083 8.167 8.250 8.333 8.417 8.500 8.583 8.667 8.750 8.833 8.917 9.000

41.44 15.00 13.46 (ii) 15.00 0.08

0.02 6.08 27.09 46.70 0.58

8. 41 8. 41 8. 41 8. 41 8. 41 8. 41 8. 41 8. 41 9. 7 9. 8 9.25 9.33 9.58 9.67 9.58 9.67 9.83 9.67 10.08 10.17 10.25 10.33 10.67 10.50 10.50 10.50 11.10 11.25 11.25 11.25 11.33 11.42 11.58 11.78 11.78 11.78 11.78 11.78 11.78 11.78 11.78

TOTALS 0.095 (iii) 6.00 42.15 46.70

41.44 15.00 13.36 (ii) 15.00 0.08

0.01 6.08 27.09 46.70

8.41 8.41 3.74 3.74 3.74 3.74 3.74 3.74 3.74 3.74 2.80 2.80 2.80 2.80 2.80 2.80 2.80 1.63 1.63 1.63 1.63 1.63 1.63 9.42 9.50 9.58 9.67 9.75 9.83 9.92 10.00 10.05 10.25 10.50 10.50 10.50 11.08 11.17 11.25 11.33 11.42 11.58

TOTALS 0.034 (iii) 6.00 43.27 46.70 0.93

RUNOFF COEFFICIENT = 0.98 0.58

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(ha)= 0.37 PERVIOUS (1) (mm)= 1.00 1.00 (%)= 1.00 2.00 (m)= 57.74 40.00 = 0.013 0.290 Surface Area Dep. Storage Average Slope Length Mannings n

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

| 1.500 1.17 1.583 1.17 1.667 1.17 1.833 1.17 1.833 1.17 1.833 1.17 2.000 1.17 2.067 1.40 2.250 1.40 2.250 1.40 2.417 1.40 2.417 1.40 2.583 1.40 2.583 1.40 2.583 1.40 2.583 1.40 2.583 1.40 2.583 1.40 2.583 1.40 2.583 1.40 2.583 1.40 2.583 1.40 2.583 1.40 2.583 1.40 2.583 1.40 2.583 1.40 2.583 1.40 2.583 1.40 | 3.250 1.87 3.331 1.87 3.417 1.87 3.417 1.87 3.181 1.87 3.182 1.87 3.183 1.87 3.183 1.87 3.183 1.87 3.183 1.87 4.000 1.87 4.000 1.87 4.000 1.87 4.000 1.87 4.000 1.87 4.000 1.87 4.000 1.87 4.000 1.87 4.000 1.87 4.000 1.87 4.000 1.87 4.000 1.87 4.000 1.87 5.000 1.87 | 1 TIMEs (6.083) (6.083) (6.166 | RAIN TIME TME TME | RAIN mm/hr 1.63 1.63 1.63 1.63 1.63 1.63 1.63 1.63 |
|---|--|--|---|--|
| Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= | 61.64 5.00 2.23 (ii) 5.00 0.30 | 41.44 15.00 13.20 (ii) 15.00 0.08 | | |
| PEAK FLOW (cms)= TIME TO PEAK (hrs)= RUNOFF VOLUME (mm)= TOTAL RAINFALL (mm)= RUNOFF COEFFICIENT = | 0.06 6.00 45.70 46.70 0.98 | 0.01 6.08 27.09 46.70 0.58 | *TOTALS* 0.072 (iii) 6.00 40.85 46.70 0.87 | |

**** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^{\pm}=89.0$ Ia=Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SWALLER OR EQUAL THAN THE STORAGE COFFETCHENT.

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

| TIME RAIN TIME RAIN 'TIME RAIN' TIME RAIN TIME RAIN TIME RAIN TIME RAIN TIME RAIN' TIME | | | | | | | | |
|---|-------|------|-------|-------|-------|------|-------|------|
| $\begin{array}{llllllllllllllllllllllllllllllllllll$ | | | | | | | - | |
| 0.083 1.17 3.083 1.87 6.083 8.41 9.08 1.63 0.167 1.17 3.1667 1.87 6.167 8.41 9.17 1.63 0.250 1.17 3.250 1.87 6.250 8.41 9.25 1.63 0.333 1.17 3.333 1.87 6.250 8.41 9.32 1.63 0.400 1.17 3.407 1.87 6.250 8.41 9.32 1.63 0.400 1.17 3.407 1.87 6.500 8.41 9.35 1.63 0.400 1.17 3.407 1.87 6.500 8.41 9.35 1.63 0.400 1.17 3.407 1.87 6.500 8.41 9.50 1.63 0.666 1.17 3.667 1.87 6.500 8.41 9.50 1.63 0.667 1.17 3.667 1.87 6.500 3.74 9.56 1.63 0.633 1.17 3.833 1.87 6.650 3.74 9.56 1.63 0.833 1.17 3.833 1.87 6.650 3.74 9.95 1.63 0.833 1.17 3.833 1.87 6.883 3.74 9.83 1.63 0.83 3.11 7 3.833 1.87 6.87 6.89 3.74 9.50 1.63 0.83 3.74 9.50 1.63 0.83 3.74 9.50 1.63 0.83 3.74 9.50 1.63 0.83 3.74 9.50 1.63 0.83 3.74 9.50 1.63 0.83 3.74 9.50 1.63 0.83 3.74 9.50 1.63 0.83 3.74 9.75 1.63 0.83 3.74 9.75 1.63 0.83 3.74 9.75 1.63 0.83 3.74 9.75 1.63 0.83 3.74 9.75 1.75 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.9 | | | | | | | | |
| 0.167 1.17 3.167 1.87 6.167 8.41 9.17 1.63 0.250 1.17 3.250 1.87 6.250 8.41 9.25 1.63 0.333 1.17 3.333 1.87 6.333 8.41 9.25 1.63 0.333 1.17 3.333 1.87 6.333 8.41 9.25 1.63 0.50 0.417 1.17 3.417 1.87 6.417 8.41 9.42 1.63 0.500 1.17 3.500 1.87 6.500 8.41 9.50 1.63 0.583 1.17 3.583 1.87 6.500 8.41 9.50 1.63 0.667 1.17 3.567 1.87 6.563 3.74 9.58 1.63 0.667 1.17 3.765 1.87 6.567 3.74 9.57 1.63 0.633 1.17 3.833 1.87 6.657 3.74 9.57 1.63 0.833 1.17 3.833 1.87 6.59 3.74 9.58 1.63 0.833 1.17 3.833 1.87 6.657 3.74 9.75 1.63 0.831 1.17 3.833 1.87 6.83 3.74 9.83 1.63 1.63 0.833 1.17 4.083 2.26 0.20 1.63 1.00 0.20 0.20 0.20 0.20 0.20 0.20 0.20 | | | | | | | | |
| 0.250 1.17 3.250 1.87 6.250 8.41 9.25 1.63 1.63 0.417 1.17 3.333 1.87 6.250 8.41 9.33 1.63 1.63 0.417 1.17 3.417 1.87 6.410 8.41 9.33 1.63 1.63 0.417 1.17 3.417 1.87 6.410 8.41 9.32 1.63 1.63 0.40 1.47 1.17 3.40 1.87 6.410 8.41 9.32 1.63 1.63 0.667 1.17 3.667 1.87 6.683 8.44 9.50 1.63 1.63 0.667 1.17 3.667 1.87 6.683 8.44 9.50 1.63 1.63 0.750 1.17 3.760 1.87 6.657 3.74 9.67 1.63 0.83 1.17 3.833 1.87 6.853 3.74 9.98 1.63 0.83 1.17 3.833 1.87 6.853 3.74 9.98 1.63 1.63 1.71 3.835 1.87 6.833 3.74 9.98 1.63 1.63 1.71 3.835 1.87 6.833 3.74 9.98 1.63 1.63 1.71 3.835 1.87 6.833 3.74 9.98 1.63 1.63 1.71 3.835 1.87 6.833 3.74 9.98 1.63 1.63 1.71 3.71 3.91 1.87 6.87 7.000 3.74 9.92 1.63 1.63 1.71 3.71 3.71 3.71 3.71 3.71 3.71 3.7 | | | | | | | | |
| 0.417 1.17 3.417 1.87 6.417 8.41 9.42 1.63 0.500 1.17 3.500 1.87 6.500 8.41 9.50 1.63 0.583 1.17 3.583 1.87 6.500 8.41 9.50 1.63 0.583 1.17 3.583 1.87 6.583 3.74 9.58 1.63 0.667 1.17 3.667 1.87 6.667 3.74 9.67 1.63 0.750 1.17 3.750 1.87 6.750 3.74 9.67 1.63 0.750 1.17 3.750 1.87 6.750 3.74 9.83 1.63 0.917 1.17 3.917 1.87 6.937 3.74 9.83 1.63 0.917 1.17 3.917 1.87 6.917 3.74 9.83 1.63 0.915 1.000 1.17 4.000 1.87 7.000 3.74 10.00 1.63 1.08 3.17 4.083 2.80 7.083 2.80 10.08 0.93 1.167 4.083 1.17 4.083 2.80 7.083 2.80 10.08 0.93 1.167 1.17 14.167 2.80 7.067 3.767 2.80 10.07 0.93 | 0.167 | 1.17 | | | | | | |
| 0.417 1.17 3.417 1.87 6.417 8.41 9.42 1.63 0.500 1.17 3.500 1.87 6.500 8.41 9.50 1.63 0.583 1.17 3.583 1.87 6.500 8.41 9.50 1.63 0.583 1.17 3.583 1.87 6.583 3.74 9.58 1.63 0.667 1.17 3.667 1.87 6.667 3.74 9.67 1.63 0.750 1.17 3.750 1.87 6.750 3.74 9.67 1.63 0.750 1.17 3.750 1.87 6.750 3.74 9.83 1.63 0.917 1.17 3.917 1.87 6.937 3.74 9.83 1.63 0.917 1.17 3.917 1.87 6.917 3.74 9.83 1.63 0.915 1.000 1.17 4.000 1.87 7.000 3.74 10.00 1.63 1.08 3.17 4.083 2.80 7.083 2.80 10.08 0.93 1.167 4.083 1.17 4.083 2.80 7.083 2.80 10.08 0.93 1.167 1.17 14.167 2.80 7.067 3.767 2.80 10.07 0.93 | 0.250 | 1.17 | 3.250 | 1.87 | 6.250 | 8.41 | 9.25 | 1.63 |
| 0.583 1.17 3.583 1.87 6.583 3.74 9.58 1.63 0.667 1.17 3.667 1.87 6.667 3.74 9.67 1.63 0.750 1.17 3.750 1.87 6.750 3.74 9.67 1.63 0.750 1.17 3.750 1.87 6.750 3.74 9.75 1.63 0.917 1.17 3.917 1.87 6.937 3.74 9.83 1.63 0.917 1.17 3.917 1.87 6.917 3.74 9.83 1.63 0.917 1.17 4.000 1.87 7.000 3.74 10.00 1.63 1.008 0.93 1.17 4.083 2.80 7.083 2.80 10.08 0.93 1.167 4.083 1.17 4.083 2.80 7.083 2.80 10.08 0.93 1.167 4.083 1.17 4.083 2.80 7.083 2.80 10.08 0.93 1.167 4.083 1.17 4.083 2.80 7.083 2.80 10.08 0.93 1.167 1.17 4.167 2.80 7.767 2.80 0.93 1.00 10.08 0.93 | | 1.17 | | | | 8.41 | 9.33 | |
| 0.583 1.17 3.583 1.87 6.583 3.74 9.58 1.63 0.667 1.17 3.667 1.87 6.667 3.74 9.67 1.63 0.750 1.17 3.750 1.87 6.750 3.74 9.67 1.63 0.750 1.17 3.750 1.87 6.750 3.74 9.75 1.63 0.917 1.17 3.917 1.87 6.937 3.74 9.83 1.63 0.917 1.17 3.917 1.87 6.917 3.74 9.83 1.63 0.917 1.17 4.000 1.87 7.000 3.74 10.00 1.63 1.008 0.93 1.17 4.083 2.80 7.083 2.80 10.08 0.93 1.167 4.083 1.17 4.083 2.80 7.083 2.80 10.08 0.93 1.167 4.083 1.17 4.083 2.80 7.083 2.80 10.08 0.93 1.167 4.083 1.17 4.083 2.80 7.083 2.80 10.08 0.93 1.167 1.17 4.167 2.80 7.767 2.80 0.93 1.00 10.08 0.93 | 0.417 | 1.17 | 3.417 | 1.87 | 6.417 | 8.41 | 9.42 | 1.63 |
| 0.667 1.17 3.667 1.87 6.667 3.74 9.67 1.63 0.750 1.17 3.750 1.87 6.750 3.74 9.75 1.63 0.833 1.17 3.833 1.87 6.833 3.74 9.83 1.63 0.917 1.17 3.917 1.87 6.833 3.74 9.92 1.63 1.003 1.17 4.003 2.87 7.003 3.76 10.08 0.1 1.33 1.167 1.17 4.167 2.80 7.767 3.00 10.10 0.8 0.3 | 0.500 | 1.1/ | 3.500 | 1.8/ | 6.500 | 8.41 | | 1.63 |
| 0.750 1.17 3.750 1.87 6.750 3.74 9.75 1.63 0.833 1.17 3.833 1.87 6.833 3.74 9.83 1.63 0.917 1.17 3.8917 1.87 6.917 3.74 9.83 1.63 1.63 0.917 1.17 4.000 1.87 7.000 3.74 10.00 1.63 1.008 1.17 4.083 2.80 7.083 2.80 10.08 0.93 1.167 4.083 2.80 7.083 2.80 10.08 0.93 1.167 1.17 4.167 2.80 7.167 2.80 1.0.08 0.93 0.93 0.93 0.93 0.93 0.93 0.93 0.93 | | 1.1/ | | 1.8/ | | 3.74 | | |
| 0.833 1.17 3.833 1.87 6.833 3.74 9.83 1.63 0.917 1.17 3.917 1.87 6.917 3.74 9.92 1.63 1.000 1.17 4.000 1.87 7.000 3.74 10.00 1.63 1.083 1.17 4.083 2.80 7.083 2.80 10.08 0.93 1.167 1.17 4.167 2.80 7.167 2.80 10.17 0.93 | 0.667 | 1.1/ | 3.66/ | 1.87 | 6.66/ | 3.74 | 9.6/ | 1.63 |
| 1.000 1.17 4.000 1.87 7.000 3.74 10.00 1.63 1.083 1.17 4.083 2.80 7.083 2.80 10.08 0.93 1.167 1.17 4.167 2.80 7.167 2.80 10.17 0.93 | 0.750 | 1.1/ | | | | 3.74 | | |
| 1.000 1.17 4.000 1.87 7.000 3.74 10.00 1.63 1.083 1.17 4.083 2.80 7.083 2.80 10.08 0.93 1.167 1.17 4.167 2.80 7.167 2.80 10.17 0.93 | | 1.1/ | | 1.87 | 6.833 | 3.74 | | |
| 1.167 1.17 4.167 2.80 7.167 2.80 10.17 0.93 | | 1.17 | 3.917 | 1.07 | | 3.74 | | |
| 1.167 1.17 4.167 2.80 7.167 2.80 10.17 0.93 | 1.000 | 1.17 | 4.000 | 2.07 | 7.000 | 3.74 | | 1.03 |
| 1.250 1.17 4.250 2.80 7.250 2.80 10.25 0.93 | 1 167 | 1 17 | | 2.80 | 7 167 | 2.80 | | 0.33 |
| | 1 250 | 1 17 | | 2.80 | 7 250 | 2.80 | | |
| 1 333 | 1.333 | 1.17 | 4.333 | 2.80 | 7.333 | 2.80 | 10.33 | 0.93 |
| 1.417 1.17 4.417 2.80 7.417 2.80 10.42 0.93 | 1 417 | 1 17 | | | | 2 80 | | 0.93 |
| 1.500 1.17 4.500 2.80 7.500 2.80 10.50 0.93 | 1.500 | 1.17 | 4.500 | 2.80 | 7.500 | 2.80 | 10.50 | 0.93 |
| 1.583 1.17 4.583 3.74 7.583 2.80 10.58 0.93 | 1.583 | 1.17 | 4.583 | 3.74 | 7.583 | 2.80 | 10.58 | 0.93 |
| 1.667 1.17 4.667 3.74 7.667 2.80 10.67 0.93 | 1.667 | 1.17 | 4.667 | 3.74 | 7.667 | 2.80 | 10.67 | 0.93 |
| 1.750 1.17 4.750 3.74 7.750 2.80 10.75 0.93 | 1.750 | 1.17 | | 3.74 | | 2.80 | | |
| 1.833 1.17 4.833 3.74 7.833 2.80 10.83 0.93 1.917 1.17 4.917 3.74 7.917 2.80 10.92 0.93 | 1.833 | 1.17 | | 3.74 | 7.833 | 2.80 | | 0.93 |
| 1.917 1.17 4.917 3.74 7.917 2.80 10.92 0.93 | | 1.17 | | | | 2.80 | 10.92 | 0.93 |
| 2.000 1.17 5.000 3.74 8.000 2.80 11.00 0.93 | | 1.17 | | | | 2.80 | | 0.93 |
| 2.083 1.40 5.083 5.60 8.083 1.63 11.08 0.93 | 2.083 | 1.40 | 5.083 | 5.60 | 8.083 | 1.63 | 11.08 | 0.93 |
| 2.167 1.40 5.167 5.60 8.167 1.63 11.17 0.93 | 2.16/ | | | 5.60 | | 1.63 | | |
| 2.250 | 2.250 | | 5.250 | 5.60 | 8.250 | 1.63 | 11.53 | 0.93 |
| 2.333 1.40 3.333 3.60 8.333 1.63 11.33 0.93 2.417 1.40 5.417 5.60 8.417 1.63 11.42 0.93 | 2.333 | | | 5.60 | | 1.03 | 11.33 | 0.93 |
| 2.500 1.40 5.500 5.60 8.500 1.63 11.50 0.93 | 2.417 | 1.40 | 2.41/ | 5.60 | 0.417 | 1.63 | 11.42 | 0.93 |
| 2.583 1.40 5.583 22.42 8.583 1.63 11.58 0.93 | 2.500 | | | 22 42 | | 1 63 | | 0.33 |
| 2.667 1.40 5.667 22.42 8.667 1.63 11.67 0.93 | 2 667 | | 5 667 | | | | | 0.33 |
| 2.750 1.40 5.750 22.42 8.750 1.63 11.75 0.93 | 2.750 | | 5.750 | | 8.750 | 1.63 | | 0.93 |
| 2.833 1.40 5.833 61.64 8.833 1.63 11.83 0.93 | | | | | | 1.63 | 11.83 | |
| 2.917 1.40 5.917 61.64 8.917 1.63 11.92 0.93 | 2.917 | | | 61.64 | 8.917 | 1.63 | 11.92 | 0.93 |
| 3.000 1.40 6.000 61.64 9.000 1.63 12.00 0.93 | 3.000 | 1.40 | 6.000 | 61.64 | 9.000 | 1.63 | 12.00 | 0.93 |

| Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= | 61.64 5.00 2.64 (ii) 5.00 0.29 | 41.44 15.00 13.62 (ii) 15.00 0.08 | *TOTALS* |
|--|--|---|-------------|
| PEAK FLOW (cms)= TIME TO PEAK (hrs)= RUNOFF VOLUME (mm)= TOTAL RAINFALL (mm)= RUNOFF COEFFICIENT = | 0.11 | 0.02 | 0.124 (iii) |
| | 6.00 | 6.08 | 6.00 |
| | 45.70 | 27.09 | 40.48 |
| | 46.70 | 46.70 | 46.70 |
| | 0.98 | 0.58 | 0.87 |

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

 CN° = 89.0 Ia = Dep. Storage (Above)

 (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL

 THAN THE STORAGE COFFICIENT.

 (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB STANDHYD (1111) ID= 1 DT= 5.0 min | Area Total | (ha)= Imp(%)= | 1.06 59.00 | Dir. Conn.(%)= | = 59.00 |
|---|---------------|------------------|---------------|----------------|---------|
| | | TMPERVTO | nie. | PERVIOUS (i) | |
| | | | | | |
| Surface Area | (ha)= | 0.63 | 3 | 0.43 | |
| Dep. Storage | (mm)= | 1.00 | · | 1.00 | |
| Average Slope | (%)= | 1.00 | | 2.00 | |
| | | | | | |
| Lenath | (m)= | 84.06 | 5 | 40.00 | |
| Mannings n | ` ′ = | 0.013 | 3 | 0.290 | |
| | | | - | | |
| NOTE: RAINF | ALL WAS | TRANSFORM | MED TO | 5.0 MIN. TIME | STEP. |

(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Area (ha)= 0.91 Total Imp(%)= 55.00 Dir. Conn.(%)= 55.00 IMPERVIOUS PERVIOUS (i) 0.50 0.41 1.00 1.00 1.00 2.00 77.89 40.00 0.013 0.290 Surface Area Dep. Storage Average Slope Length Mannings n (ha)= (mm)= (%)= (m)= =

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

| | TRANSF | ORMED HYETOGRA | РН | | |
|--|--------------------|----------------------------|--------|----------------|-------|
| TIME RAIN | | AIN TIME | RAIN | TIME | RAIN |
| hrs mm/hr | | /hr ' hrs | mm/hr | hrs | mm/hr |
| 0.083 1.17 | 3.083 1 | .87 6.083 | 8.41 | 9.08 | 1.63 |
| 0.167 1.17 | 3.167 1 | .87 6.167 | 8.41 | 9.17 | 1.63 |
| 0.250 1.17 | 3.250 1 | .87 6.250 | 8.41 | 9.25 | 1.63 |
| 0.333 1.17 0.417 1.17 | 3.333 1 3.417 1 | .87 6.333 .87 6.417 | 8.41 | 9.33 | 1.63 |
| 0.41/ 1.1/ 0.500 1.17 | | .87 6.417 .87 6.500 | 8.41 | 9.42 | 1.63 |
| 0.583 1.17 | 3.583 1 | .87 6.500 | 3.74 | 9.58 | 1.63 |
| 0.667 1.17 | 3.667 1 | .87 6.667 | 3.74 | 9.67 | 1.63 |
| 0.750 1.17 | 3.750 1 | .87 6.750 | 3.74 | 9.75 | 1.63 |
| 0.833 1.17 | 3.833 1 | .87 6.833 | 3.74 İ | 9.83 | 1.63 |
| 0.917 1.17 | 3.917 1 | .87 6.917 | 3.74 | 9.92 | 1.63 |
| 1.000 1.17 | 4.000 1 | .87 7.000 | 3.74 | 10.00 | 1.63 |
| 1.083 1.17 | 4.083 2 | .80 7.083 | 2.80 | 10.08 | 0.93 |
| 1.167 1.17 | | .80 7.167 | 2.80 | 10.17 | 0.93 |
| 1.250 1.17 | | .80 7.250 | 2.80 | 10.25 | 0.93 |
| 1.333 1.17 1.417 1.17 | 4.333 2 4.417 2 | .80 7.333 .80 7.417 | 2.80 | 10.33 10.42 | 0.93 |
| 1.500 1.17 | 4.500 2 | .80 7.417 | 2.80 | 10.42 | 0.93 |
| 1.583 1.17 | 4.583 3 | .74 7.583 | 2.80 | 10.58 | 0.93 |
| 1.667 1.17 | 4.667 3 | .74 7.667 | 2.80 | 10.67 | 0.93 |
| 1.750 1.17 | 4.750 3 | .74 7.750 | 2.80 | 10.75 | 0.93 |
| 1.833 1.17 | 4.833 3 | .74 7.833 | 2.80 | 10.83 | 0.93 |
| 1.917 1.17 | 4.917 3 | .74 7.917 | 2.80 | 10.92 | 0.93 |
| 2.000 1.17 | | .74 8.000 | 2.80 | 11.00 | 0.93 |
| 2.083 1.40 | 5.083 5 | .60 8.083 | 1.63 | 11.08 | 0.93 |
| 2.167 1.40 2.250 1.40 | | .60 8.167 .60 8.250 | 1.63 | 11.17 11.25 | 0.93 |
| 2.230 1.40 | | .60 8.333 | 1.63 | 11.33 | 0.93 |
| 2.333 1.40 | 5.417 5 | .60 8.417 | 1.63 | 11.42 | 0.93 |
| 2.500 1.40 | 5.500 5 | .60 8.500 | 1.63 | 11.50 | 0.93 |
| 2.583 1.40 | 5.583 22 | .42 8.583 | 1.63 | 11.58 | 0.93 |
| 2.667 1.40 | 5.667 22 | .42 8.667 | 1.63 i | 11.67 | 0.93 |
| 2.750 1.40 | 5.750 22 | .42 8.750 | 1.63 | 11.75 | 0.93 |
| 2.833 1.40 | | .64 8.833 | 1.63 | 11.83 | 0.93 |
| 2.917 1.40 | | .64 8.917 | 1.63 | 11.92 | 0.93 |
| 3.000 1.40 | 6.000 61 | .64 9.000 | 1.63 | 12.00 | 0.93 |
| Max.Eff.Inten.(mm/hr)= | 61.64 | 41.44 | | | |
| over (min) | 5.00 | 15.00 | | | |
| Storage Coeff. (min)= | 2.67 (ii | | | | |
| Unit Hyd. Tpeak (min)= | 5.00 | 15.00 | | | |
| Unit Hyd. peak (cms)= | 0.29 | 0.08 | | | |
| | | | *TOTA | | |
| PEAK FLOW (cms)= | 0.09 | 0.03 | 0.1 | 112 (iii) | |
| TIME TO PEAK (hrs)= RUNOFF VOLUME (mm)= | 6.00 45.70 | 6.08 27.09 | 37. | .00 | |
| TOTAL RAINFALL (mm)= | 45.70 | 46.70 | 46. | | |
| RUNOFF COEFFICIENT = | 0.98 | 0.58 | 46. | .80 | |
| MONOT. COLITICIENT = | 0.50 | 0.50 | 0. | | |

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $\mathbb{C} N^2 = 89.0$ Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB | STANDHYD (1102) | Area (ha) = 0.88 | ID= 1 DT= 5.0 min | Total Imp(%) = 72.00 | Dir. Conn.(%) = 72.00

| | | TDA | NETORME | D HYETOCE | A DLI | | |
|-------------------|--------------|-------|---------|-----------|-------|-------|-------|
| | | | | D HYETOGR | | - | |
| TIME | RAIN | TIME | RAIN | ' TIME | RAIN | | RAIN |
| hrs | mm/hr | hrs | mm/hr | ' hrs | mm/hr | hrs | mm/hr |
| 0.083 | 1.17 | 3.083 | 1.87 | 6.083 | 8.41 | 9.08 | 1.63 |
| 0.167 | 1.17 | 3.167 | 1.87 | 6.167 | 8.41 | 9.17 | 1.63 |
| | 1.1/ | 3.107 | 1.07 | 0.107 | | | |
| 0.250 | 1.17 1.17 | 3.250 | 1.87 | 6.250 | 8.41 | 9.25 | 1.63 |
| 0.333 | 1.17 | 3.333 | 1.87 | 6.333 | 8.41 | 9.33 | 1.63 |
| 0.417 | 1.17 | 3.417 | 1.87 | 6.417 | 8.41 | 9.42 | 1.63 |
| 0.500 | 1.17 | 3.500 | 1.87 | 6.500 | 8.41 | 9.50 | 1.63 |
| 0.583 | 1 17 | 3.583 | 1 87 | 6.583 | 3.74 | 9.58 | 1.63 |
| 0.667 | 1.17 | 3.667 | 1.87 | 6.667 | 3.74 | 9.67 | 1.63 |
| 0.750 | 1.17 | 3.750 | 1 07 | 6.750 | 3.74 | 9.75 | 1.63 |
| | 1.1/ | 3.730 | 1.87 | 6.833 | 3.74 | 9.83 | 1.63 |
| 0.833 | 1.17 | 3.833 | 1.87 | | | | |
| 0.917 | 1.17 | 3.917 | 1.87 | 6.917 | 3.74 | 9.92 | 1.63 |
| 1.000 | 1.17 | 4.000 | 1.87 | 7.000 | 3.74 | 10.00 | 1.63 |
| 1.083 | 1.17 | 4.083 | 2.80 | 7.083 | 2.80 | 10.08 | 0.93 |
| 1.167 | 1.17 | 4.167 | 2.80 | 7.167 | 2.80 | 10.17 | 0.93 |
| 1.250 | 1.17 | 4.250 | 2.80 | 7.250 | 2.80 | 10.25 | 0.93 |
| 1.333 | 1.17 | 4.333 | 2.80 | 7.333 | 2.80 | 10.33 | 0.93 |
| 1.417 | 1.17 | 4.417 | 2.80 | 7.417 | 2.80 | 10.42 | 0.93 |
| | 1.1/ | 4.500 | 2.00 | 7.500 | 2.80 | 10.50 | 0.93 |
| 1.500 | 1.17 | 4.500 | 2.80 | 7.500 | 2.80 | 10.50 | 0.93 |
| 1.583 | 1.1/ | 4.583 | 3.74 | 7.583 | 2.80 | 10.58 | 0.93 |
| 1.667 | 1.17 | 4.667 | 3.74 | 7.667 | 2.80 | 10.67 | 0.93 |
| 1.750 | 1.17 | 4.750 | 3.74 | 7.750 | 2.80 | 10.75 | 0.93 |
| 1.833 | 1.17 | 4.833 | 3.74 | 7.833 | 2.80 | 10.83 | 0.93 |
| 1.917 | 1.17 | 4.917 | 3.74 | 7.917 | 2.80 | 10.92 | 0.93 |
| 2.000 | 1.17 | 5.000 | 3.74 | 8.000 | 2.80 | 11.00 | 0.93 |
| 2.083 | 1.40 | 5.083 | 5.60 | 8.083 | 1.63 | 11.08 | 0.93 |
| 2.167 | 1.40 | 5.167 | 5.60 | 8.167 | 1.63 | 11.17 | 0.93 |
| 2.250 | 1.40 | 5.250 | 5.60 | | 1.63 | 11.25 | 0.93 |
| | | 3.230 | | | | 11.23 | |
| 2.333 | 1.40 | 5.333 | 5.60 | 8.333 | 1.63 | | 0.93 |
| 2.417 | 1.40 | 5.417 | 5.60 | 8.417 | 1.63 | 11.42 | 0.93 |
| 2.500 | 1.40 | 5.500 | 5.60 | 8.500 | 1.63 | 11.50 | 0.93 |
| 2.583 | 1.40 | 5.583 | 22.42 | 8.583 | 1.63 | 11.58 | 0.93 |
| 2.667 | 1.40 | 5.667 | 22.42 | 8.667 | 1.63 | 11.67 | 0.93 |
| 2.750 | 1.40 | 5.750 | 22.42 | 8.750 | 1.63 | 11.75 | 0.93 |
| 2.833 | 1.40 | 5.833 | 61.64 | 8.833 | 1.63 | 11.83 | 0.93 |
| 2.917 | 1.40 | 5.917 | 61.64 | | 1.63 | 11.92 | 0.93 |
| 3.000 | 1.40 | 6.000 | 61.64 | 9.000 | 1.63 | 12.00 | 0.93 |
| 3.000 | 1.40 | 0.000 | 01.04 | 3.000 | 1.03 | 12.00 | 0.93 |
| Max.Eff.Inten.(mm | | 61.64 | | 41.44 | | | |
| over (| min) | 5 00 | | 15 00 | | | |

| Max.Eff.Inten.(mm/hr) over (min) Storage Coeff. (min) Unit Hyd. Tpeak (min) | 5.00 = 2.79 (ii) = 5.00 | 15.00 | |
|--|-------------------------------|-------|-------------|
| Unit Hyd. peak (cms) | = 0.28 | 0.08 | |
| | | | *TOTALS* |
| PEAK FLOW (cms) | = 0.11 | 0.03 | 0.135 (iii) |
| TIME TO PEAK (hrs) | = 6.00 | 6.08 | 6.00 |
| RUNOFF VOLUME (mm) | = 45.70 | 27.09 | 38.06 |
| TOTAL RAINFALL (mm) | = 46.70 | 46.70 | 46.70 |
| RUNOFF COEFFICIENT | = 0.98 | 0.58 | 0.82 |

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $\mathbb{C}\mathbb{N}^{\circ} = 89.0$. If a pep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB STANDHYD (1112) ID= 1 DT= 5.0 min | Area Total | (ha)= 0.9 Imp(%)= 78.0 | | 78.00 |
|---|-------------------------------------|--|--|-------|
| Surface Area Dep. Storage Average Slope Length Mannings n | (ha)= (mm)= (%)= (m)= = | IMPERVIOUS 0.76 1.00 1.00 80.42 0.013 | PERVIOUS (i) 0.21 1.00 2.00 40.00 0.290 | |

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

| | TRANS | FORMED HYETOGRAI | PH | |
|----------|-------------|------------------|----------|-----------|
| TIME RA | AIN TIME | RAIN TIME | RAIN | TIME RAIN |
| hrs mm/ | /hr i hrs m | n/hr i' hrs | mm/hr i | hrs mm/hr |
| 0.083 1. | .17 3.083 | 1.87 6.083 | 8.41 9 | 0.08 1.63 |
| 0.167 1. | .17 3.167 | 1.87 6.167 | 8.41 i 9 | 1.63 |
| 0.250 1. | .17 3.250 | 1.87 6.250 | 8.41 i 9 | 0.25 1.63 |
| | , | | | |

| 0.333 1.17 3.343 1.87 6.333 8.41 9.33 1.63 0.417 1.17 3.410 1.87 6.417 8.41 9.42 1.63 0.583 1.17 3.583 1.87 6.583 3.74 9.58 1.63 0.667 1.17 3.667 1.87 6.667 2.74 9.67 1.63 0.750 1.17 3.750 1.87 6.750 3.74 9.75 1.63 0.750 1.17 3.750 1.87 6.750 3.74 9.75 1.63 0.750 1.17 3.750 1.87 6.750 3.74 9.75 1.63 0.750 1.17 3.750 1.87 6.750 3.74 9.75 1.63 0.833 1.17 4.033 2.80 7.083 2.80 1.00 0.833 1.17 4.033 2.80 7.083 2.80 1.00 0.100 1.17 4.000 1.87 7.000 3.74 10.00 1.63 1.083 1.17 4.033 2.80 7.083 2.80 10.70 0.93 1.167 1.17 4.167 2.80 1.167 2.80 10.17 0.93 1.1250 1.17 4.153 2.80 7.253 2.80 10.27 0.93 1.140 1.17 4.147 2.80 7.417 2.80 10.2 0.93 1.150 1.17 4.150 2.80 7.417 2.80 10.50 0.93 1.150 1.17 4.150 2.80 7.417 2.80 10.50 0.93 1.150 1.17 4.183 3.74 7.833 2.80 1.05 0.93 1.150 1.17 4.183 3.74 7.833 2.80 1.05 0.93 1.1687 1.17 4.183 3.74 7.833 2.80 10.53 0.93 1.183 1.17 4.833 3.74 7.833 2.80 10.58 0.93 1.183 1.17 4.833 3.74 7.833 2.80 10.67 0.93 1.833 1.17 4.833 3.74 7.833 2.80 10.69 0.93 2.003 1.17 5.000 3.74 8.000 2.80 1.000 0.93 2.003 1.17 5.000 3.74 8.000 2.80 1.000 0.93 2.003 1.17 5.000 3.74 8.000 2.80 1.000 0.93 2.003 1.17 5.000 3.74 8.000 2.80 1.000 0.93 2.003 1.10 5.250 5.60 8.250 1.63 11.50 0.93 2.003 1.10 5.250 5.60 8.250 1.63 11.50 0.93 2.003 1.10 5.250 5.60 8.250 1.63 11.50 0.93 2.003 1.10 5.407 5.607 2.42 8.667 1.63 11.67 0.93 2.101 6.10 6.1 | 1.000 1.17 4.000 1.87 7.000 3.74 10.00 1.63 1.083 1.17 4.083 2.80 7.083 2.80 10.08 0.93 1.167 1.17 4.167 2.80 7.167 2.80 10.17 0.93 1.250 1.17 4.167 2.80 7.167 2.80 10.25 0.93 1.333 1.17 4.333 2.80 7.333 2.80 10.33 0.93 1.417 1.17 4.417 2.80 7.417 2.80 10.42 0.93 1.1503 1.17 4.430 2.80 7.417 2.80 10.42 0.93 1.1667 1.17 4.667 3.74 7.667 2.80 10.58 0.93 1.1667 1.17 4.667 3.74 7.667 2.80 10.58 0.93 1.179 1.17 4.179 3.74 7.750 2.80 10.58 0.93 1.183 1.17 4.750 3.74 7.750 2.80 10.58 0.93 1.1917 1.17 4.917 3.74 7.917 2.80 10.92 0.93 2.000 1.17 5.000 3.74 8.000 2.80 11.00 0.93 2.001 1.17 5.000 3.74 8.000 2.80 11.00 0.93 2.002 1.17 5.000 3.74 8.000 2.80 11.00 0.93 2.003 1.40 5.250 5.60 8.087 1.63 11.05 0.93 2.133 1.40 5.333 5.60 8.333 1.63 11.35 0.93 2.250 1.40 5.550 5.60 8.500 1.63 11.55 0.93 2.253 1.40 5.333 5.60 8.500 1.63 11.50 0.93 2.253 1.40 5.333 5.60 8.500 1.63 11.50 0.93 2.253 1.40 5.533 5.60 8.500 1.63 11.50 0.93 2.253 1.40 5.530 5.60 8.500 1.63 11.50 0.93 2.253 1.40 5.533 5.60 8.500 1.63 11.25 0.93 2.333 1.40 5.333 5.60 8.500 1.63 11.25 0.93 2.331 1.40 5.351 5.250 5.60 8.500 1.63 11.25 0.93 2.331 1.40 5.530 6.60 8.500 1.63 11.25 0.93 2.333 1.40 5.533 6.60 8.500 1.63 11.25 0.93 2.331 1.40 5.530 6.60 8.500 1.63 11.25 0.93 2.333 1.40 5.530 6.60 8.500 1.63 11.25 0.93 2.331 1.40 5.530 6.60 8.500 1.63 11.25 0.93 2.331 1.40 5.917 61.64 8.917 1.63 11.20 0.93 2.331 1.40 5.917 61.64 8.917 1.63 11.20 0.93 2.331 1.40 5.917 61.64 8.917 1.63 | | | | |
|--|--|--|--|--|--|
| Surface Area (ha) = 0.84 0.38 | TIME RAIN TIME R | | | | |
| 1.667 1.17 4.667 3.74 7.667 2.80 10.67 0.93 1.750 1.17 4.750 3.74 7.750 2.80 10.67 0.93 1.813 1.17 4.833 3.74 7.833 2.80 10.83 0.93 1.917 1.17 4.700 3.74 7.937 2.80 10.82 0.93 1.917 1.17 4.700 3.74 7.937 2.80 10.92 0.93 2.083 1.40 5.083 5.60 8.083 1.63 11.08 0.93 2.167 1.40 5.167 5.60 8.167 1.63 11.17 0.93 2.250 1.40 5.250 5.60 8.250 1.63 11.25 0.93 2.417 1.40 5.433 5.60 8.250 1.63 11.25 0.93 2.417 1.40 5.433 5.60 8.433 1.63 11.38 0.93 2.553 1.40 5.563 2.242 8.667 1.63 11.17 0.93 2.553 1.40 5.758 2.748 8.583 1.63 11.85 0.93 2.553 1.40 5.758 2.242 8.583 1.63 11.85 0.93 2.667 1.40 5.667 22.42 8.583 1.63 11.55 0.93 2.813 1.40 5.83 61.64 8.833 1.63 11.85 0.93 2.813 1.40 5.917 61.64 8.813 1.63 11.85 0.93 2.917 1.40 5.917 61.64 8.813 1.63 11.85 0.93 2.917 1.40 5.917 61.64 8.813 1.63 11.85 0.93 3.000 1.40 6.000 61.64 9.000 1.65 11.83 0.93 3.000 1.40 6.000 61.64 8.917 1.63 11.83 0.93 3.000 1.90 13.88 (ii) Unit Hyd. Tpeak (ms) = 0.28 0.08 **TOTALS** PEAK FLOW (CmS) = 0.28 0.08 **TOTALS** POTAL SANKING: STORAGE COEFF. IS SMALLER THAN TIME STEP! | TIME RAIN TIME RAIN TIME RAIN TIME RAIN TIME RAIN TIME mm/hr hrs m | | | | |
| (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: | TIME RAIN TIME RAIN TIME RAIN TIME RAIN TIME mm/hr hrs m | | | | |

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $(\text{ii}) \text{ TIME} = 89.0 \quad \text{Ia} = \text{Dep. Storage} \quad (\text{Above}) \\ (\text{ii}) \text{ TIME} \text{ STEP} (\text{OT}) \text{ SHOULD BE SMALLER OR EQUAL} \\ \text{THAN THE STORAGE COEFFICIENT.} \\ (\text{iii}) \text{ PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.} \\$

| CALIB STANDHYD (10022) ID= 1 DT= 5.0 min | Area Total | (ha)= Imp(%)= | 0.83 75.00 | Dir. | Conn. (%)= | 75.00 |
|---|-------------------------------------|--|------------------|--|------------|-------|
| Surface Area Dep. Storage Average Slope Length Mannings n | (ha)= (mm)= (%)= (m)= = | IMPERVI 0.6 1.0 1.0 74.3 0.01 | 2 0 0 9 | 0.21 1.00 2.00 40.00 0.290 | | |

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

| | | | | D HYETOGRA | | • | |
|--------------------|--------|-------|-------|------------|---------|-----------|-------|
| TIME | RAIN | TIME | RAIN | ' TIME | RAIN | TIME | RAIN |
| hrs | mm/hr | hrs | mm/hr | l' hrs | mm/hr | l hrs | mm/hr |
| 0.083 | 1.61 i | 3.083 | 2.57 | 6.083 | 11.57 I | 9.08 | 2.25 |
| 0.167 | 1.61 | 3.167 | 2.57 | 6.167 | 11.57 | 9.17 | 2.25 |
| 0.250 | 1.61 | 3.250 | 2.57 | 6.250 | 11.57 | 9.25 | 2.25 |
| | | | 2.57 | | | | |
| 0.333 | 1.61 | 3.333 | 2.57 | 6.333 | 11.57 | 9.33 | 2.25 |
| 0.417 | 1.61 | 3.417 | 2.57 | 6.417 | 11.57 | 9.42 | 2.25 |
| 0.500 | 1.61 | 3.500 | 2.57 | 6.500 | 11.57 | 9.50 | 2.25 |
| 0.583 | 1.61 | 3.583 | 2.57 | 6.583 | 5.14 | 9.58 | 2.25 |
| 0.667 | 1.61 i | 3.667 | 2.57 | 6.667 | 5.14 | 9.67 | 2.25 |
| 0.750 | 1.61 i | 3.750 | 2.57 | 6.750 | 5.14 | 9.75 | 2.25 |
| 0.833 | 1.61 | 3.833 | 2.57 | 6.833 | 5.14 | 9.83 | 2.25 |
| 0.917 | 1.61 | 3.917 | 2.57 | 6.917 | 5.14 | 9.92 | 2.25 |
| 1.000 | 1.61 | | 2.57 | 7.000 | 5.14 | 10.00 | 2.25 |
| | | 4.000 | | | 3.14 | | |
| 1.083 | 1.61 | 4.083 | 3.86 | 7.083 | 3.86 | 10.08 | 1.29 |
| 1.167 | 1.61 | 4.167 | 3.86 | 7.167 | 3.86 | 10.17 | 1.29 |
| 1.250 | 1.61 | 4.250 | 3.86 | 7.250 | 3.86 | | 1.29 |
| 1.333 | 1.61 | 4.333 | 3.86 | 7.333 | 3.86 | 10.33 | 1.29 |
| 1.417 | 1.61 | 4.417 | 3.86 | 7.417 | 3.86 | 10.42 | 1.29 |
| 1.500 | 1.61 i | 4.500 | 3.86 | 7.500 | 3.86 | 10.50 | 1.29 |
| 1.583 | 1.61 | 4.583 | 5.14 | 7.583 | 3.86 | 10.58 | 1.29 |
| 1.667 | 1.61 | 4.667 | 5.14 | 7.667 | 3.86 | | 1.29 |
| 1.750 | 1.61 | 4.750 | 5.14 | 7.750 | 3.86 | 10.75 | 1.29 |
| 1.833 | 1.61 | 4.833 | 5.14 | 7.833 | 3.86 | 10.83 | 1.29 |
| 1.917 | 1.61 | 4.917 | 5.14 | 7.917 | 3.86 | 10.92 | 1.29 |
| 2.000 | | | 5.14 | 8.000 | | 11.00 | 1.29 |
| 2.000 | 1.61 | 5.000 | | 0.000 | 3.86 | | |
| 2.083 | 1.93 | 5.083 | 7.72 | 8.083 | 2.25 | 11.08 | 1.29 |
| 2.167 2.250 | 1.93 | 5.167 | 7.72 | 8.167 | 2.25 | 11.17 | 1.29 |
| 2.250 | 1.93 | 5.250 | 7.72 | 8.250 | 2.25 | 11.25 | 1.29 |
| 2.333 | 1.93 | 5.333 | 7.72 | 8.333 | 2.25 | 11.33 | 1.29 |
| 2.417 | 1.93 l | 5.417 | 7.72 | 8.417 | 2.25 | 11.42 | 1.29 |
| 2.500 | 1.93 | 5.500 | 7.72 | 8.500 | 2 25 i | 11.50 | 1.29 |
| 2.583 | 1.93 | 5.583 | 30.86 | 8.583 | 2.25 | 11.58 | 1.29 |
| 2.667 | 1.93 | 5.667 | 30.86 | 8.667 | 2.25 | 11.67 | 1.29 |
| 2.750 | 1.93 | 5.750 | 30.86 | 8.750 | 2.25 | 11.75 | 1.29 |
| 2.730 | 1.93 | 5.833 | 84.88 | 8.833 | 2.25 | 11.73 | 1.29 |
| | | | | | 2.23 | | |
| 2.917 | 1.93 | 5.917 | 84.88 | 8.917 | 2.25 | 11.92 | 1.29 |
| 3.000 | 1.93 | 6.000 | 84.87 | 9.000 | 2.25 | 12.00 | 1.29 |
| Max.Eff.Inten.(mm/ | (hr)= | 84.88 | | 66.77 | | | |
| over (n | | 5.00 | | 15.00 | | | |
| | nin)= | 2.28 | | 11.35 (ii | ١ | | |
| Unit Hyd. Tpeak (m | .:<_ | 5.00 | | 15.00 | , | | |
| | ms)= | 0.30 | | 0.09 | | | |
| Unit Hyd. peak (c | _ms)= | 0.30 | | 0.09 | | | |
| PEAK FLOW (c | | 0.15 | | 0.03 | | ALS* | |
| PEAK FLUW (C | ems)= | 0.15 | | 0.03 | 0, | 170 (iii) | |

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

| Surface Area | (ha)= | 0.25 | 0.13 |
|---------------|-------|-------|-------|
| Dep. Storage | (mm)= | 1.00 | 1.00 |
| Average Slope | (%)= | 1.00 | 2.00 |
| Length | (m)= | 50.33 | 40.00 |
| Mannings n | = | 0.013 | 0.290 |

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

| | TRA | NSEORMEI | HYETOGR | ΔРН | _ | |
|--|---|---|--|---|--|---|
| TIME RAIN hers mm/hr mm/hr mm/hr 1.61 0.250 1.61 0.333 1.61 0.500 1.61 0.500 1.61 0.500 1.61 0.500 1.61 0.500 1.61 0.500 1.61 0.500 1.61 0.500 1.61 0.500 1.61 1.500 1.60 1.60 1.500 1.60 1.500 1.60 1.500 1.60 1.500 1.60 1.500 1.60 1.500 1.60 1.500 1.60 1.500 1.500 1.60 1.500 1.500 1.500 1.500 1.500 1.500 1.500 1.500 1.500 1.500 1.500 1.500 1.500 1.500 1.500 1.50 | TIME hrs. 3. 083 3. 167 3. 250 3. 3. 333 3. 417 3. 250 3. 3. 383 3. 417 3. 250 | RAIN mm/hr 2.577 2.577 2.5577 2.5577 2.5577 2.5577 2.5577 2.5577 2.5577 2.577 | HYETTORK | RAIN mm/hr: 11.57 | TIME hrs 9.17 9.17 9.17 9.58 9.33 9.42 9.50 10.00 10.18 10.10 10.15 10.1 | RAIN mmm/hr 2.255 |
| 2.333 1.93 2.417 1.93 2.500 1.93 2.583 1.93 2.667 1.93 2.750 1.93 2.833 1.93 2.917 1.93 | 5.333 5.417 5.500 5.583 5.667 5.750 5.833 5.917 | 7.72 7.72 7.72 30.86 30.86 30.86 84.88 84.88 | 8.333 8.417 8.500 8.583 8.667 8.750 8.833 8.917 | 2.25 2.25 2.25 2.25 2.25 2.25 2.25 2.25 | 11.33 11.42 11.50 11.58 11.67 11.75 11.83 11.92 | 1.29 1.29 1.29 1.29 1.29 1.29 1.29 |
| 2.750 1.93 2.833 1.93 | 5.750 5.833 | 30.86 84.88 | 8.750 8.833 | 2.25 2.25 2.25 | 11.75 11.83 | 1.29 |

| Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= | 84.88 5.00 1.81 (ii) 5.00 0.32 | 66.77 15.00 10.87 (ii) 15.00 0.09 | |
|--|--|---|---------------|
| onite nyu. peak (cms)= | 0.32 | 0.05 | *TOTALS* |
| PEAK FLOW (cms)= | 0.06 | 0.02 | 0.074 (iii) |
| TIME TO PEAK (hrs)= RUNOFF VOLUME (mm)= | 6.00 63.30 | 6.08 42.31 | 6.00 56.15 |
| TOTAL RAINFALL (mm)= | 64.30 | 64.30 | 64.30 |
| RUNOFF COFFETCIENT = | 0.98 | 0.66 | 0.87 |

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

 CN* = 89.0 Ia = Dep. Storage (Above)

 (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL

 THAN THE STORAGE COEFFICIENT.

 (iii) PEAK FLOW DOES NOT INCLINE RASSES (DW 1F ANY

| (iii) PEAK FLOW | DOES NO | T INCLUDE BASEF | LOW IF ANY. | |
|---|------------------------|------------------------------------|--------------------------------------|-------|
| CALIB STANDHYD (10032) | Area Total | (ha)= 0.39 Imp(%)= 79.00 | Dir. Conn.(%)= | 79.00 |
| Surface Area Dep. Storage Average Slope | (ha)= (mm)= (%)= | IMPERVIOUS 0.31 1.00 1.00 | PERVIOUS (i) 0.08 1.00 2.00 | |
| Length Mannings n | (m)= = | 50.99 0.013 TRANSFORMED TO | 40.00 0.290 5.0 MIN. TIME | STEP. |

| Surface A Dep. Stor Average S Length Mannings | rea age lone | (ha)= (mm)= (%)= (m)= | 0.52 1.00 1.00 69.76 0.013 | | RVIOUS (i 0.21 1.00 2.00 40.00 0.290 |) | | |
|---|---|--|--|---|---|--|--|--|
| NOTE: | RAINFA | ALL WAS TI | RANSFORME | D TO | 5.0 MIN. | TIME STE | Р. | |
| | 0.3417 0.5083 0.6750 0.7550 0.7550 0.833 0.6750 1.083 1.16250 1.333 1.667 1.7500 1.833 1.667 1.7500 1.833 2.167 2.2500 2.333 2.2500 2.2 | 1.61 1.61 1.61 1.61 1.61 1.61 1.61 1.61 | TIME hrss 3.083 3.1670 3.2333 3.1670 3.2333 3.583 3.667 3.750 3.833 3.667 4.250 4.083 4.417 4.250 4.333 4.417 5.000 5.583 5.155 3.35 5.155 5.35 5.3 | RAIN mm/hr 2.577 22.577 22.557 22.557 22.557 22.557 22.557 22.577 27.77 | 6.983 6.667 6.750 6.833 6.917 7.000 7.083 7.167 7.250 7.250 8.000 8.083 8.167 8.333 8.417 8.500 8.583 8.667 8.583 8.667 8.763 | RAINT 11.577 111.577 111.577 111.577 111.577 111.577 111.577 111.577 111.577 111.577 111.577 111.577 111.577 111.577 111.577 12.144 15.5.1 | 9.08 9.07 9.25 9.33 9.42 9.50 9.58 9.67 9.75 9.83 9.90 10.08 10.10 10.25 10.35 10.42 10.58 10.67 10.58 | 2.25 2.25 2.25 2.25 2.25 2.25 2.25 2.25 |
| Max.Eff.I Storage C Unit Hyd. Unit Hyd. PEAK FLOW TIME TO P RUNOFF VO TOTAL RAI RUNOFF CO | EAK (LUME NFALL EFFICIEN | n/hr) = (min) = (min) = (min) = (cms) = (cms) = (hrs) = (mm) = (mm) = NT = | 84.88 5.00 2.20 5.00 0.30 0.12 6.00 63.30 64.30 0.98 | (ii) | 66.77 15.00 11.27 (ii 15.00 0.09 0.03 6.08 42.31 64.30 0.66 | *TOT 0. 6. 57 64 | TALS* 146 (iii) 3.00 7.20 4.30 3.89 | |
| CN | PROCEDUR * = 89 | RE SELECTI | ED FOR PE = Dep. S | ERVIOUS Storage | LOSSES: (Above) | ! | | |

| | TRANSFORME | ED HYETOGRAPH | _ |
|--|--|--|--|
| TIME RAIN hrs mm/hr 0.083 1.61 0.167 1.61 0.250 1.61 0.333 1.61 | 3.083 2.57 3.167 2.57 3.250 2.57 | 6.167 11.57 | hrs mm/hr 9.08 2.25 9.17 2.25 9.25 2.25 9.33 2.25 |
| 0.417 1.61 0.500 1.61 0.583 1.61 0.667 1.61 0.750 1.61 0.833 1.61 | 3.333 2.57 3.417 2.57 3.500 2.57 3.583 2.57 3.667 2.57 3.750 2.57 3.833 2.57 3.917 2.57 | 6.417 11.57 6.500 11.57 6.583 5.14 | 9.42 2.25 9.50 2.25 9.58 2.25 |
| 1.000 1.61 1.083 1.61 1.167 1.61 1.250 1.61 1.333 1.61 1.417 1.61 1.500 1.61 | 4.000 2.57 4.083 3.86 4.167 3.86 4.250 3.86 4.333 3.86 4.417 3.86 4.500 3.86 | 7 500 3 86 | 10.00 2.25 10.08 1.29 10.17 1.29 10.25 1.29 10.33 1.29 10.42 1.29 10.50 1.29 |
| 1.750 1.61 1.833 1.61 1.917 1.61 2.000 1.61 2.083 1.93 | 5.000 5.14 5.083 7.72 | 7.583 3.86 7.667 3.86 7.750 3.86 7.833 3.86 7.917 3.86 8.000 3.86 8.083 2.25 | 10.58 1.29 10.67 1.29 10.75 1.29 10.83 1.29 10.92 1.29 11.00 1.29 11.00 1.29 |
| 2.333 1.93 2.417 1.93 2.500 1.93 2.583 1.93 2.667 1.93 2.750 1.93 | 5.250 | 8.333 2.25 8.417 2.25 8.500 2.25 8.583 2.25 8.667 2.25 | 11.25 |
| 2.917 1.93 | 5.917 84.88 | 8.917 2.25 | 11.92 1.29 12.00 1.29 |
| Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= | 84.88 5.00 1.82 (ii) 5.00 0.32 | 66.77 10.00 6.67 (ii) 10.00 0.14 | |
| PEAK FLOW (CMS)= TIME TO PEAK (hrS)= RUNOFF VOLUME (mm)= TOTAL RAINFALL (mm)= RUNOFF COEFFICIENT = | 0.07 6.00 63.30 64.30 0.98 | 0.01 0 6.00 42.31 5 64.30 6 | TALS* .085 (iii) 6.00 8.89 4.30 0.92 |
| **** WARNING: STORAGE COEFF. | IS SMALLER THAN | TIME STEP! | |
| (i) CN PROCEDURE SELECTE CN* = 89.0 I a (ii) TIME STEP (DT) SHOUL THAN THE STORAGE CO (iii) PEAK FLOW DOES NOT : | <pre>= Dep. Storage LD BE SMALLER OF EFFICIENT.</pre> | (Above) R EQUAL | |
| CALIB | | | |
| CALIB STANDHYD (10041) Area ID= 1 DT= 5.0 min Total Ir | (ha)= 0.35 np(%)= 69.00 | Dir. Conn.(%)= | 69.00 |
| | 0.24 1.00 1.00 48.30 | ERVIOUS (i) 0.11 1.00 2.00 40.00 0.290 | |
| NOTE: PATNEALL WAS TO | PANSEOPMED TO | 5 0 MTN TTME ST | ED |

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

TIME RAIN TIME R

| 0.417 1.61 3.417 2.57 6.417 11.57 9.42 2.25 0.500 1.61 3.500 2.57 6.500 11.57 9.50 2.25 0.583 1.61 3.583 2.57 6.583 5.14 9.58 2.25 0.667 1.61 3.667 2.57 6.667 5.14 9.67 2.25 0.730 1.66 3.833 2.57 6.667 7.57 6.70 7.70 9.50 7.25 0.730 1.66 3.833 2.57 6.67 7.57 6.73 5.14 9.67 2.25 0.730 1.66 3.833 2.57 6.733 5.14 9.83 2.55 0.731 1.61 3.833 2.57 6.733 5.14 9.83 2.55 0.931 1.61 3.833 2.57 6.917 5.14 9.83 2.55 1.000 1.61 4.000 2.57 7.000 5.14 10.00 2.25 1.000 1.61 4.003 3.86 7.033 3.86 10.08 1.29 1.1667 1.61 4.167 3.86 7.250 3.86 10.17 1.29 1.1501 1.61 3.33 3.86 7.250 3.86 10.17 1.29 1.333 1.61 4.333 3.86 7.333 3.86 10.33 1.29 1.333 1.61 4.333 3.86 7.333 3.86 10.33 1.29 1.583 1.61 4.500 3.86 7.500 3.86 10.50 1.29 1.583 1.61 4.583 5.14 7.583 3.86 10.58 1.29 1.667 1.61 4.667 5.14 7.750 3.86 10.75 1.29 1.750 1.61 4.750 5.14 7.750 3.86 10.75 1.29 1.750 1.61 4.833 5.14 7.750 3.86 10.75 1.29 1.750 1.61 4.833 5.14 7.750 3.86 10.75 1.29 1.750 1.61 4.833 5.14 7.750 3.86 10.75 1.29 1.750 1.61 4.833 5.14 7.83 3.86 10.75 1.29 1.750 1.61 4.833 5.14 7.750 3.86 10.75 1.29 1.750 1.61 4.833 5.14 7.750 3.86 10.75 1.29 1.750 1.61 4.750 5.14 7.750 3.86 10.75 1.29 1.750 1.61 4.750 5.14 7.750 3.86 10.75 1.29 1.750 1.61 4.750 5.14 7.750 3.86 10.75 1.29 1.750 1.61 4.750 5.14 7.750 3.86 10.75 1.29 1.750 1.61 4.750 5.14 7.750 3.86 10.75 1.29 1.750 1.61 4.750 5.14 7.750 3.86 10.75 1.29 1.750 1.61 4.750 5.14 7.750 3.86 10.75 1.29 1.750 1.750 1.750 3. | 1.083 |
|--|--|
| (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN° = 89.0 I as Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. CALIB STANDHYD (10042) Area (ha) = 0.38 ID= 1 DT= 5.0 min Total Imp(%) = 74.00 Dir. Conn.(%) = 74.00 | CALIB STANDHYD (10012) Area (ha)= 0.23 Dir. Conn.(%)= 78.00 |
| IMPERVIOUS PERVIOUS (1) | TIME RAIN TIME R |
| 1.750 1.61 4.750 5.14 7.750 3.86 10.75 1.29 1.833 1.61 4.833 5.14 7.833 3.86 10.83 1.29 1.917 1.61 4.917 5.14 7.917 3.86 10.92 1.29 2.000 1.63 5.003 5.14 8.000 3.86 11.00 1.29 2.010 1.63 5.003 5.14 8.000 3.86 11.00 1.29 2.010 1.63 7.77 8.167 2.25 11.17 1.29 2.167 1.93 5.167 7.72 8.167 2.25 11.17 1.29 2.250 1.93 5.250 7.72 8.250 2.25 11.25 1.29 2.333 1.93 5.333 7.72 8.333 2.25 11.33 1.29 2.417 1.93 5.417 7.72 8.417 2.25 11.42 1.29 2.500 1.93 5.500 7.72 8.437 2.25 11.15 1.29 2.501 1.93 5.503 7.72 8.47 2.25 11.15 1.29 2.502 2.333 1.93 5.333 3.86 8.560 2.25 11.33 1.29 2.503 1.93 5.533 3.868 8.530 2.25 11.50 1.29 2.503 1.93 5.533 3.868 8.560 2.25 11.50 1.29 2.633 1.93 5.533 3.868 8.833 2.25 11.33 1.29 2.917 1.93 5.917 84.88 8.817 2.25 11.17 1.29 2.917 1.93 5.917 84.88 8.817 2.25 11.92 1.29 3.000 1.93 6.000 84.87 9.000 2.25 11.90 1.29 MAX.Eff.Inten.(mm/hr) = | 2.417 1.93 5.417 7.72 8.417 2.25 11.42 2.500 1.93 5.500 7.72 8.500 2.25 11.50 1 2.583 1.93 5.583 30.86 8.583 2.25 11.50 1 2.667 1.93 5.667 30.86 8.667 2.25 11.61 1 2.667 1.93 5.67 30.86 8.667 2.25 11.69 1 2.750 1.93 5.750 30.88 8.67 2.25 11.73 1 2.831 1.93 5.750 30.88 8.693 2.25 11.73 1 2.831 1.93 5.917 84.88 8.917 2.25 11.93 1 3.000 1.93 6.000 84.87 9.000 2.25 12.00 1 MAX.Eff.Inten.(mm/hr) = |
| (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN° 89.0 Ia = Dep Storage (Above) (ii) TME STORAGE CODEFICIENT ENGLIER OR EQUAL (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. CALIB STANDHYD (10051) Area (ha)= 0.37 STANDHYD (10051) Area (ha)= 66.00 Dir. Conn.(%)= 66.00 IMPERVIOUS PERVIOUS (i) | CALIB STANDHYD (10052) Area (ha) = 0.36 Dir. Conn.(%) = 62.00 |
| Surface Area (ha) = 10.24 Surface Area (mm) = 1.00 1.00 1.00 Average Slope (%) = 1.00 2.00 Length (m) = 49.67 40.00 Surface Area (m) = 40.01 Surface | TIME RAIN TIME RAIN TIME RAIN TIME RAIN TIME TIM |

1.29 1.29 1.29 1.29 1.29 1.29 1.29

```
Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                   66.77
15.00
10.85 (ii)
15.00
0.09
                                                                                                                                                                                                                                                                                                                       84.88
5.00
1.78 (ii)
5.00
0.32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     *TOTALS*
0.068 (iii)
6.00
55.31
64.30
0.86
                                         PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                  0.05
6.00
63.30
64.30
0.98
                                                                                                                                                                                                                                                                                                                                                                                                                                                      0.02
6.08
42.31
64.30
0.66
**** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                         (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^2=89.0 Ia = Dep. Storage (Above) if TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.

(iii) PEAK FLOW DOES NOT INCLIDE BASEFLOW IF ANY.
  CALIB
STANDHYD ( 10062)
ID= 1 DT= 5.0 min
                                                                                                                                                                                                                    Area (ha)= 0.66 Total Imp(%)= 62.00 Dir. Conn.(%)= 62.00
                                                                                                                                                                                                                                                                                      IMPERVIOUS

0.41

1.00

1.00

66.33

0.013
                                                                                                                                                                                                                                                                                                                                                                                                                           PERVIOUS (i)
0.25
1.00
2.00
40.00
0.290
                                         Surface Area (ha)=
Dep. Storage (mm)=
Average Slope (%)=
Length (m)=
Mannings n =
                                                                                NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                    TIME RAIN | TIME RAIN | TIME S | 1.00 | TIME                                                                                                                                                                                                                                                                                                                                                       TRANSFORMED HYETOGRAPH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | TABLE | TABL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TIME hrs 0.083 0.0667 0.250 0.250 0.333 0.0667 0.500 0.883 0.667 0.750 0.833 0.667 1.000 0.750 0.833 0.667 0.250 0.833 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0
                                                                                                                                                                                                                                     Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                  84.88
5.00
2.13 (ii)
5.00
0.31
                                                                                                                                                                                                                                                                                                                                                                                                                                                   66.77
15.00
11.20 (ii)
15.00
0.09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     *TOTALS*
0.125 (iii)
                                            PEAK FLOW (cms)=
                                                                                                                                                                                                                                                                                                                             0.10
                                                                                                                                                                                                                                                                                                                                                                                                                                                               0.03
                                            CN* = 89.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                         -----
  CALIB
STANDHYD ( 10072)
ID= 1 DT= 5.0 min
                                                                                                                                                                                                                       Area (ha)= 0.74 
Total Imp(\%)= 71.00 Dir. Conn.(\%)= 71.00
                                                                                                                                                                                                                                                                        IMPERVIOUS PERVIOUS (i)
0.53 0.21
1.00 1.00
1.00 2.00
                                            Surface Area
Dep. Storage
```

| | Average Slo Length Mannings n | ope | (%)= (m)= = | 1.00 70.24 0.013 | | 2.00 40.00 0.290 | | | |
|------|--|--|--|--|---|--|--|--|---|
| | | | ALL WAS TR | | | 5.0 MIN. T | TIME STE | Р. | |
| | | TIME hrs 0.083 0.167 0.250 0.167 0.250 0.167 0.250 0.417 0.250 0.417 0.750 0.500 0.5 | RAIN mm/hcl 1 1.66 | TIRA TIME TIME TIME TIME TIME TIME TIME TIME | NSFORMM RAIN MINIMAL PROPERTY 2.577 | HYETOGRAF Thes 6.16.7 6.16.7 6.250 6.333 6.417 6.503 6.457 6.503 7.417 7.500 7.333 7.917 7.500 8.003 7.988 7.917 7.500 8.003 7.988 8.007 8.000 8.083 8.017 8.000 8.083 8.017 8.000 8.083 9.010 8.083 9.010 | PH RAIN PH | TIME hrs 9.07 9.17 9.17 9.25 9.33 9.42 9.50 10.08 9.63 9.83 9.92 10.00 10.08 10.07 10.10 1 | RAIN/hr 2.25 2.2 |
| | Max.Eff.Ind Storage Cod Unit Hyd. I Unit Hyd. I | ten.(mm over (eff. (Tpeak (peak (| n/hr)= (min)= (min)= (min)= (cms)= | 84.88 5.00 2.21 5.00 0.30 | (ii) | 66.77 15.00 11.28 (ii) 15.00 0.09 |) | | |
| | PEAK FLOW TIME TO PEA RUNOFF VOLU TOTAL RAINI RUNOFF COE | | (cms)= (hrs)= (mm)= (mm)= | | | 0.03 6.08 42.31 64.30 0.66 | 0. 6. 57 64 | 148 (iii) | |
| it : | CN* (ii) TIME | ROCEDUF = 89 STEP (| RE SELECTE 0.0 Ia (DT) SHOUL FORAGE COE | D FOR PE = Dep. S D BE SMA | RVIOUS torage LLER OR | LOSSES: (Above) R EQUAL | | | |

| CALIB |

| *** | RUNOFF VOL TOTAL RAIN RUNOFF COE ** WARNING: (i) CN P CN* (ii) TIME | STORAGE | COEFF. : | IS SMALLE | R THAN | | (| 4.30).86 | |
|--------------------|---|---|--|---|--|---|--|--|---|
| | THAN (iii) PEAK | THE STO | RÁGE COI ES NOT | EFFICIENT INCLUDE E | r. BASEFLOW | IF ANY. | | | |
| CA ST ID= | ALIB ANDHYD (10 : 1 DT= 5.0 | 061) min | Area Total I | (ha)= np(%)= 6 | 0.65 55.00 | Dir. Conn. | (%)= 6 | 55.00 | |
| | Surface Ar Dep. Stora Average S1 Length Mannings n | ea (ge (| | IMPERVIOU 0.42 1.00 1.00 65.83 0.013 | JS PE | RVIOUS (i) 0.23 1.00 2.00 40.00 0.290 | | | |
| | NOTE: | RAINFAL | L WAS TI | RANSFORME | D TO | 5.0 MIN. T | IME STE | EP. | |
| | | TIME 0.083 0.167 0.083 0.167 0.250 0.3333 0.417 0.5837 0.917 0.7583 0.917 1.0837 1.14317 1.5803 1.667 1.7500 1.8333 1.667 2.2503 2.417 2.2083 2.417 2.2083 2.417 2.2083 2.417 2.2083 2.417 2.2083 2.417 2.2083 2.417 2.2083 | 1.61 1.61 1.61 1.61 1.61 1.61 1.61 1.61 | 3.083 3.167 3.250 3.333 3.417 3.500 3.583 3.667 3.783 3.783 3.783 4.067 4.250 4.333 4.167 4.250 4.250 6.250 | 2.57 2.57 2.57 2.57 2.57 2.57 2.57 2.57 | 6.583 6.667 6.583 6.667 6.875 6.833 7.003 7.003 7.203 7.203 7.203 7.333 7.417 7.503 7.503 7.433 7.457 7.833 7.457 7.833 8.203 | 11 577 111 577 111 577 111 577 115 571 15 514 15 5 14 15 5 14 16 5 14 17 5 14 18 66 18 86 18 86 | 9.08 9.17 9.25 9.33 9.42 9.50 9.58 9.67 9.75 9.83 9.92 10.00 10.08 10.17 10.25 10.33 10.42 10.50 10.58 | RAIM mm/h/2 2.25 2.25 2.25 2.25 2.25 2.25 2.25 2. |
| | Max.Eff.In Storage Co Unit Hyd. Unit Hyd. | ten.(mm/ over (m eff. (m Tpeak (m peak (c | hr)= in) in)= in)= ns)= | | | 66.77 15.00 11.19 (ii) 15.00 0.09 | | ΓΔΙ S * | |
| | PEAK FLOW TIME TO PE RUNOFF VOL TOTAL RAIN RUNOFF COE | UME (I | ns)= rs)= nm)= nm)= = | 0.10 6.00 63.30 64.30 0.98 | | 0.03 6.08 42.31 64.30 0.66 | 55 64 | TALS* .125 (iii) 5.00 5.94 4.30).87 |) |
| *** | * WARNING: | | | | | | | | |
| | (I) CN P | ROCEDURE | SELECTI | ED FUK PI | -V41002 | LUSSES: | | | |

| STANDHYD (10071) ID= 1 DT= 5.0 min | Area Total | (ha)= Imp(%)= | 0.72 60.00 | Dir. Conn.(%)= | 60.00 |
|---|-------------------------------------|--|------------------|--|-------|
| Surface Area Dep. Storage Average Slope Length Mannings n | (ha)= (mm)= (%)= (m)= = | IMPERVI 0.4 1.0 1.0 69.2 0.01 | 3 0 0 8 | PERVIOUS (i) 0.29 1.00 2.00 40.00 0.290 | |

| Length Mannings n | (m)= = | 0.013 | | 40.00 0.290 | | | |
|--------------------------|--|-----------------------|-------------------|---------------------|------------------|--------------|-------|
| | RAINFALL WAS T | | | | | | |
| | | TD.4 | NCEODNE | D INCETOCOA | DII | | |
| | TTME RATN | TTMF | RATN | D HYETOGRA | PH | l TTMF | RAIN |
| | hrs mm/hr | hrs | mm/hr | ' hrs | mm/hr | hrs | mm/hr |
| | 0.083 1.61 | 3.083 | 2.57 | 6.083 | 11.57 11.57 | 9.08 | 2.25 |
| | 0.250 1.61 | 3.250 | 2.57 | 6.250 | 11.57 | 9.25 | 2.25 |
| | 0.333 1.61 | 3.333 | 2.57 | 6.333 | 11.57 | 9.33 | 2.25 |
| | 0.500 1.61 | 3.500 | 2.57 | 6.500 | 11.57 | 9.50 | 2.25 |
| | 0.583 1.61 | 3.583 | 2.57 | 6.583 | 5.14 | 9.58 | 2.25 |
| | 0.750 1.61 | 3.750 | 2.57 | 6.750 | 5.14 | 9.75 | 2.25 |
| | 0.833 1.61 | 3.833 | 2.57 | 6.833 | 5.14 | 9.83 | 2.25 |
| | 1.000 1.61 | 4.000 | 2.57 | 7.000 | 5.14 | 10.00 | 2.25 |
| | 1.083 1.61 | 4.083 | 3.86 | 7.083 | 3.86 | 10.08 | 1.29 |
| | 1.250 1.61 | 4.250 | 3.86 | 7.250 | 3.86 | 10.17 | 1.29 |
| | 1.333 1.61 | 4.333 | 3.86 | 7.333 | 3.86 | 10.33 | 1.29 |
| | 1.500 1.61 | 4.500 | 3.86 | 7.500 | 3.86 | 10.42 | 1.29 |
| | 1.583 1.61 | 4.583 | 5.14 | 7.583 | 3.86 | 10.58 | 1.29 |
| | 1.750 1.61 | 4.750 | 5.14 | 7.750 | 3.86 | 10.75 | 1.29 |
| | 1.833 1.61 | 4.833 | 5.14 | 7.833 | 3.86 | 10.83 | 1.29 |
| | 2.000 1.61 | 5.000 | 5.14 | 8.000 | 3.86 | 11.00 | 1.29 |
| | 2.083 1.93 | 5.083 | 7.72 | 8.083 | 2.25 | 11.08 | 1.29 |
| | 2.250 1.93 | 5.250 | 7.72 | 8.250 | 2.25 | 11.25 | 1.29 |
| | 2.333 1.93 | 5.333 | 7.72 | 8.333 | 2.25 | 11.33 | 1.29 |
| | 2.500 1.93 | 5.500 | 7.72 | 8.500 | 2.25 | 11.50 | 1.29 |
| | 2.583 1.93 | 5.583 | 30.86 | 8.583 | 2.25 | 11.58 | 1.29 |
| | 2.750 1.93 | 5.750 | 30.86 | 8.750 | 2.25 | 11.75 | 1.29 |
| | 2.833 1.93 | 5.833 | 84.88 | 8.833 | 2.25 | 11.83 | 1.29 |
| | TIME RAIN hrs mm/hr 0.083 1.61 0.233 1.61 0.500 1.61 0.500 1.61 0.500 1.61 0.500 1.61 0.500 1.61 0.500 1.61 0.500 1.61 0.500 1.61 0.500 1.61 1.000 1.61 1.000 1.61 1.000 1.61 1.083 1.61 1.000 1.61 1.083 1.61 1.000 1.61 1.083 1.61 1.000 1.61 1.083 1.61 1.000 1.61 1.083 1.61 1.000 1.61 1.200 1.61 1. | 6.000 | 84.87 | 9.000 | 2.25 | 12.00 | 1.29 |
| Max.Eff.In | ten.(mm/hr)= over (min) eff. (min)= Tpeak (min)= peak (cms)= | 84.88 | | 66.77 | | | |
| Storage Co | eff. (min)= | 2.19 | (ii) | 15.00 11.26 (ii) | | | |
| Unit Hyd. | Tpeak (min)= | 5.00 | | 15.00 | | | |
| onit nyu. | peak (Cilis)= | 0.31 | | 0.05 | *TOT | TALS* | |
| PEAK FLOW | (cms)= | 0.10 | | 0.04 | 0. | .134 (iii) | 1 |
| RUNOFF VOL | UME (mm)= | 63.30 | | 42.31 | 54 | 1.90 | |
| TOTAL RAIN RUNOFF COE | (cms)= AK (hrs)= UME (mm)= FALL (mm)= FFICIENT = | 64.30 0.98 | | 64.30 0.66 | 64 | 1.30).85 | |
| **** WARNING: | | | | | | | |
| | ROCEDURE SELECT | | | | | | |
| CN* (ii) TTMF | = 89.0 Ia STEP (DT) SHOU | = Dep. S LD BE SMA | torage LLER OR | (Above) EOUAL | | | |
| THAN | THE STORAGE CO | EFFICIENT | | | | | |
| (111) PEAK | FLOW DOES NOT | INCLUDE B | ASEFLOW | IF ANY. | | | |
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| CALIB STANDHYD (10081) ID= 1 DT= 5.0 min | Area Total | (ha)= Imp(%)= | 0.21 52.00 | Dir. Conn.(%)= | 52.00 |
|---|---------------|------------------|---------------|----------------|-------|
| | | | | | |
| | | IMPERVI | ous | PERVIOUS (i) | |
| Surface Area | (ha)= | 0.1 | 1 | 0.10 | |
| | | | | | |
| Dep. Storage | (mm)= | 1.0 | | 1.00 | |
| Average Slope | (%)= | 1.0 | 0 | 2.00 | |
| Length | (m)= | 37.4 | | 40.00 | |
| | | | | | |

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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.63 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.93 | 1.
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5.083
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5.917
6.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        84.88
5.00
1.51 (ii)
5.00
0.33
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10.00
5.36 (ii)
10.00
0.16
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0.048 (iii)
6.00
60.55
64.30
0.94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mM)=
TOTAL RAINFALL (mM)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0.04
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6.00
42.31
64.30
0.66
                                                                                  Max.Eff.Inten.(mm/hr)=
over (min)=
storage Coeff. (min)=
unit Hyd. Tpeak (min)=
unit Hyd. peak (cms)=
TIME TO PEAK
TIME TO PEAK
TOTTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            84.88
5.00
1.51 (ii)
5.00
0.33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    66.77
15.00
10.58 (ii)
15.00
0.09
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0.03
6.00
63.30
64.30
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0.66
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0.037 (iii)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^\circ = 89.0 Ia = Dep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                       ** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\pm}=89.0 Ia = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CALIB STANDHYD ( 10092) | Area (ha)= 0.63 | Dir. Conn.(%)= 81.00 | D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       IMPERVIOUS

0.51

1.00

1.00

64.81

0.013
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0.12
1.00
2.00
40.00
0.290
     CALTB (ha)= 0.21 STANDHYD (10082) Area (ha)= 0.21 Total Imp(%)= 87.00 Dir. Conn.(%)= 87.00 IMPERVIOUS (i) 0.03
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                       RAIN
mm/hr
1.61
1.61
1.61
1.61
1.61
1.61
1.61
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RAIN
mm/hr
2.57
2.57
2.57
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2.57
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mm/hr
11.57 |
11.57 |
11.57 |
11.57 |
11.57 |
11.57 |
5.14 |
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TIME
hrs
6.083
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over (min)
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Unit Hyd. peak (cms)=
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TIME TO PEAK (hrs)=
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TOTAL RAINFALL (mm)=
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over (min)=
Storage Coeff. (min)=
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PEAK FLOW (cms)=
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           *TOTALS*
0.139 (iii)
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CN° = 89.0 Ia = Dep. Storage (Above)

(ii) TIME STEP (DT) SMOULD BE SMALLER OR EQUAL

THAN THE STORAGE COEFFICIENT.

(iii) PEAK FLOW DOES NOT INCLIDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0.12
6.00
63.30
64.30
0.98
***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IMPERVIOUS

a) = 0.37

m) = 1.00

%) = 1.00

m) = 57.74

= 0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PERVIOUS (i)
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2.00
40.00
0.290
                                                                                             Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                (ha)=
(mm)=
(%)=
(m)=
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                                                                                                                                                                                                                                                                          RAIN mm/hr | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 11.57 | 1
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| 2.167 1.93 2.250 1.93 2.333 1.93 2.417 1.93 2.500 1.93 2.583 1.93 2.667 1.93 2.833 1.93 2.917 1.93 3.000 1.93 | 5.333 7.77 5.417 7.77 5.500 7.77 5.583 30.86 5.667 30.86 5.750 30.86 5.833 84.86 5.833 84.86 5.833 84.86 | 2 8.417 6 8.583 6 8.667 6 8.750 8 8.833 8 8.917 7 9.000 | 2.25 11.25 2.25 11.32 2.25 11.42 2.25 11.58 2.25 11.67 2.25 11.75 2.25 11.92 2.25 12.00 | 1.29 1.29 1.29 1.29 1.29 1.29 1.29 1.29 |
|--|---|---|---|--|
| over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. Tpeak (min)= Unit Thyd. peak (cms)= PEAK FLOW (cms)= FIME TO PEAK (fr)= RUNOFF VOLUME (mm)= RUNOFF COEFFICIENT = RUNOFF COEFFICIENT = ***** WARNING: STORAGE COEFF. (i) CN PROCEDURE SELECT | 5.00 2.35 (ii) 5.00 0.30 0.12 6.00 63.30 64.30 0.98 | 15.00 11.42 15.00 0.09 0.05 6.08 42.31 64.30 0.66 N TIME STEP | 0.163 (iii) 6.00 53.85 64.30 0.84 | |
| CN* = 89.0 Interpretation of the control of the con | (ha)= 0.88 mp(%)= 72.00 | OW IF ANY. | . (%)= 72.00) | |
| NOTE: RAINFALL WAS T | RANSFORMED TO | 5.0 MIN. | TIME STEP. | |
| 1-817 1-01 1-2000 1-61 2-000 1-91 2-167 1-93 2-250 1-93 2-333 1-93 2-417 1-93 2-500 1-93 | 4.937 5.14 5.000 5.14 5.083 7.75 5.167 7.75 5.250 7.75 5.333 7.75 5.417 7.75 5.500 7.75 | 4 7.917 | RAIN TIME mm/hr 11.577 9.05 11.577 9.275 11.577 9.321 11.577 9.342 11.577 9.58 5.144 9.75 5.144 | RAIN mm/hr 2.25 2.25 2.25 2.25 2.25 2.25 2.25 2.2 |
| Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= PEAK FLOW (cms)= TIME TO PEAK (hrs)= RUNOFF VOLUME (mm)= TOTAL RAINFALL (mm)= RUNOFF COEFFICIENT = ***** WARNING: STORAGE COEFF. (i) CN PROCEOURE SELECT CN° = 89.0 Ia (ii) TIME STEP (DT STRAGE COEFILANT THAN THE STORAGE COEFILANT THE STORAGE COEF | 0.15 6.00 63.30 64.30 0.98 IS SMALLER THAN ED FOR PERVIOUS = Dep. Storage LD BE SMALLER (EFFICIENT (| 0.05 6.08 42.31 64.30 0.66 N TIME STEP S LOSSES: e (Above) DR EQUAL | *TOTALS* 0.195 (iii) 6.00 54.69 64.30 0.85 | |
| | TMPERVTOUS I | Dir. Conn | .(%)= 78.00 | |
| Surface Area (ha)= Dep. Storage (mm)= Average Slope (%)= Length (m)= Mannings n = | 0.76 1.00 1.00 80.42 0.013 | 0.21 1.00 2.00 40.00 0.290 | | |
| TIME RATN hrs mm/hr 0.083 1.61 0.167 1.61 0.250 1.61 0.333 1.61 0.400 1.667 1.61 0.750 1.61 0.833 1.61 0.750 1.61 1.083 1.61 1.0917 1.61 1.083 1.61 1.1833 1.61 1.1833 1.61 1.1833 1.61 1.1833 1.61 1.1917 1.61 1.200 1.61 1.250 1.61 | TIME RATH TIME RATH 3.083 1.67 2.55 3.250 2.53 3.417 2.55 3.3417 2.55 3.417 2.55 3.417 2.55 3.417 2.55 3.417 2.55 3.417 2.55 3.417 2.55 3.417 2.55 3.417 2.55 3.417 2.55 3.417 2.55 3.417 2.55 3.417 2.55 3.417 2.55 3.417 3.41 4.083 3.51 4.417 3.81 4.417 3.81 4.417 3.81 4.500 3.38 4.417 3.81 4.500 3.38 4.500 3.51 5.517 | MED HYETOGRA N TIME | | RAIN mm/hr 2 . 25 . 25 . 25 . 25 . 2 . 25 . 2 . 25 . 2 . 2 |
| Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. Tpeak (cms)= PEAK FLOW TIME TO PEAK (hrs)= RUNOFF VOLUME (mm)= RUNOFF COEFFICIENT = | 84.88 5.00 2.39 (ii) 5.00 0.30 0.18 6.00 63.30 64.30 0.98 | 66.77 10.00 7.36 (iii 10.00 0.13 0.03 6.00 42.31 64.30 0.66 | *TOTALS* 0.211 (iii) 6.00 58.68 64.30 0.91 | |

| Sto Unit Unit Unit In | K FLOW IE TO PE IOFF VOL TAL RAIN IOFF COE | over (eff. (Tpeak (peak (| m/hr)= (min) (min)= (min)= (cms)= | 5.750 5.833 5.917 6.000 84.88 5.00 2.32 5.00 0.30 | | 8.750 8.833 8.917 9.000 66.77 15.00 11.39 (ii) | | | |
|---|--|--|--|---|---|---|---|---|------|
| PEAI TIMI RUNN TOT. RUNN TOT. RUNN (i (ii) (ii) CALIB STANDH Dal D STANDH Dal D Sur Dep Ave | K FLOW IE TO PE IOFF VOL TAL RAIN IOFF COE | AK UME IFALL FFICIEN | (cms)= (hrs)= | | | 11.39 (11, 15.00 0.09 | | | |
| ***** WAI (i (ii CALIB STANDH) ID= 1 D Sur Dep Ave | RNING: | | (mm)= (mm)= NT = | 0.15 6.00 63.30 64.30 0.98 | | 0.03 6.08 42.31 64.30 0.66 | 0. 6 57 64 | TALS* 177 (iii) 5.00 7.41 1.30).89 | 1 |
| CALIB STANDH ID= 1 D | i) CN P CN* i) TIME | STORAGE | E COEFF. | IS SMALLE | | TIME STEP | ! | | |
| STANDH ID= 1 D Sur Dep Ave | i) PEAK | ROCEDUR = 89 STEP (I THE ST FLOW I | RE SELECT 9.0 I (DT) SHO TORAGE CO DOES NOT | TED FOR PE a = Dep. S ULD BE SMA DEFFICIENT INCLUDE E | ERVIOUS Storage ALLER OF F. BASEFLOW | LOSSES: (Above) EQUAL | | | |
| STANDH ID= 1 D Sur Dep Ave | | | | | | | | | |
| Sur Dep Ave | YD (1 T= 5.0 | .111) min | Area Total | (ha)= Imp(%)= 5 | 1.06 | Dir. Conn | .(%)= 5 | 9.00 | |
| | face Ar . Stora rage Sl gth nings n | ea ige ope | | IMPERVIOU 0.63 1.00 1.00 84.06 0.013 | ıc pr | 0.43 1.00 2.00 40.00 0.290 | | | |
| | | | | TRANSFORME | то то | 5.0 MTN. | TIME STE | P. | |
| | | | | TRA | ANSFORME | D HYETOGRA | APH | | |
| Max | | TIME hrs 0.083 0.083 0.083 0.083 0.417 0.250 0.833 0.417 0.250 0.833 0.417 1.250 0.883 0.417 1.250 0.7 | 1.61 1.61 1.61 1.61 1.61 1.61 1.61 1.61 | 5.417 5.500 5.583 5.667 5.750 5.833 5.917 6.000 | 7.72 7.72 30.86 30.86 30.86 84.88 84.88 | ED. HYETOGRA. 1 TIME 6 .083 6 .067 6 .253 6 .6337 6 .457 7 .625 6 .583 6 .657 7 .7 .833 7 .6437 7 .7 .7 .7 .7 .7 .7 .7 .7 .7 .7 .7 .7 .7 | RAIN mm/5hr 11.577 | 11.42 11.50 11.58 11.67 11.75 11.83 11.92 | RAIN |
| Sto | rage Co | over o | (min) (min)= (min)= | 84.88 5.00 2.46 | (ii) | 15.00 11.53 (ii) |) | | |
| | | | | IS SMALLE TED FOR PE a = Dep. S ULD BE SA DEFFICIENT INCLUDE E | | TIME STEP LOSSES: (Above) R EQUAL V IF ANY. | ! | | |
| CALIB STANDH ID= 1 D | | | | | | | | | |

| CALIB STANDHYD (1122) ID= 1 DT= 5.0 min | Area Total | (ha)= Imp(%)= 6 | 1.22 59.00 | Dir. Conn.(%)= | 69.00 |
|---|-------------------------------------|---|---------------|--|-------|
| Surface Area Dep. Storage Average Slope Length Mannings n | (ha)= (mm)= (%)= (m)= = | IMPERVIOU 0.84 1.00 1.00 90.18 0.013 | JS | PERVIOUS (i) 0.38 1.00 2.00 40.00 0.290 | |

| mannings n | | = | 0.013 | | 0.290 | | | |
|--|--|--|--|--|---|---|---|--|
| NOTE: | RAINFALL | WAS TR | ANSFORME | D TO | 5.0 MIN. T | TIME STE | Ρ. | |
| NOTE: | TIME 0.083 0.167 0.250 0.333 0.417 0.508 0.667 0.750 0.833 0.917 1.000 | RAIN mm/hr 1.61 1 | TRA TIME hrs 3.083 3.167 3.250 3.333 3.417 3.500 3.583 3.667 3.750 3.833 3.917 4.000 4.083 | NSFORME RAIN mm/hr 2.57 2.57 2.57 2.57 2.57 2.57 2.57 2.57 | ED HYETOGRA 1' TIME 1' hrs 6.083 6.167 6.250 16.333 6.417 6.500 6.583 6.667 16.750 16.833 6.917 7.000 7.083 | RAIN mm/hr 11.57 11.57 11.57 11.57 11.57 11.57 11.57 11.57 5.14 5.14 5.14 5.14 5.14 5.14 | TIME hrs 9.08 9.17 9.33 9.42 9.50 9.58 9.67 9.75 9.83 9.92 10.00 | RAIN mm/hr 2.25 2.25 2.25 2.25 2.25 2.25 2.25 2.2 |
| | 1.167 1.250 1.333 1.417 1.500 1.583 1.667 1.750 1.833 1.917 2.000 2.083 2.167 2.250 2.333 2.417 2.500 2.583 2.667 2.500 | 1.61 1.61 1.61 1.61 1.61 1.61 1.61 1.61 1.61 1.61 1.93 1. | 5.250 5.333 5.417 5.500 5.583 5.667 5.750 | 5.14 5.14 5.14 7.72 7.72 7.72 7.72 7.72 7.72 30.86 30.86 | 7 . 417 7 . 500 7 . 583 7 . 667 7 . 750 7 . 833 7 . 917 8 . 000 8 . 083 8 . 167 8 . 250 8 . 250 8 . 583 8 . 667 8 . 583 8 . 667 8 . 750 | 3.86 3.86 3.86 3.86 3.86 3.86 2.25 2.25 2.25 2.25 2.25 2.25 2.25 | 10. 33 10. 42 10. 50 10. 58 10. 67 10. 75 10. 83 10. 92 11. 00 11. 108 11. 17 11. 25 11. 33 11. 42 11. 50 11. 58 11. 67 | 1.29 1.29 1.29 1.29 1.29 1.29 1.29 1.29 |
| | 2.833 2.917 3.000 | 1.93 | 5.833 5.917 6.000 | 84.88 | 8.833 8.917 9.000 | 2.25 2.25 2.25 | 11.83 11.92 12.00 | 1.29 1.29 1.29 |
| Max.Eff.Int Storage Coe Unit Hyd. I Unit Hyd. p | over (mi eff. (mi rpeak (mi | n) n)= n)= | 84.88 5.00 2.56 5.00 0.29 | | 66.77 15.00 11.63 (ii) 15.00 0.09 | | ALS* | |
| PEAK FLOW TIME TO PEA RUNOFF VOLU TOTAL RAINI RUNOFF COE | AK (hr JME (m FALL (m | m)= m)= m)= = | 0.20 6.00 63.30 64.30 0.98 | | 0.05 6.08 42.31 64.30 0.66 | 0. 6 56 64 | 240 (iii) .00 .79 .30 | |

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^{\circ}=89.0$ Ia = Dep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB | STANDHYD ( 1121) | Area (ha)= 1.21 | Total Imp(%)= 68.00 | Dir. Conn.(%)= 68.00 | DEPUTONS (f)
                                                                                                                                                                                                                                                            IMPERVIOUS
0.82
1.00
1.00
89.81
0.013
                                                                                                                                                                                                                                                                                                                                                                                         PERVIOUS (i)
0.39
1.00
2.00
40.00
0.290
                                      Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ***** DETAILED OUTPUT *****
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\Vo2\voin.dat
Output filename: C:\Users\caef070146\Appata\Loca\\Civica\\HS\\0564c49-8c07-4086-8157-8729fb3caba3\c5677e56
summary filename: C:\Users\caef070146\Appata\Loca\\Civica\\HS\\0564c49-8c07-4086-8157-8729fb3caba3\c5677e56
                                                                         NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                         TRANSFORMED HYETOGRAPH
                                                                                                                                                                                                                                                                                                                                                     TIME:
6.083
6.087
6.250
6.383
6.417
6.250
6.5837
6.4507
6.5837
6.670
7.7167
7.500
7.3337
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7.8083
8.127
8.0083
8.127
8.5833
8.917
8.7833
8.917
8.7833
8.917
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RAIN
                                                                                                                                    TIME hrs 0.083 0.167 0.250 0.333 0.167 0.500 0.833 0.667 1.000 0.750 0.833 0.667 1.000 0.750 0.833 0.667 0.750 0.833 0.250 0.833 0.250 0.833 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.2
                                                                                                                                                                                                                                                                                TIME hrs 3.083 3.417 3.550 3.667 3.750 4.083 3.917 4.250 4.083 4.417 4.500 4.833 4.417 5.000 5.083 5.417 5.500 5.883 5.417 5.550 5.583 5.917 5.750 6.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TIME hrss 9.08 9.177 9.253 9.59 9.59 9.675 9.83 9.675 9.83 10.028 110.155 11.33 10.420 111.588 111.155 111.33 111.421 111.588 111.158 111.588 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 111.68 
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ata\\Loca\\remp\
b41f864-f56d-471c-a2fc-7a8c6cfa5585\ba607aec
Comments: 10-Yr,12-hr SCS, City of Barrie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            READ STORM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ptotal= 76.00 mm
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RAIN | mm/hr | 3.04 | 3.04 | 3.04 | 4.56 | 6.08 | 6.08 | 9.12 | 36.48 | 100.32 |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RAIN mm/hr 1.90 1.90 1.90 1.90 1.90 1.90 1.90 2.28 2.28 2.28 2.28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TIME
hrs
6.25
6.50
6.75
7.00
7.25
7.50
7.75
8.00
8.25
8.50
8.75
9.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RAIN
mm/hr
13.68 |
13.68 |
6.08
4.56
4.56
4.56
2.66
2.66
2.66
2.66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TIME
hrs
0.25
0.50
0.75
1.00
1.25
1.50
2.25
2.50
2.75
3.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TIME
hrs
3.25
3.50
3.75
4.00
4.25
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5.00
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6.00
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hrs
9.25
9.50
9.75
10.00
10.25
10.50
11.25
11.50
11.75
12.00
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mm/hr
2.66
2.66
2.66
1.52
1.52
1.52
1.52
1.52
                                                                                                                                                                                                                      1.93
1.93
1.93
1.93
1.93
1.93
1.93
1.93
                                 Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                           84.88
5.00
2.56 (ii)
5.00
0.29
                                                                                                                                                                                                                                                                                                                                                                                                                66.77
15.00
11.63 (ii)
15.00
0.09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | CALIB
| STANDHYD ( 10011) |
|ID= 1 DT= 5.0 min |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Area (ha)= 0.21 Total Imp(\%)= 79.00 Dir. Conn.(%)= 79.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IMPERVIOUS 0.17 0.04 1.00 1.00 1.00 2.00 37.42 40.00 0.013 0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     *TOTALS*
0.236 (iii)
6.00
56.58
64.30
0.88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                   PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                           0.19
6.00
63.30
64.30
0.98
                                                                                                                                                                                                                                                                                                                                                                                                                0.05
6.08
42.31
64.30
0.66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (ha)=
(mm)=
(%)=
(m)=
                              * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                   (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 I as Dep. Storage (Above) (ii) TIME STEP (OT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TIME
hrs
3.083
3.167
3.250
3.333
3.417
3.500
3.583
3.667
3.750
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mm/hr
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13.68
13.68
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13.68
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6.08
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hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
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mm/hr
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1.90
1.90
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1.90
1.90
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mm/hr
2.66
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2.66
                                                     V V I SSSSS U U A A L
V V I SS U U AAAA L
V V I SS U U AAAAA L
V V I SS U U A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (v 6.1.2002)
                                                                                                                                                                                                                                                                                                                                           3.04 | 6.833
3.04 | 6.917
3.04 | 7.000
4.56 | 7.083
4.56 | 7.167
4.56 | 7.233
4.56 | 7.733
4.56 | 7.733
4.56 | 7.733
6.08 | 7.667
6.08 | 7.667
6.08 | 7.667
6.08 | 7.667
6.08 | 7.833
6.08 | 7.667
6.08 | 7.833
9.12 | 8.083
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over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100.32
5.00
2.14 (ii)
5.00
0.31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              82.63
10.00
7.10 (ii)
10.00
0.14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      *TOTALS*
0.213 (iii)
6.00
69.46
76.00
0.91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0.17
6.00
75.00
76.00
0.99
                                   Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                         100.32
5.00
1.41 (ii)
5.00
0.33
                                                                                                                                                                                                                                                                                                                                                                                                             82.63
10.00
5.95 (ii)
10.00
0.15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     *TOTALS*
0.055 (iii)
6.00
70.34
76.00
0.93
                                   PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN* = 89.0 Ia = Dep. Storage (Above)

(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL

THAN THE STORAGE COEFFICIENT.

THAN FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                           0.05
6.00
75.00
76.00
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                0.01
6.00
52.87
76.00
0.70
                                             WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0   Ia=\text{Dep}. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | CALIB
| STANDHYD ( 10021)|
|ID= 1 DT= 5.0 min |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Area (ha)= 0.73
Total Imp(%)= 71.00 Dir. Conn.(%)= 71.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IMPERVIOUS PERVIOUS (i)
0.52 0.21
1.00 1.00
1.00 2.00
69.76 40.00
0.013 0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (ha)=
(mm)=
(%)=
(m)=
=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Dep. Storage
Average Slope
Length
Mannings n
  CALIB

STANDHYD ( 10022) | Area (ha)= 0.83

ID= 1 DT= 5.0 min | Total Imp(%)= 75.00 Dir. Conn.(%)= 75.00
                                                                                                                                                                                                                                               IMPERVIOUS PERVIOUS (i) 0.62 0.21 1.00 1.00 2.00 74.39 40.00 0.013 0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TIME hrs 0.083 0.167 0.250 0.333 0.417 0.500 0.583 0.667 0.750 0.833 1.167 1.250 1.383 1.417 1.500 1.583 1.750 1.883 1.750 1.883 1.917
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RAIN mm/hc 13 .68 | 13 .68 | 13 .68 | 13 .68 | 13 .68 | 6 .08 | 6 .08 | 6 .08 | 4 .56 | 4 .56 | 4 .56 | 4 .56 | 4 .56 | 4 .56 | 4 .56 | 4 .56 | 4 .56 | 4 .56 | 4 .56 | 4 .56 | 4 .56 | 4 .56 | 4 .56 | 4 .56 | 4 .56 | 4 .56 | 4 .56 | 4 .56 | 4 .56 | 4 .56 | 4 .56 | 4 .56 | 4 .56 | 4 .56 | 4 .56 | 4 .56 | 4 .56 | 4 .56 | 4 .56 | 4 .56 | 4 .56 | 4 .56 | 4 .56 | 4 .56 | 4 .56 | 4 .56 | 4 .56 | 4 .56 | 4 .56 | 4 .56 | 4 .56 | 4 .56 | 4 .56 | 4 .56 | 4 .56 | 4 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 | 6 .56 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TIME
hrs
9.08
9.17
9.33
9.42
9.50
9.56
9.75
9.83
9.92
10.08
10.08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                      TIME
hrs
3.083
                                                                                                                                                                                                                                                                                                                                                                  TIME hrs 6.083 6.167 6.250 6.417 6.503 6.417 6.503 6.667 6.750 7.008 7.167 7.250 7.250 7.417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TIME hrs 9.08 9.17 9.25 9.33 9.42 9.50 9.58 9.67 9.75 10.00 10.07 10.25 10.33 10.42
                                                                                                                                       TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
1.083
1.167
1.250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         mm/hr
13.68
13.68
13.68
13.68
13.68
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3.250
3.333
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3.500
3.583
3.667
3.750
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3.917
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4.167
4.250
4.250
4.250
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6.08
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10.33
10.42
10.50
10.58
10.67
10.75
10.83
10.92
11.00
11.08
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I SSSSS UUUUU A A LLLLL

| 2.167 2.28 5.167 9.12 8.167 2.66 11.17 1.52 | Max.E Store unit unit PEAK TIME RUNOF TOTAL RUNOF (ii) (iii) CALIB STANOHYE ID= 1 DT= |
|---|---|
| CALIB STANDHYD (10031) Area (ha)= 0.38 INDEX STANDHYD (10031) Area (ha)= 0.38 INDEX SUFFace Area (ha)= 0.25 O.13 O.13 O.15 O.15 | Surfa Dep. Avera Leng Manni |
| U.96 | Max.E Stora Unit |
| Unit Hyd. peak (cms)= 0.32 0.15 PEAK FLOW (cms)= 0.09 0.02 0.102 TIME TO PEAK (hrs)= 6.00 6.00 6.00 RUNOFF VOLUME (mm)= 75.00 52.87 70.35 TOTAL RAINFALL (mm)= 76.00 76.00 76.00 RUNOFF COEFFICIENT = 0.99 0.70 ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CM PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN° = 89.0 Ta = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. | ***** WARN (i) (ii) (iii) |
| CALIB STANDHYD (10041) Area (ha)= 0.35 TOTAL IMP(%)= 69.00 Dir. Conn.(%)= 69.00 | Dep. Avera Lengt Manni N |
| TIME | Max.E Stora Unit Unit PEAK TIME |
| Max.Eff.Inten.(mm/hr)= 100.32 82.63 over (min) 5.00 110.00 Storage Coeff. (min)= 1.65 (ii) 9.98 (ii) Unit Hyd. Tpeak (min)= 5.00 10.00 Unit Hyd. Tpeak (cms)= 0.52 0.11 PEAK FLOW (cms)= 0.07 0.02 0.086 (iii) TIME TO PEAK (hrs)= 6.00 6.00 6.00 RUNOFF VOLUME (mm)= 75.00 52.87 68.12 TOTAL RAINFALL (mm)= 76.00 76.00 76.00 RUNOFF COEFFICIENT = 0.99 0.70 0.90 | RUNDG TOTAL RUNDG ***** WARN (i) (ii) (iii) |

| 2.833 2.917 3.000 | 2.28 2.28 2.28 | 5.833 100. 5.917 100. 6.000 100. | 32 8.833 32 8.917 32 9.000 | 2.66 11.83 2.66 11.92 2.66 12.00 | 1.52 1.52 1.52 |
|---|--|--|--|--|-------------------------------|
| Max.Eff.Inten.(mr over (Storage Coeff. (Unit Hyd. Tpeak (Unit Hyd. peak (| n/hr)= (min) (min)= (min)- | 100.32 5.00 1.69 (ii) 5.00 0.32 | 82.63 15.00 10.02 (ii) | | |
| | () | 0.07 | 15.00 0.10 0.02 | *TOTALS* 0.089 (iii) | |
| PEAK FLOW TIME TO PEAK RUNOFF VOLUME TOTAL RAINFALL RUNOFF COEFFICIEN | (hrs)= (mm)= (mm)= NT = | 6.00 75.00 76.00 0.99 | 6.08 52.87 76.00 0.70 | 6.00 67.46 76.00 0.89 | |
| ***** WARNING: STORAGE (i) CN PROCEDUE | DE CELECTE | D FOR DERVIC | UE LOCCEC: | | |
| (ii) TIME STEP I THAN THE ST (iii) PEAK FLOW I | 0.0 Ia (DT) SHOUL FORAGE COE DOES NOT I | = Dep. Stora D BE SMALLER FFICIENT. NCLUDE BASER | (Above) OR EQUAL | | |
| CALIB STANDHYD (10032) ID= 1 DT= 5.0 min | Area | (ha)= 0.39 | | | |
| | | | Dir. Conn. PERVIOUS (i) 0.08 1.00 | (%)= 79.00 | |
| Surface Area Dep. Storage Average Slope Length Mannings n | (ha)= (mm)= (%)= (m)= = | 0.31 1.00 1.00 50.99 0.013 | 0.08 1.00 2.00 40.00 0.290 | | |
| NOTE: RAINFA | ALL WAS TR | ANSFORMED TO | 5.0 MIN. T | TME STEP. | |
| TIME hrs 0.083 0.167 0.250 0.333 0.417 0.250 0.583 0.687 0.750 0.833 0.617 0.750 0.833 1.147 1.250 1.333 1.417 1.250 1.833 1.417 2.0083 2.167 2.250 2.333 2.417 2.2508 2.833 2.417 2.5088 2.8488 2.8667 2.750 2.833 2.917 3.000 Max.Eff.Inten.(mm | mm/hr: 1.90 1.90 1.90 1.90 1.90 1.90 1.90 1.90 | 3.1867 3.3 3.250 3.3 3.3333 3.3 3.417 3.3 3.5007 3.3 3.750 3.3 3.7 | 04 6.233 04 6.331 04 6.583 04 6.583 04 6.583 04 6.667 04 6.750 04 6.750 04 6.750 05 7.000 06 7.000 06 7.000 07 7.057 08 7.250 08 7.333 08 7.650 08 7.630 08 7.833 12 8.000 12 8.353 12 8.353 12 8.500 48 8.583 12 8.500 148 8.583 159 8.500 169 8.500 170 8.500 180 8.500 190 8.500 190 | 13.68 9.19 13.68 9.25 13.68 9.25 13.68 9.32 13.68 9.32 13.68 9.32 13.68 9.32 13.68 9.32 16.08 9.58 6.08 9.75 6.08 9.75 6.08 9.75 6.08 10.00 4.56 10.00 4.5 | RAIN mm/hr 2 : 66 |
| **** WARNING: STORAGE (i) CN PROCEDUR CN* = 89 (ii) TIME STEP THAN THE ST (iii) PEAK FLOW [| RE SELECTE | D FOR PERVIO | IIS LOSSES: | | |
| CALIB STANDHYD (10042) ID= 1 DT= 5.0 min | Area Total Im | (ha)= 0.38 p(%)= 74.00 | Dir. Conn. | (%)= 74.00 | |
| Surface Area Dep. Storage Average Slope Length Mannings n | | MPERVIOUS 0.28 1.00 1.00 50.33 0.013 | PERVIOUS (i) 0.10 1.00 2.00 40.00 0.290 | | |
| | ALL WAS TR | ANSFORMED TO | 5.0 MIN. T | TME STEP. | |
| TIME hrs 0.083 0.167 | RAIN mm/hr 1.90 1.90 | hrs mm/ | RMED HYETOGRA IN ' TIME 'hr ' hrs 04 6.083 04 6.167 | RAIN TIME mm/hr hrs 13.68 9.08 13.68 9.17 | RAIN mm/hr 2.66 2.66 |

| Mannings n | = | 0.013 | | 0.290 | | | |
|----------------------------------|-----------------------------|----------------|---------------|---------------------|----------------|--------------------|---------------|
| NOTE: RAI | NFALL WAS TE | RANSFORME | D TO | 5.0 MIN. T | TIME STE | Р. | |
| | | | | | | | |
| | | TRA | ANSFORME | D HYETOGRA | APH | | |
| | ME RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN |
| 0.0 | rs mm/hr 183 1.90 | hrs 3.083 | mm/hr 3.04 | ' hrs 6.083 | mm/hr 13.68 | hrs 9.08 | mm/hr 2.66 |
| 0.1 | .67 1.90 | 3.167 | 3.04 | 6.167 | 13.68 | 9.17 | 2.66 |
| 0.2 | 50 1.90 33 1.90 | 3.250 | 3.04 | 6.250 | 13.68 | 9.25 | 2.66 |
| 0.3 | | 3.333 | 3.04 | | 13.68 | | 2.66 |
| 0.5 | 00 1.90 | 3.500 | 3.04 | 6.500 | 13.68 | 9.50 | 2.66 |
| 0.5 | | 3.583 | 3.04 | 6.583 | 6.08 | 9.58 | 2.66 2.66 |
| 0.7 | 50 1.90 | 3.750 | 3.04 | 6.750 | 6.08 | 9.75 | 2.66 |
| 0.8 | | 3.833 | 3.04 | 6.833 | 6.08 | 9.83 | 2.66 |
| 0.9 | | 4.000 | 3.04 3.04 | 7.000 | 6.08 | 10.00 | 2.66 |
| 1.0 | 83 1.90 | 4.083 | 4.56 | 7.083 | 4.56 | 10.08 | 1.52 |
| 1.1 1.2 | | 4.167 4.250 | 4.56 4.56 | 7.167 | 4.56 | 10.17 10.25 | 1.52 1.52 |
| 1.3 | 33 1.90 | 4.333 | 4.56 | 7.333 | 4.56 | 10.33 | 1.52 |
| 1.4 1.5 | | | 4.56 4.56 | 7.417 | 4.56 | | 1.52 1.52 |
| 1.5 | 00 1.90 83 1.90 | 4.583 | 6.08 | 7.500 7.583 | 4.56 4.56 | 10.58 | 1.52 |
| 1.6 | 67 1.90 50 1.90 | 4.667 | 6.08 | 7.667 | 4.56 | 10.67 10.75 | 1.52 |
| 1.7 1.8 | | 4.750 4.833 | 6.08 | 7.750 | 4.56 | | 1.52 1.52 |
| 1.9 | 1.90 | 4.917 | 6.08 | 7.917 | 4.56 | 10.92 | 1.52 |
| 2.0 | | 5.000 | 6.08 9.12 | 8.000 | 4.56 2.66 | | 1.52 1.52 |
| 2.1 | .67 2.28 | 5.167 | 9.12 | 8.167 | 2.66 | 11.17 | 1.52 |
| 2.2 | 50 2.28 33 2.28 | 5.250 | 9.12 | 8.250 | 2.66 | 11.25 11.33 | 1.52 1.52 |
| 2.3 | 17 2.28 | 5.417 | 9.12 | 8.417 | 2.66 | 11.42 | 1.52 |
| 2.5 | 00 2.28 83 2.28 | 5.500 5.583 | 9.12 36.48 | 8.500 | 2.66 | 11.50 11.58 | 1.52 1.52 |
| 2.6 | 67 2.28 | 5.667 | | 8.667 | 2.66 | 11.67 | 1.52 |
| 2.7 | 50 2.28 | 5.750 | 36.48 | 8.750 | 2.66 | 11.75 | 1.52 |
| 2.8 | 117 2 28 أ | 5 917 | 100.32 | 8.833 | 2.66 | 11.83 11.92 | 1.52 1.52 |
| 3.0 | 00 2.28 | 6.000 | | 9.000 | 2.66 | 12.00 | 1.52 |
| Max.Eff.Inten. | (mm/hr)= | 100.32 | | 82.63 | | | |
| ove | r (min) | 5.00 | | 15.00 | | | |
| Storage Coeff. Unit Hyd. Tpea | | 1.69 5.00 | (ii) | 10.02 (ii) 15.00 |) | | |
| Unit Hyd. peak | | 0.32 | | 0.10 | | | |
| PEAK FLOW | () | 0.00 | | 0.02 | | TALS* | |
| TIME TO PEAK | (cms)= (hrs)= | 0.08 6.00 | | 6.08 | | .093 (iii) 5.00 | |
| RUNOFF VOLUME | (mm)= | 75.00 | | 52.87 | 69 | 9.23 | |
| TOTAL RAINFALL RUNOFF COEFFIC | | 76.00 0.99 | | 76.00 0.70 | | 5.00).91 | |
| **** WARNING: STOP | | | R THAN | | | | |
| (i) CN PPOCE | DURE SELECTE | D FOR P | PVTOUS | LOSSES. | | | |
| CN* = | 89.0 Ia | = Dep. 9 | storage | (Above) | | | |
| (ii) TIME STE | P (DT) SHOUL STORAGE COE | | | EQUAL | | | |
| (iii) PEAK FLO | | | | IF ANY. | | | |

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| CALIB
| STANDHYD ( 10012) | Area (ha)= 0.23
| ID= 1 DT= 5.0 min | Total Imp(%)= 78.00 | Dir. Conn.(%)= 78.00
                                                                                                                                                                                                                                                                                                                                                                                 Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                        NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              D HVETOGRAPH ----

1 TIME RAIN | TIME RAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         mm/hr | hr-
1-90 | 3.083 |
1.90 | 3.167 |
1.90 | 3.167 |
1.90 | 3.167 |
1.90 | 3.167 |
1.90 | 3.57 |
1.90 | 3.57 |
1.90 | 3.57 |
1.90 | 3.583 |
1.90 | 3.583 |
1.90 | 3.583 |
1.90 | 3.583 |
1.90 | 3.583 |
1.90 | 3.583 |
1.90 | 4.167 |
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over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         100.32
5.00
1.45 (ii)
5.00
0.33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           82.63
10.00
6.10 (ii)
10.00
0.15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0.05
6.00
75.00
76.00
0.99
                                                                                   PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0.01
6.00
52.87
76.00
0.70
***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                         (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^p=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
    | CALIB | | STANDHYD ( 10051) | Area (ha)= 0.37 | | ID= 1 DT= 5.0 min | Total Imp(%)= 66.00 Dir. Conn.(%)= 66.00
                                                                                   Surface Area (ha)= IMPERVIOUS PERVIOUS (i) 0.13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TIME
hrs
3.083
3.167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RAINT

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2.833
2.917
3.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 8.667
| 8.750
| 8.833
| 8.917
| 9.000
                                                                              Max.Eff.Inten.(mm/hr) = over (min)
Storage Coeff. (min) = Unit Hyd. Tpeak (min) = Unit Hyd. peak (cms) =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         100.32
5.00
1.66 (ii)
5.00
0.32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           82.63
10.00
9.99 (ii)
10.00
0.11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   *TOTALS*
0.086 (iii)
6.00
66.57
76.00
0.88
                                                                                   PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0.06
6.00
75.00
76.00
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0.02
6.00
52.87
76.00
0.70
                                                                                                  WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                              (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^\circ = 89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
         | CALIB | STANDHYD ( 10062) | Area (ha) = 0.66 | Dir. conn.(%) = 62.00 | IMPERVIOUS | PERVIOUS (i)
                                                                                                                                                                                                                                                                                                                                                         (ha)= 0.41 0.25 (mm)= 1.00 1.00 (%)= 1.00 2.00 (%)= 1.00 2.00 (m)= 66.33 40.00 = 0.013 0.290
                                                                              Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                   NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TRANSFORMED HYETOGRAPH
TIME RAIN ' TIME R
3.083 3.044 6.083 13.
3.167 3.04 6.167 13.
3.250 3.04 6.250 13.
3.233 3.04 6.333 13.
3.417 3.04 6.417 13.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RAPH ----
RAIN | TIME
mm/hr | hrs
13.68 | 9.08
13.68 | 9.17
13.68 | 9.25
13.68 | 9.33
13.68 | 9.42
                                                                                                                                                                                                                                                                                                                                                                                                                    RAIN
mm/hr
1.90
1.90
1.90
1.90
```

Dep. Storage Average Slope Length Mannings n TIME hrss 6.083 6.167 6.250 6.251 6. TIME hrs 0.083 0.063 0.167 0.250 0.333 0.667 1.000 0.883 0.667 1.000 0.750 0.833 0.667 1.000 0.750 0.833 0.667 1.250 0.833 0.667 0.250 0.2 3.500 3.583 3.667 3.750 3.833 3.917 4.000 4.083 4.167 4.250 4.353 4.417 4.500 4.583 4.67 4.750 4.833 4.917 5.000 5.083 5.167 5.250 5.333 5.417 5.500 5.583 5.667 5.750 5.833 5.917 6.000 1.52 1.52 1.52 1.52 1.52 1.52 1.52 1.52 Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)= 100.32 5.00 1.68 (ii) 5.00 0.32 82.63 15.00 10.00 (ii) 15.00 0.10 *TOTALS* 0.087 (iii) 6.00 67.46 76.00 0.89 PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT = 0.07 6.00 75.00 76.00 0.99 0.02 6.08 52.87 76.00 0.70 WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^{\circ}=89.0$ Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. IMPERVIOUS 0.22 0.14 1.00 1.00 1.00 2.00 48.99 40.00 0.013 0.290 Surface Area
Dep. Storage (mm)=
Average Slope
Length (m)=
Mannings n = NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. 1.90 3.500 3.04
1.90 3.583 3.04
1.90 3.583 3.04
1.90 3.583 3.04
1.90 3.687 3.00
1.90 4.00 3.04
1.90 4.00 3.04
1.90 4.00 3.04
1.90 4.03 4.56
1.90 4.03 4.56
1.90 4.23 4.56
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1.90 4.83 4.56
1.90 4.83 6.08
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over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)= 82.63 15.00 10.32 (ii) 15.00 0.09 *TOTALS* 0.151 (iii) 6.00 66.58 76.00 0.88 PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT = 0.11 6.00 75.00 76.00 0.99 0.04 6.08 52.87 76.00 0.70 ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^{\circ}=89.0$ Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUIT THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. Area (ha)= 0.65 Total Imp(%)= 65.00 Dir. Conn.(%)= 65.00 IMPERVIOUS 0.42 0.23 1.00 1.00 2.00 65.83 40.00 0.013 0.290 (ha)= (mm)= (%)= (m)= = Surface Area Dep. Storage Average Slope Length Mannings n NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. TRANSFORMED HYETOGRAPH
ME RAIN ' TIME'
883 3.04 6.083 136
77 3.094 6.6367 131
31 33 3.04 6.363 131
31 3.04 6.363 131
31 3.04 6.363 131
31 3.04 6.363 131
31 3.04 6.500 138
32 3.04 6.500 138
33 3.04 6.500 6660
667 3.04 6.560 6660
67 3.04 6.560 6683 670 3.04 6.383 670
31.04 6.383 670
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31.0 TIME hrs 0.083 0.167 0.250 0.333 0.417 0.500 0.583 0.667 0.750 0.833 0.917 TIME hrs 3.083 3.167 3.250 3.333 3.417 3.500 3.583 3.667 3.750 3.833 3.917 4.000 4.083 RAIN mm/hr 13.68 13.68 13.68 13.68 13.68 6.08 6.08 6.08 6.08 6.08 6.08 9.25 9.33 9.42 9.50 9.58 9.67 9.75 9.83 9.92 10.00 10.08

| 1.167 1.90 4.167 4.56 7.167 4.56 10.17 1.52 | | | | |
|--|---|---|---|--|
| Storage Coeff. (min) | 1.167 1. 1.250 1. 1.333 1. 1.417 1. 1.500 1. 1.580 1. 1.580 1. 1.580 1. 1.670 1. 1.833 1. 1.2000 1. 1.833 1. 2.000 2. 2.167 2. 2.250 2. 2.353 2. 2.353 2. 2.353 2. 2.353 2. 2.353 2. 2.353 2. 2.353 2. 2.353 2. 2.353 2. 2.353 2. 2.353 2. 2.353 2. 2.353 2. | 90 4.167 4.56 90 4.250 4.56 90 4.333 4.56 90 4.317 4.56 90 4.417 4.56 90 4.509 6.08 90 4.507 6.08 90 4.507 6.08 90 4.317 6.08 90 9.4.317 6.08 90 9.5000 6.08 90 4.317 9.12 28 5.083 9.12 28 5.083 9.12 28 5.253 9.12 28 5.583 36.48 28 5.683 36.48 28 5.683 36.48 28 5.750 36.48 28 5.83 36.48 28 5.750 36.48 28 5.83 36.48 28 5.83 36.48 28 5.83 36.48 28 5.550 36.48 28 5.83 36.48 | 7.167 | 10.33 1.52 10.42 1.52 10.50 1.52 10.58 1.52 10.67 1.52 10.75 1.52 |
| PEAK ELOW | Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= | 100.32 5.00 1.99 (ii) 5.00 | 82.63 15.00 10.31 (ii) 15.00 | |
| ***** WARNING; STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: (CN* = 88.0 . Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFCICENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. *********************************** | PEAK FLOW (CMS)= TIME TO PEAK (hrs)= RUNOFF VOLUME (mm)= TOTAL RAINFALL (mm)= RUNOFF COEFFICZENT = | 0.12 6.00 75.00 76.00 0.99 | 0.04 0. 6.08 6 52.87 67 76.00 76 | 151 (iii) |
| (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: (N° = 83.0 Stal = Dep. Storage (Above) (ii) TIME = 83.0 Stal = Dep. Storage (Above) (iii) THE STORAGE DEPE ES MALLER OR EQUAL (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. CALIB STANDHYD (10072) | | | | |
| CALIB STANDHYD (10072) Area (ha)= 0.74 Total Imp(%)= 71.00 Dir. Conn.(%)= 71.00 | (i) CN PROCEDURE SEL CN* = 89.0 (ii) TIME STEP (DT) S THAN THE STORAGE (iii) PEAK FLOW DOES N | ECTED FOR PERVIOUS IA = Dep. Storage HOULD BE SMALLER OR COEFFICIENT. OT INCLUDE BASEFLOW | LOSSES: (Above) R EQUAL | |
| Surface Area (ha) = 0.53 | I assess | (ha)= 0.74 1 Imp(%)= 71.00 | Dir. Conn.(%)= 7 | 71.00 |
| NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. | | THREE YEARS OF | RVIOUS (i) 0.21 1.00 | |
| TIME RAIN TIME R | Length (m)= Mannings n = | 0.013 | 40.00 | |
| | NOTE: RAINFALL WA | S TRANSFORMED TO | 40.00 0.290 5.0 MIN. TIME STE | |

| 1.75 | | 4.750 | 6.08 | 7.750 | 4.56 10.75 | 1.52 |
|---|--|---|---|---|--|--|
| 2.50 2.58 2.66 2.75 2.83 2.91 3.00 | 3 2.28 7 2.28 0 2.28 3 2.28 7 2.28 | 5.583 5.667 5.750 5.833 5.917 | 9.12 36.48 36.48 36.48 100.32 100.32 | 8.583 8.667 8.750 8.833 8.917 | 2.66 11.50 2.66 11.58 2.66 11.67 2.66 11.75 2.66 11.83 2.66 11.92 2.66 12.00 | 1.52 1.52 1.52 1.52 1.52 1.52 |
| Max.Eff.Inten.() over Storage Coeff. Unit Hyd. Tpeak Unit Hyd. peak | (min) (min)= (min)= | 100.32 5.00 2.05 5.00 0.31 | (ii) | 82.63 15.00 10.37 (ii) 15.00 0.09 | *TOTALS* | |
| PEAK FLOW TIME TO PEAK RUNOFF VOLUME TOTAL RAINFALL RUNOFF COEFFICI | (cms)= (hrs)= (mm)= (mm)= ENT = | 0.12 6.00 75.00 76.00 0.99 | | 0.05 6.08 52.87 76.00 0.70 | 0.162 (iii) 6.00 66.14 76.00 0.87 | |

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $\mathbb{CN}^n=89.0$ Ia = bep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB STANDHYD (10081) ID= 1 DT= 5.0 min | Area Total | (ha)= Imp(%)= | 0.21 52.00 | Dir. Conn.(%)= | 52.00 |
|---|-------------------------------------|--|------------------|--|-------|
| Surface Area Dep. Storage Average Slope Length Mannings n | (ha)= (mm)= (%)= (m)= = | IMPERVI 0.1 1.0 1.0 37.4 0.01 | 1 0 0 2 | PERVIOUS (i) 0.10 1.00 2.00 40.00 0.290 | |

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

| | | | | HYETOGR | | - | |
|-------|--------------|-------|--------------|----------------|----------------|----------------|-------|
| TIME | RAIN | TIME | RAIN | ' TIME | RAIN | | RAIN |
| hrs | mm/hr | hrs | mm/hr | ' hrs | mm/hr | hrs | mm/hr |
| 0.083 | 1.90 | 3.083 | 3.04 | 6.083 | 13.68 | 9.08 | 2.66 |
| 0.167 | 1.90 | 3.167 | 3.04 | 6.167 | 13.68 | 9.17 | 2.66 |
| 0.250 | 1.90 | 3.250 | 3.04 3.04 | 6.250 | 13.68 13.68 | 9.25 | 2.66 |
| 0.333 | 1.90 | 3.333 | 3.04 | 6.417 | 13.68 | 9.33 | 2.66 |
| 0.500 | 1.90 | 3.500 | 3.04 | 6.500 | 13.68 | 9.42 | 2.66 |
| 0.583 | 1.90 | 3.583 | 3.04 | 6.583 | 6.08 | 9.58 | 2.66 |
| 0.667 | 1.90 | 3.667 | 3.04 | 6.667 | 6.08 | 9.67 | 2.66 |
| 0.750 | 1.90 | 3.750 | 3.04 | 6.750 | 6.08 | 9.75 | 2.66 |
| 0.833 | 1.90 | 3.833 | 3.04 | 6.833 | 6.08 | 9.83 | 2.66 |
| 0.917 | 1.90 | 3.917 | 3.04 | 6.917 | 6.08 | 9.92 | 2.66 |
| 1.000 | 1.90 | 4.000 | 3.04 4.56 | 7.000 | 6.08 | 10.00 | 2.66 |
| 1.083 | 1.90 | 4.083 | 4.56 | 7.083 | 4.56 | 10.08 | 1.52 |
| 1.167 | 1.90 | 4.167 | 4.56 | 7.167 | 4.56 | | 1.52 |
| 1.250 | 1.90 1.90 | 4.250 | 4.56 4.56 | 7.250 | 4.56 | 10.25 10.33 | 1.52 |
| 1.417 | 1.90 | 4.333 | 4.50 | 7.417 | 4.56 | 10.33 | 1.52 |
| 1.500 | 1.90 | 4.500 | 4.56 | 7.500 | 4.56 | 10.50 | 1.52 |
| 1.583 | 1.90 | 4.583 | 6.08 | 7.583 | 4.56 | 10.58 | 1.52 |
| 1.667 | 1.90 | 4.667 | 6.08 | 7.667 | 4.56 | 10.67 | 1.52 |
| 1.750 | 1.90 | 4.750 | 6.08 | 7.750 | 4.56 | 10.75 | 1.52 |
| 1.833 | 1.90 | 4.833 | 6.08 | 7.833 | 4.56 | 10.83 | 1.52 |
| 1.917 | 1.90 | 4.917 | 6.08 | 7.917 | 4.56 | 10.92 | 1.52 |
| 2.000 | 1.90 | 5.000 | 6.08 | 8.000 | 4.56 | 11.00 | 1.52 |
| 2.083 | 2.28 | 5.083 | 9.12 9.12 | 8.083 | 2.66 | 11.08 | 1.52 |
| 2.167 | 2.28 | 5.167 | 9.12 | 8.167 8.250 | 2.66 | 11.17 11.25 | 1.52 |
| 2.230 | 2.28 | 5.333 | 9.12 9.12 | 8.333 | 2.66 | 11.33 | 1.52 |
| 2.417 | 2.28 | 5.417 | 9.12 | 8.417 | 2.66 | 11.42 | 1.52 |
| 2.500 | 2.28 | 5.500 | 9.12 | 8.500 | 2.66 | 11.50 | 1.52 |
| 2.583 | 2.28 | 5.583 | 36.48 | 8.583 | 2.66 | 11.58 | 1.52 |
| 2.667 | 2.28 | 5.667 | 36.48 | 8.667 | 2.66 | 11.67 | 1.52 |
| 2.750 | 2.28 | 5.750 | 36.48 | 8.750 | 2.66 | 11.75 | 1.52 |
| 2.833 | 2.28 | 5.833 | 100.32 | 8.833 | 2.66 | 11.83 | 1.52 |
| 2.917 | 2.28 | 5.917 | 100.32 | 8.917 | 2.66 | 11.92 | 1.52 |
| 3.000 | 2.28 | 6.000 | 100.32 | 9.000 | 2.66 | 12.00 | 1.52 |
| | | | | | | | |

| 1.833 1.910 2.088 2.188 2.150 2.250 2.333 2.417 2.500 2.583 2.650 | 1.90 4.91 1.90 5.00 2.28 5.08 2.28 5.16 2.28 5.29 2.28 5.33 2.28 5.50 2.28 5.50 2.28 5.50 | 9.12 9.12 3 9.12 7 9.12 9 9.12 9 9.12 9 9.12 9 9.12 9 9.12 9 9.12 | 8.167 8.250 8.333 | 2.66 2.66 2.66 | 11.17 11.25 11.33 | 1.52 1.52 1.52 1.52 1.52 1.52 1.52 1.52 |
|--|---|--|--|--|---|--|
| 2.750 2.833 2.917 3.000 Max.Eff.Inten.(m | 2.28 5.83 2.28 5.93 2.28 6.00 | 30.46 33 100.32 17 100.32 00 100.32 | 8.833 8.917 9.000 | 2.66 2.66 2.66 2.66 2.66 | 11.75 11.83 11.92 12.00 | 1.52 1.52 1.52 1.52 |
| Max.Eff.Inten.(n over Storage Coeff. Unit Hyd. Tpeak Unit Hyd. peak | (min) 5. (min) 2. (min) 5. (cms) 6. | 00 06 (ii) 00 31 | | *T0T. | ALS* | |
| PEAK FLOW TIME TO PEAK RUNOFF VOLUME TOTAL RAINFALL RUNOFF COEFFICIE | (cms)= 0. (hrs)= 6. (mm)= 75. (mm)= 76. NT = 0. | 15 00 00 00 99 | 0.03 6.08 52.87 76.00 0.70 | 68 76 | 178 (iii) .00 .57 .00 .90 | |
| **** WARNING: STORAG | E COEFF. IS SMA RE SELECTED FOR 9.0 Ia = Dep (DT) SHOULD BE TORAGE COEFFICE | LLER THAN | LOSSES: (Above) EQUAL | | | |
| CALIB STANDHYD (10071) ID= 1 DT= 5.0 min | Area (ha)= Total Imp(%)= | | Dir. Conn. | (%)= 6 | 0.00 | |
| Surface Area Dep. Storage Average Slope Length Mannings n | (ha)= 0. (mm)= 1. (%)= 1. (m)= 69. = 0.0 | 113 | 2.00 40.00 0.290 | | | |
| NOTE: RAINF | ALL WAS TRANSFO | RMED TO | 5.0 MIN. T | IME STE | Ρ. | |
| TIME hrs 0.083 0.166 0.250 0.250 0.250 0.250 0.500 0.5 | mm/hr h h h h h h h h h h h h h h h h h h | 3.04 3.04 3.04 3.04 3.04 3.04 3.04 3.04 3.04 4.56 6.08 3.04 4.56 6.08 | 6.500 6.583 6.667 6.750 6.833 6.917 7.000 7.083 7.167 7.250 7.333 7.417 7.500 7.583 7.500 7.783 7.783 7.783 | 13.68 6.08 6.08 6.08 6.08 4.56 4 | 9.50 9.58 9.67 9.75 9.83 9.92 10.00 10.08 10.17 10.25 10.33 10.42 10.50 10.50 10.67 10.75 10.88 10.92 11.00 | RAIN mm/hr 2.666 2.662 2.666 2 |
| Max.Eff.Inten.(n over Storage Coeff. Unit Hyd. Tpeak Unit Hyd. peak | m/hr)= 100 (min) 5: (min)= 1: (min)= 5: (cms)= 0. | 32 00 41 (ii) 00 33 | 82.63 10.00 9.74 (ii) 10.00 0.11 | *TOT. | ALS* | |
| PEAK FLOW TIME TO PEAK RUNOFF VOLUME TOTAL RAINFALL RUNOFF COEFFICIE | | 03 00 00 00 00 99 | 0.02 6.00 52.87 76.00 0.70 | | 048 (iii) .00 .35 .00 .85 | |
| ***** WARNING: STORAG (i) CN PROCEDL CN* = 8 (ii) TIME STEP THAN THE S (iii) PEAK FLOW | BE SELECTED FOR | DEDVIOUS | 100000 | | | |
| CALIB STANDHYD (10082) ID= 1 DT= 5.0 min | Area (ha)= Total Imp(%)= | 0.21 87.00 | Dir. Conn. | (%)= 8 | 7.00 | |
| Surface Area Dep. Storage Average Slope | (mm)= 1. | /IOUS PE 18 00 00 | RVIOUS (i) 0.03 1.00 2.00 | | | |

| CALIB STANDHYD (10082) ID= 1 DT= 5.0 min | Area Total | (ha)= Imp(%)= | 0.21 87.00 | Dir. Conn.(%)= | 87.00 |
|--|---------------|------------------|---------------|----------------|-------|
| | | TMPERVTO | 110 | PERVIOUS (i) | |
| | | | | | |
| Surface Area | (ha)= | 0.18 | | 0.03 | |
| | | | | | |
| Dep. Storage | (mm)= | 1.00 | | 1.00 | |
| Average Slope | (%)= | 1.00 | | 2.00 | |
| | | 1.00 | | | |
| Length | (m)= | 37.42 | | 40.00 | |
| Mannings n | = | 0.013 | | 0.290 | |
| maini iliga 11 | _ | 0.013 | | 0.230 | |
| | | | | | |

| mannings n | | = | 0.013 | | 0.290 | | | |
|--------------------------|---|--|---|--|--|--|---|---|
| NOTE: | RAINFALL | WAS TR | ANSFORME | D TO | 5.0 MIN. | TIME STE | P. | |
| | | | TP/ | NECODME | D HYETOGR | ADU | _ | |
| Max.Eff.In | 0.083 0.167 0.250 0.250 0.250 0.583 0.667 0.750 0.917 1.008 1.1687 1.1687 1.2508 1.333 1.417 1.2508 1.333 1.417 2.008 2.583 2.167 2.083 2.167 2.083 2.167 2.083 2.167 2.083 2.167 2.083 2.167 2.083 2.167 2.083 2.167 2.083 2.167 2.083 | 1.90 1.90 1.90 1.90 1.90 1.90 1.90 1.90 1.90 1.90 1.90 1.90 1.90 1.90 1.90 1.90 1.90 1.90 2.28 2. | 3.250 3.333 3.410 3.583 3.600 3.583 3.917 4.083 4.1250 4.250 4.333 4.1560 4.833 4.157 4.583 4.650 4.833 5.1250 5.250 | 3.04 3.04 3.04 3.04 3.04 3.04 3.04 4.56 4.56 4.56 4.56 6.08 6.08 6.08 6.08 9.12 9.12 9.12 9.12 9.12 9.12 9.12 9.12 | 6.333 6.417 6.500 6.583 6.667 6.750 6.833 6.917 7.000 7.083 7.467 7.250 7.333 7.417 7.500 7.583 7.917 8.000 8.083 8.167 8.333 8.417 8.333 8.417 8.333 8.417 | 4.56 4.56 4.56 4.56 4.56 4.56 4.56 4.56 | hrrs 9.08 9.17 9.08 9.17 9.08 9.17 | RAIN mm/hr 22.666 22.666 22.666 22.666 22.666 22.666 22.666 22.666 22.666 21.552 |
| Storage Co- Unit Hyd. | over (mineff. (mineff. (mineff) | n) n)= n)= | 5.00 1.41 5.00 0.33 | (ii) | 10.00 5.02 (ii 10.00 0.16 |) | | |
| PEAK FLOW TIME TO PE | (cm: | s)= | 0.05 | | 0.01 6.00 | 0. | TALS* .057 (iii) 5.00 | |

RUNOFF VOLUME (mm)= TOTAL RAINFALL (mm)= RUNOFF COEFFICIENT = ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^{\circ}=89.0$ Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. CALIB STANDHYD (10092) ID= 1 DT= 5.0 min Area (ha)= 0.63 Total Imp(%)= 81.00 Dir. Conn.(%)= 81.00 IMPERVIOUS PERVIOUS (i) (ha)= (mm)= (%)= (m)= Surface Area Dep. Storage Average Slope Length Mannings n 0.51 1.00 1.00 64.81 0.013 0.12 1.00 2.00 40.00 0.290 NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. TIME hrs 0.083 0.167 0.250 0.333 0.417 0.500 0.583 0.9750 0.750 0.750 1.083 1.167 1.333 1.417 1.500 1.583 1.677 1.750 TIME hrss 9.08 9.17 9.25 9.89 9.50 9.67 9.50 9.67 9.83 9.67 9.83 10.00 10.58 10.68 10.15 10.58 10.58 11.15 11.33 10.42 11.58 11.25 11.33 11.42 11.58 11.17 11.20 1 6.250 6.333 6.417 6.500 6.583 3.500 3.583 3.667 3.750 3.833 3.917 4.000 4.083 4.167 4.250 4.250 4.417 4.500 4.750 4.875 4.750 4.875 5.000 5.000 5.000 5.000 6.583 6.667 6.750 6.833 6.917 7.000 7.083 7.167 7.250 7.333 7.417 7.417 7.500 7.583 7.667 7.750 7.833 7.917 8.083 8.167 8.250 8.250 8.250 8.333 8.417 8.500 8.583 8.667 8.667 8.750 8.833 1.833 1.917 2.000 2.083 2.167 2.250 2.333 2.417 2.500 2.583 2.667 2.750 2.833 2.917 3.000 5.167 5.250 5.333 5.417 5.500 5.583 5.667 5.750 5.833 5.917 6.000 Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)= 100.32 5.00 1.97 5.00 0.31 82.63 10.00 6.28 (ii) 10.00 0.15 (ii) *TOTALS*
0.166 (iii)
6.00
70.79
76.00
0.93 PEAK FLOW TIME TO PEAK RUNOFF VOLUME 0.02 6.00 52.87 76.00 0.70 0.14 6.00 75.00 76.00 0.99 PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT = WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^* = 89.0$ Ia = Dep. Storage (Above) |ID= 1 DT= 5.0 min | Total Imp(%)= 55.00 Dir. Conn.(%)= 55.00 IMPERVIOUS 0.50 1.00 1.00 77.89 0.013 PERVIOUS (i) 0.41 1.00 2.00 40.00 0.290 Surface Area Dep. Storage Average Slope Length Mannings n (ha)= (mm)= (%)= (m)= = NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. TIME hrss 9.08 9.17 9.253 9.459 9.509 9.509 9.675 9.83 9.675 9.831 10.08 10.151 10.58 10.58 10.58 11.158 11.158 11.158 11.158 11.158 11.158 11.158 11.158 11.158 11.158 11.1590 | 1,00 | 3,083 | 1,90 | 3,167 | 1,190 | 3,167 | 1,190 | 3,167 | 1,90 | 3,167 | 1,90 | 3,167 | 1,90 | 3,167 | 1,90 | 3,167 | 1,90 | 3,167 | 1,90 | 3,167 | 1,90 | 3,167 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1,90 | 4,107 | 1, hrs 0.083 0.167 0.250 0.333 0.417 0.500 0.583 0.667 0.750 0.833 0.917 1.000 1.083 1.167 | Control | Cont hrs 6.083 6.167 6.250 6.333 6.417 6.500 6.583 6.667 6.750 6.833 6.917 7.000 7.083 7.167 1.250 1.333 1.417 1.500 1.583 1.667 1.750 1.833 1.917 2.000 2.2083 2.167 2.2583 2.417 2.583 2.583 2.750 2.833 3.000 Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= 100.32 5.00 2.20 (ii) 5.00 0.30 82.63 15.00 10.52 (ii) 15.00 0.09 *TOTALS* 0.199 (iii) 6.00 65.04 76.00 0.86 0.14 6.00 75.00 76.00 0.99 PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT = 0.06 6.08 52.87 76.00 0.70 ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^{\circ}=89.0$ Ia = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. Area (ha)= 0.88 Total Imp(%)= 72.00 Dir. Conn.(%)= 72.00 IMPERVIOUS PERVIOUS (1)
1 0.63 0.25
1.00 1.00
1.00 2.00
1.00 2.00
1.76.59 40.00
1.013 0.290 Surface Area Dep. Storage Average Slope Length Mannings n

(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. Area (ha)= 0.50Total Imp(%)= 74.00 Dir. Conn.(%)= 74.00IMPERVIOUS 0.37 1.00 1.00 57.74 0.013 PERVIOUS (i) 0.13 1.00 2.00 40.00 0.290 Surface Area Dep. Storage Average Slope Length Mannings n NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. | Natar | The | Th Hrss 6.083 6.167 6.250 6.833 6.667 6.250 6.833 6.667 6.750 6.833 7.71.250 6.833 7.71.250 6.833 7.71.250 6.833 7.71.250 6.833 7.71.250 6.833 7.71.250 6.833 7.71.250 6.833 7.750 7.833 7.750 7.833 7.750 7.833 7.750 7.833 7.750 7.75 RAIN | RA TIME hrs 0.083 0.0617 0.500 0.500 0.4017 0.500 0.401 0.500 0.401 0.500 0.683 0.667 0.750 0.833 0.607 1.000 0.833 1.167 1.500 0.833 0.667 0.750 0.833 0.667 0.750 0.833 0.667 0.750 0.833 0.667 0.750 0.833 0.667 0.750 0.833 0.667 0.750 0.833 0.667 0.750 0.750 0.833 0.667 0.750 0 TIME hrss 3.083 3.167 3.250 3.333 4.17 4.000 4.083 4.167 4.200 4.583 4.917 5.083 5.165 5.333 5.165 5.333 2.28 | 5.417 2.28 | 5.500 2.28 | 5.583 2.28 | 5.667 2.28 | 5.750 2.28 | 5.833 2.28 | 5.917 2.28 | 6.000 1.52 1.52 1.52 1.52 1.52 Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= 100.32 5.00 1.84 (ii) 5.00 0.32 82.63 15.00 10.16 (ii) 15.00 0.10 *TOTALS* 0.122 (iii) 6.00 69.23 76.00 0.91 PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT = 0.10 6.00 75.00 76.00 0.99 0.02 6.08 52.87 76.00 0.70 ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^{\circ}=89.0$ Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. | CALIB | STANDHYD (1101) | Area (ha)= 0.91 NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

| | TRANSFORME | D INVETOCRAL | | | |
|---|--|--|--|--|--|
| TIME RAIN hts: mm/hr 0.1867 1.90 1.90 1.90 1.90 1.90 1.90 1.10 1.90 1.9 | | HYPETOGRAI TIME 6.083 6.083 6.491 6.167 6.253 6.491 6.491 7.083 7.491 7.167 7.250 7.750 7.750 8.803 8.667 8.250 8.833 8.467 8.250 8.833 8.467 8.250 8.833 | RAINN RAINN RAIN RAIN RAIN RAIN RAIN RAI | TIME 5 9.08 9 9.17 9 2.53 39 4.99 9.67 9 9.89 9 9.67 9 9.89 9 9.67 9 9.89 9 9.67 10.08 10. | RAIN Mmm/A666 Mmm/A666 Mmm/A666 Mmm/A666 |
| Max.Eff.Inten.(mm/hr)= 1 | .00.32 | 82.63 | | | |
| Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= | 5.00 2.17 (ii) 5.00 0.31 | 15.00 10.50 (ii) 15.00 0.09 | | | |
| PEAK FLOW (cms)= TIME TO PEAK (hrs)= RUNOFF VOLUME (mm)= TOTAL RAINFALL (mm)= RUNOFF COEFFICIENT = | 0.18 6.00 75.00 76.00 0.99 | 0.04 6.08 52.87 76.00 0.70 | 76 | 212 (iii) .00 .80 | |
| **** WARNING: STORAGE COEFF. IS | | | | | |
| (i) CN PROCEDURE SELECTED CN* = 89.0 Ia = ii) TIME STEP (DT) SHOULD THAN THE STORAGE COEFF (iii) PEAK FLOW DOES NOT INC | Dep. Storage BE SMALLER OR | (Above) | | | |
| | | | | | |
| CALIB STANDHYD (1111) Area (h ID= 1 DT= 5.0 min Total Imp(| (a)= 1.06 (%)= 59.00 | Dir. Conn. | (%)= 59 | 9.00 | |
| Surface Area (ha)= Dep. Storage (mm)= Average Slope (%)= Length (m)= Mannings n = | 0.63 1.00 1.00 84.06 0.013 | RVIOUS (i) 0.43 1.00 2.00 40.00 0.290 | | | |
| NOTE: RAINFALL WAS TRAN | ISFORMED TO | 5.0 MIN. T | EME STE | Ρ. | |
| TIME RAIN hrs mm/hr 0.083 1.90 3 | TRANSFORME TIME RAIN hrs mm/hr 1.083 3.04 | D HYETOGRAI ' TIME ' hrs 6.083 | PH RAIN mm/hr 13.68 | TIME hrs 9.08 | RAIN mm/hr 2.66 |

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3.167 3.04 | 6.167

3.250 3.04 | 6.233

3.333 3.04 | 6.437

3.400 3.04 | 6.433

3.410 3.04 | 6.458

3.410 3.04 | 6.583

3.687 3.04 | 6.658

3.687 3.04 | 6.6750

3.750 3.04 | 6.6750

3.750 3.04 | 6.750

3.833 3.04 | 7.000

4.107 3.04 | 7.000

4.108 4.56 | 7.750

4.108 4.56 | 7.750

4.250 4.56 | 7.750

4.250 4.56 | 7.750

4.250 4.56 | 7.750

4.250 6.08 | 7.833

4.917 6.08 | 7.750

4.833 6.08 | 7.750

4.833 4.917 6.08 | 7.833

4.917 6.08 | 7.833

4.917 6.08 | 7.833

4.917 6.08 | 8.803

5.087 9.12 | 8.803

5.087 9.12 | 8.833

5.917 100.32 | 8.500

5.383 9.12 | 8.833

5.917 100.32 | 8.500

5.383 9.12 | 8.833

5.917 100.32 | 8.917

6.000 9.12 | 8.500

5.383 9.12 | 8.833

5.917 100.32 | 8.917

6.000 9.12 | 8.500

5.383 9.12 | 8.833

5.917 100.32 | 8.917

6.000 100.32 | 8.917

6.000 100.32 | 8.917

6.000 100.32 | 8.917

6.000 100.32 | 8.917

6.000 100.32 | 8.917
                                                                                                                                                                             0.167
0.250
0.333
0.417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9.17
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4.253
4.417
4.583
4.667
4.750
5.083
5.167
5.250
5.333
5.417
5.500
5.583
5.567
5.575
5.750
5.833
5.670
5.833
6.670
6.000
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7.253
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8.917
9.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Max.Eff.Inten.(mm/hr)=
cover (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (min)=
Unit Hyd. peak (min)=
Unit Hyd. Peak (min)=
Unit Hyd. Tpeak (min)=
TIME FO EAK (hrs)=
TIME FO EAK (hrs)=
TOTAL RAINFALL (mm)=
TOTAL RAINFALL (mm)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             100.32
5.00
2.24 (ii)
5.00
0.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    82.63
10.00
6.88 (ii)
10.00
0.14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           *TOTALS*
0.252 (iii)
6.00
70.13
76.00
0.92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0.21
6.00
75.00
76.00
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0.04
6.00
52.87
76.00
0.70
                                                  Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                       100.32
5.00
2.30 (ii)
5.00
0.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     82.63
15.00
10.63 (ii)
15.00
0.09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         *TOTALS*
0.237 (iii)
6.00
65.92
76.00
0.87
                                                  PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                    0.17
6.00
75.00
76.00
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0.07
6.08
52.87
76.00
0.70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^2=89.0 I a Dep. Storage (Above) (ii) TIME STEP (OT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\pm}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | CALIE | STANDAYD ( 1122) | Area (ha)= 1.22 | STANDAYD ( 1122) | Total Imp(%)= 69.00 | Dir. Conn.(%)= 69.00 | Dir
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                  Surface Area (ha)= IMPERVIOUS
Dep. Storage (mm)= 1.00
Average Slope (%)= 1.00
Length (m)= 80.42
Mannings n = 0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PERVIOUS (i)
0.21
1.00
2.00
40.00
0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HYETOGRAPH

TIME

hrs

n
6.083
1.6.6167
1.6.250
1.6.333
1.6.417
1.6.500
1.6.583
1.6.417
1.6.700
1.6.583
1.6.417
1.7.000
1.7.083
1.7.000
1.7.083
1.7.167
1.7.167
1.7.333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TIME
hrs
3.083
3.167
3.250
3.333
3.417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RAIN
mm/hr
13.68 |
13.68 |
13.68 |
13.68 |
13.68 |
13.68 |
6.08 |
6.08 |
6.08 |
6.08 |
6.08 |
4.56 |
4.56 |
4.56 |
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
1.083
1.167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                    TRANSFORMED HYETOGRAPH
TIME RAIN 'TIME
hrs mm/hr 'h hrs m
1.06 30.04 6.0867 13.
3.04 6.333 13.
3.250 3.04 6.333 13.
4.17 3.04 6.530 13.
3.530 3.04 6.530 13.
3.530 3.04 6.500 13.
3.583 3.04 6.500 13.
3.683 3.04 6.500 13.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RAIN
mm/hr
13.68
13.68
13.68
13.68
13.68
13.68
6.08
6.08
6.08
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3.583
3.667
3.750
3.833
3.917
4.000
4.083
4.167
4.250
4.333
4.417
                                                                                                                                                                             TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
                                                                                                                                                                                                                                                                     RAIN
mm/hr
2.66
2.66
2.66
2.66
2.66
2.66
2.66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TIME
hrs
9.08
9.17
9.25
9.33
9.42
9.50
9.58
9.67
9.75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2.28 | 5.167
2.28 | 5.250
2.28 | 5.333
2.28 | 5.417
2.28 | 5.500
2.28 | 5.5667
2.28 | 5.750
2.28 | 5.833
2.28 | 5.917
2.28 | 6.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2.167
2.250
2.333
2.417
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2.583
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2.750
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100.32
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11.83
11.90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          100.32
5.00
2.39 (ii)
5.00
0.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    82.63
15.00
10.72 (ii)
15.00
0.09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           *TOTALS*
0.285 (iii)
6.00
67.91
76.00
0.89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PEAK FLOW (CmS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0.23
6.00
75.00
76.00
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0.06
6.08
52.87
76.00
0.70
                                                                                                                                                                                                                                                                                                                                                       100.32
5.00
2.40 (ii)
5.00
0.30
                                               Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     82.63
15.00
10.72 (ii)
15.00
0.09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     **** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     *TOTALS*
0.289 (iii)
6.00
68.14
76.00
0.90
                                                  PEAK FLOW (Cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                    0.23
6.00
75.00
76.00
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN° = 89.0 Ia = Dep. Storage (Above)

i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL

THAN THE STORAGE COEFFICIENT.

THAN THE COM DOES NOT INCLIDE BASEFLOW IF ANY.
                                               * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Map 
                                            Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ***** DETAILED OUTPUT *****
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\VO2\voin.dat
Output filename: C:\Users\caef070146\Appata\Loca\\Civica\\HS\\0564c49-8c07-4086-8157-8729fb3caba3\213cd234
summary filename: C:\Users\caef070146\Appata\Loca\\Civica\\HS\\0564c49-8c07-4086-8157-8729fb3caba3\213cd234
                                                                                              NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                 TRANSFORMED HYETOGRAPH
TIME RAIN | TIME | hrs mm/hr | 3.083 | 3.046 | 6.083 | 13.
3.083 | 3.046 | 6.083 | 13.
3.257 | 3.046 | 6.353 | 13.
3.257 | 3.046 | 6.350 | 13.
3.257 | 3.046 | 6.350 | 13.
3.250 | 3.046 | 6.350 | 13.
3.250 | 3.046 | 6.350 | 0.30 | 13.
3.500 | 3.046 | 6.350 | 0.30 | 13.
3.500 | 3.046 | 6.350 | 6.656 | 6.350 | 0.30 | 13.
3.500 | 3.046 | 6.056 | 6.350 | 0.30 | 13.
3.500 | 3.046 | 6.056 | 6.350 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30
                                                                                                                                                                                                                                                                        RAIN mm/hs | 13.68 | 13.68 | 13.68 | 13.68 | 13.68 | 13.68 | 13.68 | 14.56 | 14.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4
                                                                                                                                                                             TIME hrs 0.083 0.167 0.250 0.333 0.417 0.500 0.583 0.667 0.750 0.833 1.167 1.250 1.333 1.417 1.500 1.583 1.667 1.750 1.833 1.667 1.750 1.833 1.917
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TIME
9.08
9.17
9.25
9.33
9.42
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9.92
10.00
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10.17
10.25
10.58
10.75
10.58
10.75
10.75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          USER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RAIN | TIME | | TI
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4.00
4.25
4.50
4.75
5.00
5.25
5.75
6.00
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5.44
5.44
7.26
7.26
10.88
10.88
43.54
119.72
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7.25
7.50
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9.00
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.25
.50
                                                                                                                                                                                                                                                             1.00
1.25
1.50
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5.44
5.44
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3.17
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.25
.50
.75
| CALIB
| STANDHYD ( 10011)
|ID= 1 DT= 5.0 min
                                                                                                                                                                                                                                                                                                                                                          Area (ha)= 0.21 Total Imp(\%)= 79.00 Dir. Conn.(\%)= 79.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IMPERVIOUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PERVIOUS (i)
                                                                           Surface Area
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0.17
1.00
1.00
37.42
0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0.04
1.00
2.00
40.00
0.290
                                                                  Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                     NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HYETOGRAPH
'TIME
'hrs m
6.083 16
6.167 16
6.250 16
6.333 16
6.417 11
6.500 1
6.583
6.667
6.750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RATION RATE AND A STATE AND A 
                                                                                                                                                                                                                                                                                                                                                                            TIME hrs 0.083 0.167 0.250 0.250 0.250 0.333 0.667 0.500 0.833 0.667 1.250 0.750 0.500 1.083 1.083 1.417 1.250 0.500 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.2
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TIME hrss 9.08 9.17 9.25 9.33 9.42 9.58 9.58 9.58 9.58 9.58 10.00 10.17 10.25 10.33 10.40 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 10.50 
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6.833
6.917
7.000
7.083
7.167
7.250
7.333
7.417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    7.500
7.583
7.667
7.750
7.833
7.917
8.000
8.083
8.167
8.250
8.333
8.417
8.500
8.583
8.750
8.750
8.917
9.000
                                                                  Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                119.72
5.00
1.32
5.00
0.33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   102.72
10.00
5.54 (ii)
10.00
0.16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (ii)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               *TOTALS*
0.066 (iii)
6.00
84.80
90.70
0.93
                                                                           PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0.06
6.00
89.70
90.70
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0.01
6.00
66.45
90.70
0.73
                                                ** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                    IMPERVIOUS
0.52
1.00
1.00
69.76
0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PERVIOUS (i)
0.21
1.00
2.00
40.00
0.290
                                                                       Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                    (ha)=
(mm)=
(%)=
(m)=
                                                                                                                                     NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RAIN | TIME
| RAIN | TIME
| RAIN | TIME
| RAIN | HIST
| RA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TIME
6.083
6.167
6.250
6.333
6.500
6.500
6.500
6.500
6.667
7.0083
7.167
7.250
7.333
7.167
7.500
7.583
7.500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TIME hrs 0.083 0.167 0.250 0.250 0.167 0.250 0.167 0.250 0.417 0.250 0.417 0.500 0.417 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .81
.81
.81
.81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .81
.81
.81
.81
                                                                  Max.Eff.Inten.(mm/hr) = over (min)
Storage Coeff. (min) = Unit Hyd. Tpeak (min) = Unit Hyd. peak (cms) =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  119.72
5.00
1.92 (ii)
5.00
0.31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       i) 102.72
10.00
9.55 (ii)
10.00
0.12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          *TOTALS*
0.218 (iii)
6.00
82.95
90.70
0.91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0.17
6.00
89.70
90.70
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0.05
6.00
66.45
90.70
0.73
                                                                                        WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^\circ = 89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                          Area (ha)= 0.38 Total Imp(\%)= 66.00 Dir. Conn.(\%)= 66.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PERVIOUS (i)
0.13
1.00
2.00
40.00
0.290
                                                                  Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                        (ha)=
(mm)=
(%)=
(m)=
=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0.25
1.00
1.00
50.33
0.013
```

THAN THE STORAGE COEFFICIENT.

(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. Area (ha)= 0.83 Total Imp(%)= 75.00 Dir. Conn.(%)= 75.00 0.62 1.00 1.00 74.39 0.013 PERVIOUS (i) 0.21 1.00 2.00 40.00 0.290 Surface Area Dep. Storage Average Slope Length Mannings n (ha)= (mm)= (%)= (m)= NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. ORMED TO 5.0 MIN. TII

TRANSFORMED HYETOGRAPME RAIN ' TIME

"S mm/hr ' hrs | 1 TIME

"S mm/hr ' hrs | 1 TIME

"S mm/hr | 1 TIME TIME hrs 3.083 3.167 3.250 3.333 3.417 3.500 3.583 3.667 3.750 3.833 3.917 RAIL MARCH 16.33 16.33 16.33 16.33 16.33 16.33 16.33 16.33 16.33 16.33 16.33 16.33 16.33 16.33 16.35 1 9.08 9.17 9.25 9.33 9.42 9.50 9.67 9.75 9.83 9.92 10.00 10.08 10.17 10.25 10.33 0.083 0.167 0.750 0.250 0.333 0.417 0.500 0.500 0.750 0.750 0.750 0.750 0.100 1.083 1.000 1.1250 0.150 1.1250 0.150 1.1250 0.150 1.1250 4.000 4.083 4.167 4.250 4.333 3.17 1.81 1.81 1.81 1.81 4.417 4.500 4.583 4.667 4.783 4.917 5.000 5.083 5.167 5.250 5.333 5.417 5.500 5.583 5.667 5.750 5.833 5.917 6.000 10.42 10.50 10.58 10.67 10.75 10.83 10.92 11.00 11.08 11.17 11.25 11.33 11.42 11.50 11.50 11.75 11.83 11.75 11.83 11.95 11.95 1.81 1.81 1.81 1.81 1.81 1.81 3.000 Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)= 119.72 5.00 1.99 (ii) 5.00 0.31 102.72 10.00 6.62 (ii) 10.00 0.14 *TOTALS* 0.258 (iii) 6.00 83.88 90.70 0.92 PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT = 0.21 6.00 89.70 90.70 0.99 0.05 6.00 66.45 90.70 0.73 * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^{\circ}=89.0$ Ia=bep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

(111) FEAR FEON DOES NOT INCEDDE BASEFEON IT ANTI-

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP

| NOTE: | RAINFALL WA | S TRANSFORM | IED TO | 5.0 MIN. | TIME STE | Р. | |
|---|--|--|----------------------------------|--|----------------------------------|---------------|--|
| | TIME hrs man (1.60 m) | IN TIME | RAIN mm/hr | D HYETOGRAE RAIN mm/hr | TIME hrs | RAIN mm/hr 3:17 3:17 3:17 3:17 3:17 3:17 3:17 3:17 |
| Storage Co Unit Hyd. Unit Hyd. PEAK FLOW TIME TO PE RUNOFF VOL TOTAL RAIN RUNOFF COE | over (min) eff. (min)= Tpeak (min)= peak (cms)= (cms)= AK (hrs)= UME (mm)= FALL (mm)= FFICIENT = | 5.00 1.57 5.00 0.33 0.08 6.00 89.70 90.70 | (ii) | 10.00 9.21 (ii) 10.00 0.12 0.03 6.00 66.45 90.70 0.73 | *TOT 0. 6 81 90 0 | | |
| CN* (ii) TIME THAN | ROCEDURE SEL = 89.0 STEP (DT) S THE STORAGE FLOW DOES N | ECTED FOR F Ia = Dep. HOULD BE SM COEFFICIEN | PERVIOUS Storage MALLER OR | LOSSES: (Above) E EQUAL | | | |
| CALIB STANDHYD (10 | | (ha)= | 0.39 | | | | |

| CALID | STANDHYD (10032) | Area (ha) = 0.39 | Dir. Conn.(%) = 79.00 | Total Imp(%) = 79.00 | Dir. Conn.(%) = 79.00 | Surface Area (ha) = 0.31 | 0.08

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

TIME RAIN TIME RAIN TIME RAIN TIME RAIN No. 0.83 2.27 3.083 3.63 6.083 16.33 9.08 3.17 0.167 2.27 3.167 3.63 6.167 16.33 9.17 3.17

| 0.250 2.27 3.250 3.63 6.250 16.33 9.25 3.17 0.333 2.27 3.333 3.63 6.333 16.33 9.23 3.17 0.301 2.27 3.333 3.63 6.333 16.33 9.23 3.17 0.508 2.27 3.500 3.63 6.430 16.33 9.20 3.17 0.508 2.27 3.500 3.63 6.583 7.26 9.58 3.17 0.583 2.27 3.583 3.63 6.583 7.26 9.58 3.17 0.750 2.27 3.667 3.63 6.583 7.26 9.58 3.17 0.750 2.27 3.750 3.63 6.750 7.26 9.67 3.17 0.833 2.27 3.853 3.63 6.853 7.26 9.57 3.17 0.831 2.27 3.853 3.63 6.250 7.26 9.67 3.17 0.100 2.27 4.000 3.63 7.000 7.26 9.83 3.17 1.003 2.27 4.000 3.63 7.000 7.26 10.00 3.17 1.083 2.27 4.083 5.44 7.083 5.44 10.08 1.81 1.167 2.27 4.167 5.44 7.167 5.44 10.17 1.81 1.250 2.27 4.250 5.44 7.255 5.44 10.17 1.81 1.333 2.27 4.337 5.44 7.337 5.44 10.33 1.81 1.583 2.27 4.583 7.26 7.583 5.44 10.58 1.81 1.583 2.27 4.583 7.26 7.583 5.44 10.58 1.81 1.667 2.27 4.667 7.26 7.585 5.44 10.58 1.81 1.833 2.27 4.833 7.26 7.835 5.44 10.88 1.81 1.583 2.27 4.853 7.26 7.583 5.44 10.58 1.81 1.833 2.27 4.853 7.26 7.83 5.44 10.88 1.81 1.250 2.27 4.500 5.44 7.337 5.44 10.08 1.81 1.583 2.27 4.853 7.26 7.883 5.44 10.58 1.81 1.667 2.27 4.667 7.26 7.585 5.44 10.75 1.81 1.833 2.27 4.833 7.26 7.835 5.44 10.82 1.81 1.200 2.27 5.200 7.26 7.667 5.44 10.17 1.81 1.200 2.27 5.200 7.26 7.667 5.44 10.17 1.81 1.200 2.27 5.200 7.26 7.60 7.50 5.44 10.17 1.81 1.200 2.27 5.200 7.26 7.60 7.50 5.44 10.17 1.81 1.200 2.27 5.500 10.88 8.803 3.17 11.08 1.81 2.083 2.77 5.500 10.88 8.803 3.17 11.09 1.81 2.083 2.77 5.500 10.88 8.803 3.17 11.09 1.81 2.083 2.77 5.500 10.88 8.333 3.17 11.08 1.81 2.167 2.77 5.83 10.78 8.833 3.17 11.58 1.81 2.200 2.77 5.500 10.88 8.333 3.17 11.81 2.200 2.77 5.500 10.88 8.333 3.17 11.82 1.81 2.200 2.77 5.500 10.88 8.333 3.17 11.82 1.81 2.200 2.77 5.500 10.88 8.333 3.17 11.82 1.81 2.200 2.77 5.500 10.88 8.333 3.17 11.82 1.81 2.200 2.77 5.500 10.88 8.333 3.17 11.82 1.81 2.200 2.77 5.500 10.88 8.333 3.17 11.82 1.81 2.200 2.77 5.83 110.77 8.83 3.17 11.82 1.81 2.200 2.77 5.83 110.77 8.83 3.17 11.82 1.81 2.200 2.77 5.83 110.77 8.83 3.17 11.82 1.81 2.200 2.77 5.83 110.77 8.83 3.17 11.82 1.81 2.200 2.77 5.83 | 0.917 2.27 3.917 3.63 6.917 7.26 9.92 3 1.000 2.27 4.000 3.63 7.000 7.26 10.00 3 1.1083 2.27 4.000 3.63 7.000 7.26 10.00 3 1.167 2.27 4.167 5.44 7.167 5.44 10.17 1 1.250 2.27 4.250 5.44 7.250 5.44 10.17 1 1.250 2.27 4.250 5.44 7.250 5.44 10.17 1 1.333 2.27 4.333 5.44 7.333 5.44 10.33 1 1.417 2.27 4.417 5.44 7.415 5.44 10.45 1 1.500 2.27 4.617 5.47 7.415 5.44 10.45 1 1.500 2.27 4.617 5.47 7.415 5.44 10.45 1 1.500 2.27 4.617 5.47 7.415 5.44 10.58 1 1.667 2.27 4.617 5.47 7.61 7.63 5.44 10.58 1 1.687 2.27 4.683 7.67 7.83 5.44 10.67 1 1.750 2.27 4.617 7.26 7.26 7.53 5.44 10.67 1 1.750 2.27 4.617 7.26 7.26 7.53 5.44 10.67 1 1.833 2.27 4.833 7.26 7.83 5.44 10.67 1 1.833 2.27 4.837 7.26 7.26 7.50 5.44 10.67 1 1.917 2.27 4.917 7.26 7.917 5.44 10.83 1 1.917 2.27 4.917 7.26 7.917 5.44 10.83 1 2.107 2.77 5.000 7.28 8.80 5.43 11.08 1 2.200 2.72 5.167 10.88 8.167 3.17 11.18 1 2.250 2.72 5.250 10.88 8.250 3.17 11.25 1 2.333 2.72 5.333 10.88 8.333 3.17 11.33 1 2.417 2.72 5.417 10.88 4.17 3.17 11.51 1 2.500 2.72 5.500 10.88 8.303 3.17 11.35 1 2.500 2.72 5.500 10.88 8.303 3.17 11.40 1 2.500 2.72 5.500 10.88 8.303 3.17 11.40 1 2.500 2.72 5.500 10.88 8.303 3.17 11.40 1 2.500 2.72 5.500 10.88 8.303 3.17 11.91 1 2.500 2.72 5.607 43.54 8.667 3.17 11.92 1 2.750 2.72 5.607 43.54 8.667 3.17 11.92 1 2.750 2.72 5.500 10.80 8.803 3.17 11.92 1 2.833 2.72 5.833 11.972 8.833 3.17 11.59 1 2.833 2.72 5.835 11.972 8.833 3.17 11.59 1 2.917 2.72 5.607 43.54 8.667 3.17 11.92 1 3.000 2.72 5.606 6.00 6. |
|---|--|
| (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN = 89.0 | CALIB STANDHYD (10042) ID= 1 OT= 5.0 min Total Imp(%) = 74.00 Dir. Conn.(%) = 74.00 |
| 1.583 2.27 4.583 7.26 7.583 5.44 10.58 1.81 1.667 2.27 4.667 7.26 7.667 5.44 10.67 1.81 1.750 2.27 4.675 7.26 7.667 5.44 10.67 1.81 1.833 2.27 4.833 7.26 7.833 5.44 10.83 1.81 1.937 2.27 4.833 7.26 7.833 5.44 10.83 1.81 1.937 2.27 4.833 7.26 7.833 5.44 10.83 1.81 1.937 2.27 4.833 7.26 7.833 5.44 10.83 1.81 1.937 2.27 5.000 7.26 8.300 5.44 10.90 1.81 2.083 2.72 5.083 10.88 8.083 3.17 11.08 1.81 2.167 2.72 5.167 10.88 8.250 3.17 11.08 1.81 2.250 2.72 5.250 10.88 8.250 3.17 11.75 1.81 2.250 2.72 5.250 10.88 8.333 3.17 11.33 1.81 2.437 2.77 5.437 10.88 8.333 3.17 11.33 1.81 2.437 2.75 5.83 41.85 8.333 3.17 11.88 1.81 2.583 2.72 5.834 8.583 3.17 11.88 1.81 2.667 2.72 5.667 43.54 8.583 3.17 11.88 1.81 2.667 2.72 5.667 43.54 8.583 3.17 11.88 1.81 2.750 2.77 5.667 43.54 8.583 3.17 11.58 1.81 2.833 2.77 5.833 119.72 8.833 3.17 11.75 1.81 2.833 2.77 5.833 119.72 8.833 3.17 11.75 1.81 2.917 2.77 5.917 119.72 8.81 3.17 11.75 1.81 2.917 2.77 5.937 119.72 8.81 3.17 11.29 1.81 2.917 2.77 5.630 10.00 0.00 3.17 11.75 1.81 3.000 2.77 6.000 119.72 9.000 3.17 12.00 1.81 MAX.EFF.Inten.(mm/hr)= | 2.250 2.72 5.250 10.88 8.250 3.17 11.25 1 2.333 2.77 5.333 10.88 8.333 3.17 11.33 1 2.417 2.72 5.417 10.88 8.417 3.17 11.33 1 2.500 2.72 5.503 10.88 8.503 3.17 11.35 1 2.500 2.72 5.500 10.88 8.503 3.17 11.50 1 2.503 2.72 5.583 43.54 8.583 3.17 11.50 1 2.750 2.72 5.503 43.54 8.583 3.17 11.57 1 2.750 2.77 2.77 5.417 11.77 1 2.750 2.77 2.77 5.813 11.97 2.833 3.17 11.77 1 2.833 2.77 5.833 11.97 2.833 3.17 11.83 1 2.917 2.77 5.917 119.72 8.917 3.17 11.83 1 2.917 2.72 6.000 119.72 9.000 3.17 11.92 1 3.000 2.72 6.000 119.72 9.000 3.17 11.90 1 MAX.Eff.Inten.(mm/hr)= |
| (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN = 89.0 | CALIB STANDHYD (10051) ID |

RAIN mm/hr 3 .177 3 .177 3 .177 3 .177 3 .177 3 .177 3 .177 3 .177 1 .811

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2.917 2.72 | 5.917 119.72 | 8.917 3.17 | 11.92 1.81
3.000 2.72 | 6.000 119.72 | 9.000 3.17 | 12.00 1.81
                                                                                            Max.Eff.Inten.(mm/hr)=
	over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        119.72
5.00
1.56 (ii)
5.00
0.33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             102.72
10.00
9.19 (ii)
10.00
0.12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    *TOTALS*
0.109 (iii)
6.00
81.77
90.70
0.90
                                                                                            PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0.08
6.00
89.70
90.70
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0.03
6.00
66.45
90.70
0.73
                                                                                            * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                            (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^\circ = 89.0 Ia = Dep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
      | CALIB | | STANDHYD ( 10052) | Area (ha)= 0.36 | | ID= 1 DT= 5.0 min | Total Imp(%)= 62.00 Dir. Conn.(%)= 62.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     IMPERVIOUS
0.22
1.00
1.00
48.99
0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PERVIOUS (i)
                                                                                      Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0.14
1.00
2.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      40.00
                                                                                                                                                                                        NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MSFORMED HYLLIUME RAIN | TIME mm/hr | hrs 
                                                                                                                                                                                                                                                                                                                                            TIME (No. 83) (1.67) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1.75) (1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RAIN (MARCH 1997) 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TIME hrss 9.08 9.17 9.253 9.450 9.58 9.58 9.58 9.58 9.58 9.58 10.00 10.00 10.17 10.25 10.33 10.40 10.50 10.50 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.15 11.1
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over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        119.72
5.00
1.55 (ii)
5.00
0.33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           102.72
10.00
9.18 (ii)
10.00
0.12
                                                                                                  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = bep. Storage (Above) (ii) TIME STEP (bT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
CALIB
| STANDHYD ( 10061)
|ID= 1 DT= 5.0 min
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Area (ha)= 0.65 Total Imp(\%)= 65.00 Dir. Conn.(\%)= 65.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      IMPERVIOUS (1)

= 0.42 0.23

= 1.00 1.00

= 1.00 2.00

= 65.83 40.00

= 0.013 0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (ha)=
(mm)=
(%)=
(m)=
=
                                                                                                        Surface Area
                                                                                                  Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                  NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HYETOGR
TIME
hrs
6.083
6.167
6.250
6.333
6.417
6.500
6.583
6.667
6.750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NSFORMED HYELIOUS RAIN | TIME | TIME | NEW | TIME | NEW | NE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | MAIN | 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RAIN mm/hr 16.333 16.6.333 16.333 16.333 16.333 16.333 17.266 16.333 16.333 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.333 17.266 16.356 16.356 16.356 16.356 16.356 16.356 16.356 16.356 16.356 16.356 16.356 16.356 16.356 16.
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                                                                                            Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        119.72
5.00
1.85 (ii)
5.00
0.32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    102.72
10.00
9.48 (ii)
10.00
0.12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             *TOTALS*
0.190 (iii)
6.00
81.55
90.70
0.90
                                                                                                        PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0.14
6.00
89.70
90.70
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0.05
6.00
66.45
90.70
0.73
***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = Dep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
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TOTALS 0.104 (iii) 6.00 80.85 90.70 0.89 0.07 6.00 89.70 90.70 0.99 PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
RUNOFF COEFFICIENT = WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^{\circ}=89.0$ I a= bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. | CALIB | STANDHYD (10062)| |ID= 1 DT= 5.0 min | Area (ha)= 0.66 Total Imp(%)= 62.00 Dir. Conn.(%)= 62.00 PERVIOUS (i) 0.25 1.00 2.00 40.00 0.290 IMPERVIOUS 0.41 1.00 1.00 66.33 0.013 Surface Area
Dep. Storage
Average Slope
Length
Mannings n

(ha)=
(mm)=
(mm)=
(m)= NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. --- TRANSFORMED HYETOGR TIME RAIN | TIME hrs mm/hr | hrs 3.083 3.63 6.083 3.167 3.63 6.167 3.250 3.63 6.250 3.333 3.63 6.333 TIME hrs 9.08 9.17 9.25 9.33 9.42 9.50 9.58 9.67 9.75 9.83 10.08 10.17 10.25 10.58 10.75 10.83 10.42 10.58 10.75 10.83 10.92 mm,/hr | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | 3.63 | hrs 6.083 6.167 6.250 6.333 6.417 6.500 6.583 6.667 7.000 7.003 7.167 7.253 7.417 7.500 7.583 7.457 7.750 7.750 7.750 7.750 hrss (0.167 d) (0.183 d) (0.167 d) (0.183 d) (0.167 d) (0.183 d) (0.184 d) (3.417 3.500 3.583 3.667 3.750 3.833 3.917 4.000 4.083 4.167 4.500 4.333 4.417 4.500 4.667 4.750 4.833 4.917 1.81 1.81 1.81 1.81 1.81 5.000 5.083 5.167 5.250 5.333 5.417 5.500 5.583 5.667 5.750 5.833 5.917 6.000 8.000 8.083 8.167 8.250 8.333 8.417 8.500 8.583 8.653 8.750 8.833 8.917 9.000 11.00 11.08 11.17 11.25 11.33 11.42 11.50 11.58 11.67 11.75 11.83 11.92 12.00 Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)= 119.72 5.00 1.86 (ii) 5.00 0.32 102.72 10.00 9.49 (ii) 10.00 0.12 *TOTALS*
0.191 (iii)
6.00
80.86
90.70
0.89 0.14 6.00 89.70 90.70 0.99 PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT = 0.05 6.00 66.45 90.70 0.73 **** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! 00

| CALIB | | | | | |
|---|-------------------------------------|--|------------------|--|------|
| STANDHYD (10072) | Area_ | (ha)= | 0.74 | | |
| ID= 1 DT= 5.0 min | Total | Imp(%)= | 71.00 | Dir. Conn.(%)= | 71.0 |
| Surface Area Dep. Storage Average Slope Length Mannings n | (ha)= (mm)= (%)= (m)= = | IMPERVIO 0.5 1.00 1.00 70.24 0.01 | 3 0 0 4 | PERVIOUS (i) 0.21 1.00 2.00 40.00 0.290 | |
| | | | | | |

| NOTE: RAINFA | LL WAS TE | RANSFORME | D TO | 5.0 MIN. | TIME STE | Р. | |
|---------------------------------------|----------------|----------------|-----------------|------------------|----------------|----------------|---------------|
| | | | | | | | |
| | | | NSFORME | DHYETOGR | | | |
| TIME hrs | RAIN mm/hr | TIME hrs | RAIN mm/hr | ' TIME ' hrs | RAIN mm/hr | | RAIN mm/hr |
| 0.083 | 2.27 | 3.083 | 3.63 | 6.083 | 16.33 | | 3.17 |
| 0.167 | 2.27 | 3 167 | 3.63 | 6.167 | 16.33 | 9.17 | 3.17 |
| 0.250 | 2.27 | 3.250 | 3.63 | 6.250 | 16.33 | 9.25 | 3.17 |
| 0.333 0.417 | 2.27 | 3.333 | 3.63 | 6.333 | 16.33 16.33 | 9.33 | 3.17 |
| 0.500 | 2.27 | 3.500 | 3.63 | 6.417 | 16.33 | 9.42 9.50 | 3.17 |
| 0.583 | 2.27 | 3.583 | 3.63 | 6.583 | 7.26 | 9.58 | 3.17 |
| 0.667 0.750 | 2.27 | 3.667 | 3.63 | 6.667 | 7.26 | 9.67 9.75 | 3.17 |
| 0.730 | 2.27 | 3.833 | 3.63 | 6.833 | 7.26 | 9.83 | 3.17 |
| 0.917 | 2.27 | 3.917 | 3.63 | 6.917 | 7.26 | 9.92 | 3.17 |
| 1.000 | 2.27 | 4.000 | | 7.000 | 7.26 | 10.00 | 3.17 |
| 1.083 1.167 | 2.27 | 4.083 | 5.44 5.44 | | 5.44 | 10.08 10.17 | 1.81 |
| 1.250 | 2.27 | 4.250 | 5.44 | 7.250 | 5.44 | 10.25 | 1.81 |
| 1.333 | 2.27 | 4.333 | 5.44 | | 5.44 | | 1.81 |
| 1.417 1.500 | 2.27 | 4.417 4.500 | 5.44 5.44 | 7.417 7.500 | 5.44 | 10.42 10.50 | 1.81 |
| 1.583 | 2.27 | 4.583 | 7.26 | 7.583 | 5.44 | | 1.81 |
| 1.667 | 2.27 | 4.667 | 7.26 | 7.667 | 5.44 | 10.67 | 1.81 |
| 1.750 1.833 | 2.27 | 4.750 | 7.26 | 7.750 | 5.44 | 10.75 10.83 | 1.81 |
| 1.917 | 2.27 | 4.917 | 7.26 | 7.917 | 5.44 5.44 | 10.92 | 1.81 |
| 2.000 | 2.27 | 5.000 | 7.26 | 8.000 | 5.44 | 11.00 | 1.81 |
| 2.083 2.167 | | 5.083 5.167 | 10.88 | 8.083 8.167 | 3.17 | 11.08 11.17 | 1.81 1.81 |
| 2.250 2.333 | 2.72 | 5.250 | 10.88 | 8.250 | 3.17 3.17 | 11.25 | 1.81 |
| 2.333 | 2.72 | 5.333 | 10.88 | 8.333 | 3.17 | 11.33 | 1.81 |
| 2.417 2.500 | 2.72 | 5.417 | 10.88 | 8.417 8.500 | 3.17 3.17 | 11.42 11.50 | 1.81 |
| 2.583 | 2.72 | 5.583 | 43.54 | 8.583 | 3 17 | | 1.81 |
| 2.667 | 2.72 | 5.667 | 43.54 | 8.667 8.750 | 3.17 3.17 | 11.67 | 1.81 |
| 2.750 2.833 | 2.72 | 5.750 | 43.54 119.72 | 8.750 | 3.17 | 11.75 11.83 | 1.81 |
| 2.033 | 2.72 | 5.833 5.917 | 119.72 | 8.917 | 3.17 3.17 | 11.92 | 1.81 |
| | 2.72 | 6.000 | 119.72 | 9.000 | 3.17 | 12.00 | 1.81 |
| Max.Eff.Inten.(mm | /hr)- | 119.72 | 10 | 02.72 | | | |
| over (| min) | 5.00 | | 10.00 | | | |
| | min)= | 1.92 | (ii) | 9.56 (ii |) | | |
| Unit Hyd. Tpeak (Unit Hyd. peak (| mın)= cms)= | 5.00 0.31 | | 10.00 0.12 | | | |
| | | | | | *T01 | ALS* | |
| PEAK FLOW (| cms)= | 0.17 6.00 | | 0.05 | 0, | 221 (iii) | 1 |
| | hrs)= (mm)= | 89.70 | | 6.00 66.45 | g: | .00 | |
| TOTAL RAINFALL | (mm)= | 90.70 | | 90.70 0.73 | 90 | .70 | |
| RUNOFF COEFFICIEN | | 0.99 | | 0.73 | (| .91 | |
| | | | | | | | |

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

CALIB | STANDHYD (10071) | ID= 1 DT= 5.0 min | Area (ha)= 0.72 Total Imp(%)= 60.00 Dir. Conn.(%)= 60.00 IMPERVIOUS PERVIOUS (i)

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Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                      (%)=
(m)=
=
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Nrs (0.883 (0.167 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1
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over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
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0.059 (iii)
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90.70
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TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
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6.00
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over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      *TOTALS*
0.206 (iii)
6.00
80.39
90.70
0.89
                                                                     PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0.14
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                                            ** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^{\circ}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SMOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Area (ha)= 0.21
Total Imp(%)= 87.00 Dir. Conn.(%)= 87.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Surface Area (ha) =
Dep. Storage (mm) =
Average Slope (%) =
Length (m) =
Mannings n =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IMPERVIOUS 0.18 0.03 1.00 1.00 1.00 2.00 37.42 40.00 0.013 0.290
        | CALIB | STANDHYD ( 10081) | Area (ha) = 0.21 | Total Imp(%) = 52.00 | Dir. Conn.(%) = 52.00 | IMPERVIOUS | PERVIOUS (i)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                              \begin{array}{c} \text{IMPERVIOUS} \\ \text{(ha)=} & 0.11 \\ \text{(mm)=} & 1.00 \\ \text{(\%)=} & 1.00 \\ \text{(m)=} & 37.42 \\ \text{=} & 0.013 \\ \end{array}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PERVIOUS (i)
0.10
1.00
2.00
40.00
0.290
                                                                 Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TIME RAIN | TIME hrs mm/hr | hrs m 3.083 3.63 6.083 16 3.65 6.253 16 3.33 3.63 6.253 16 3.33 3.63 6.333 16 3.33 3.63 6.333 16 3.33 3.63 6.353 16 3.50 3.63 6.500 18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RAPH ----
RAIN |
mm/hr |
16.33 |
16.33 |
16.33 |
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16.33 |
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hrs
0.083
0.167
0.250
0.333
0.417
0.500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RAIN
mm/hr
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2.27
2.27
                                                                                                                          NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                     ---- TRANSFORMED HYETOGRAPH ----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2.27 | 4.250 | 5.44 |
2.27 | 4.333 | 5.44 |
2.27 | 4.417 | 5.44 |
2.27 | 4.450 | 5.44 |
2.27 | 4.508 | 5.44 |
2.27 | 4.583 | 7.26 |
2.27 | 4.658 | 7.26 |
2.27 | 4.673 | 7.26 |
2.27 | 4.917 | 7.26 |
2.27 | 4.917 | 7.26 |
2.27 | 5.000 | 7.26 |
2.27 | 5.001 | 0.88 |
2.72 | 5.167 | 0.88 |
2.72 | 5.167 | 0.88 |
2.72 | 5.558 | 4.81 |
2.72 | 5.558 | 4.81 |
2.72 | 5.558 | 4.84 |
2.72 | 5.558 | 4.84 |
2.72 | 5.583 | 4.84 |
2.72 | 5.667 | 43.54 |
2.72 | 5.667 | 43.54 |
2.72 | 5.750 | 43.54 |
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2.72 | 5.750 | 43.54 |
2.72 | 5.750 | 43.54 |
2.72 | 5.750 | 43.54 |
2.72 | 5.750 |
2.72 | 5.917 |
2.73 | 6.000 |
2.74 | 7.26 |
2.74 | 7.26 |
2.75 | 7.26 |
2.77 | 7.26 |
2.77 | 7.26 |
2.77 | 7.26 |
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                102.72
10.00
ii) 5.85 (ii)
10.00
0.15
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0.200 (iii)
6.00
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90.70
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0.17
6.00
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90.70
0.99
                                                             Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                119.72 102.72
5.00 5.00
1.32 (ii) 4.67 (ii)
5.00 5.00
0.33 0.22
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      *TOTALS*
0.068 (iii)
6.00
86.66
90.70
0.96
                                                                 PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0.06
6.00
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90.70
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                                                                 * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN° = 89.0 Ia = Dep. Storage (Above)

ITAM STEP (DT) SMOULD BE SMALLER OR EQUAL

THAN THE STORAGE COEFFICIENT.

(iii) PEAK FLOW DOES NOT INCLIDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Area (ha)= 0.50
Total Imp(%)= 74.00 Dir. Conn.(%)= 74.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | IMPERVIOUS | PERVIOUS (1) | (ha) = 1.00 | 1.00 | 1.00 | (%) = 1.00 | 2.00 | (m) = 57.74 | 40.00 | = 0.013 | 0.290 |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Surface Area
Dep. Storage
Average Slope
Length
Mannings n
| CALIB
| STANDHYD ( 10092)
|ID= 1 DT= 5.0 min
                                                                                                                                                                                                                                                                                                                          Area (ha)= 0.63 Total Imp(\%)= 81.00 Dir. Conn.(\%)= 81.00
                                                                 Surface Area (ha)=
Dep. Storage (mm)=
Average Slope (%)=
Length (m)=
                                                                                                                                                                                                                                                                                                                                                                                                                IMPERVIOUS PERVIOUS (i) 0.51 0.12 1.00 1.00 1.00 2.00 64.81 40.00 0.013 0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TRANSFORMED HYETOGRAPH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HYETOGE
TIME
0.83
6.167
6.250
6.333
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6.583
6.667
6.750
6.833
6.917
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TIME
hrs
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0.167
0.250
0.333
0.417
0.508
0.667
0.753
0.917
1.000
1.167
1.250
1.333
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1.500
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3.167
3.250
3.333
3.417
3.500
3.583
3.750
3.833
4.000
4.083
4.000
4.083
4.167
4.250
4.583
4.667
4.750
4.750
4.833
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mm/h33.633
33.6633
33.6633
33.6633
33.6633
33.6633
33.6633
35.444
55.444
55.444
57.266
77.266
77.266
                                                                                                                          NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                             TIME hrs 3.083 3.167 3.250 3.333 3.417 3.500 3.583 3.667 3.750 3.833 3.917 4.003 4.083 4.167
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mm/hr
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                                                                                                                                                                                                                                                                                                                                                   TIME hrs 6.083 6.167 6.250 6.333 6.417 6.500 6.583 6.667 6.750 6.833 6.917 7.000 7.083 7.167
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hrs
9.08
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TIME hrs 9.08 9.17 9.25 9.33 9.42 9.50

10. 25 10. 33 10. 42 10. 50 10. 58 10. 67 10. 78 11. 08 11. 17 11. 23 11. 33 11. 42 11. 58 11. 68 11. 68 11. 68 11. 75 11. 83 11. 83 11. 92

TIME 9.08 9.17 9.25 9.33 9.42 9.50 9.58 9.75 9.83 10.00 10.17 10.23 10.42 10.58 10.67 10.75

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RAIN mm/hr 3.17 3.17 3.17 3.17 3.17 3.17

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|--|--|--|--|
| CALIB | (ha)= 0.91 pp(%)= 55.00 Dir. Conr pp(%)= 55.00 Dir. Conr IMPERVIOUS (1.00 1.00 1.00 1.00 2.00 77.89 40.00 0.013 0.290 RANSFORMED HYETOGR TIME RAIN ! TIME RAIN ! TIME RAIN ! TIME RAIN ! TIME SAIN ! T | TIME STEP. APH RAIN TIME mm/hr hes m 16.33 9.17 3 16.33 9.33 3 16.33 9.38 3 16.33 9.58 3 17.26 9.67 3 7.26 9.75 3 7.26 9.75 3 7.26 9.75 3 7.26 9.75 3 7.26 9.75 3 7.26 9.75 3 7.26 9.75 3 7.26 9.75 3 7.26 9.75 3 7.26 9.75 3 7.26 9.75 3 | RAIN mm/hr |
| 1.250 2.27 1.333 2.27 1.417 2.27 1.500 2.27 1.500 2.27 1.667 2.27 1.667 2.27 1.732 2.27 1.732 2.27 2.000 2.77 2.000 2.77 2.000 2.77 2.000 2.77 2.000 2.77 2.167 2.72 2.167 2.72 2.167 2.72 2.250 2.72 2.333 2.72 2.417 2.77 2.500 2.72 2.417 2.77 2.500 2.72 2.187 2.72 2.190 2.72 | 4.167 5.44 7.167 4.230 5.44 7.250 4.331 5.44 7.250 4.331 5.44 7.417 4.500 5.44 7.500 4.583 7.26 7.580 4.667 7.26 7.667 4.750 7.26 7.667 4.750 7.26 7.766 4.750 7.26 7.783 4.831 7.26 7.783 4.831 7.26 8.000 5.083 10.88 8.083 5.167 10.88 8.163 5.167 10.88 8.250 5.250 10.88 8.250 5.250 10.88 8.500 | 3.44 10.15 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | . 81 . 81 . 81 . 81 . 81 . 81 . 81 . 81 |
| WARNING: STORAGE COEFF. (i) CN PROCEDURE SELECT (i) CN PROCEDURE SELECT (ii) TIME STEP (DT) SHO (iii) TIME STEP (DT) SHO (iii) PEAK FLOW DOES NOT CALIB CALIB STANDHYD (1111) | 90.79 90.73 IS SMALLER THAN TIME STEF ED FOR PERVIOUS LOSSES: = Dep. Storage (Above) LD BE SMALLER OR EQUAL EFFICIENT. INCLUDE BASEFLOW IF ANY. | 83.19 83.70 90.70 0.92 | |
| NES mm/h NES mm/h NES NE | 3.133 3.63 6.333 3.417 3.63 6.417 3.500 3.63 6.583 3.667 3.63 6.583 3.667 3.63 6.567 3.833 3.63 6.567 3.833 3.63 6.750 3.833 3.63 6.750 3.833 3.63 6.750 4.083 5.44 7.083 4.167 5.44 7.167 4.250 5.44 7.250 4.250 5.44 7.250 4.333 5.44 7.333 4.417 5.44 7.417 4.500 5.44 7.500 4.833 7.26 7.567 4.833 7.26 7.750 4.833 7.26 7.750 4.833 7.26 7.833 4.917 7.26 7.750 4.833 7.26 8.803 5.167 10.88 8.167 5.083 10.88 8.163 5.167 10.88 8.417 5.00 8.83 8.23 5.167 10.88 8.417 5.500 10.88 8.418 5.117 10.88 8.433 5.417 10.88 8.433 | 16.33 9.08 13 16.33 9.17 16.33 9.23 3 16.33 9.23 3 16.33 9.23 3 16.33 9.23 16.33 9.23 16.33 9.23 16.33 9.23 16.33 9.23 16.33 9.25 16.33 9.25 16.33 9.25 16.33 19.25 16.3 | RAIN m/hr1717 |
| Max.Eff.Inten.(mm/hr)= | 119.72 102.72 5.00 10.00 2.14 (ii) 9.77 (ii | | |

| MX FLOW (cms) = 0.17 0.09 1073 (111) MX FLOW (mms) = 6.00 6.00 6.20 79.23 MX FLOW (mm) = 89.70 66.45 79.23 MX FLOW (mm) = 89.70 66.45 79.23 MX FLOW (mm) = 89.70 90.70 90.70 90.70 MX FLOW (mm) = 89.70 12 90.70 90.70 MX FLOW (mm) = 72.00 12 90.70 90.70 MX FLOW (mm) = 1.00 1.00 MX FLOW (mm) = 76.59 90.00 MX FLOW (mm) = 1.00 1.00 MX FLOW (mm) = 76.59 90.00 MX FLOW (mm) = 70.00 MX FL | MX FLOW Comes 0.17 | AN FLOW (CERS) = 0.17 0.09 0.0455 (MFT OPEAR (hrs) = 6.00 6.00 6.00 6.00 NOFF VOLUME (mm) = 89.70 66.45 79.23 ATAL RAINHALL (mm) = 90.70 90.70 90.70 NOFF CORFICTION = 0.99 0.73 0.87 ARRING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (1) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: (CM = 88.0 1a. Dep. Storage (Above) ITAL THAN THE STEP STORAGE COEFFECISMLER OR REQUAL HYD (1102) | MX FLOW (cms)= 0.17 0.09 0.0255 (iii) WE TO PEAK (TS)= 6.00 6.00 6.00 6.00 6.00 7.00 7.00 7.00 | ME FLOW (cms) = 6.07 0.09 10.35 (rit) METO PRANE (FOR PARK (FOR | 2.5i 2.6i 2.7; 2.8; 2.9; 3.0i x.Eff.Inten. ove orage Coeff. it Hyd. Tpeal it Hyd. Tpeal | 67 2.72 50 2.72 33 2.72 17 2.72 00 2.72 | 5 667 43 | 54 8.583 54 8.667 54 8.750 72 8.833 72 8.917 72 9.000 102.72 10.00 9.68 (ii) 10.00 | 3.17 3.17 3.17 3.17 3.17 3.17 | 11.58 11.67 11.75 11.83 11.92 12.00 | 1.81 1.81 1.81 1.81 1.81 1.81 |
|--|---|--|--|--|---|--|--|--|---|--|---|
| Surface Area (ha) | CALTB STANDHYD (1102) | CALTB STANDYDY (1102) Area | CALIE CA | CALIB STANDHYD (1102) The 1 IDT 5.0 min | PEAK FLOW TIME TO PEAK RUNOFF VOLUME TOTAL RAINFALL RUNOFF COEFFICE | (cms)= (hrs)= (mm)= (mm)= IENT = | 0.17 6.00 89.70 90.70 0.99 | 0.09 6.00 66.45 90.70 0.73 | 0.: 6 79 90 0 | 255 (iii) .00 .23 .70 | |
| STANDHYD (1102) | STANDHOD (1102) | STANDHO | STANDING (1102) Area (ha) = 0.88 DIT. COOR. (%) = 72.00 DIT. | STANDYO (1102) Area | (i) CN PROCEI CN* = (ii) TIME STEI THAN THE (iii) PEAK FLON | DURE SELECTED 89.0 IA = P (DT) SHOULD STORAGE COEF W DOES NOT IN | FOR PERVIO Dep. Stora BE SMALLER FICIENT. CLUDE BASEF | US LOSSES: ge (Above) OR EQUAL LOW IF ANY. | | | |
| Average Slope (%) = 1.00 | Average Slope (%) = 1.00 | Average Slope (%) = 1.00 | Average Siope (%)= 1.00 2.00 Length (m)= 76.53 0.200 Length (m)= 76.500 Len | Average Slöpe (%)= 1.00 2.00 Length (m)= (m)= 76.013 0.200 Length (m)= | STANDHYD (1102) ID= 1 DT= 5.0 min | - | | PERVIOUS (i) | | 2.00 | |
| hrs mm/hr | hrs mm/hr nrs mm/hr hrs mm/hr hrs mm/hr hrs mm/hr nrs | hrs mm/hr hrs mm/hr hrs mm/hr hrs mm/hr hrs mm/hr 0.083 2.27 3.083 3.63 6.083 16.33 9.08 3.17 0.167 2.27 3.167 3.63 6.167 16.33 9.08 3.17 0.167 2.27 3.167 3.63 6.167 16.33 9.08 3.17 0.167 2.27 3.167 3.63 6.150 16.33 9.25 3.17 0.250 2.27 3.253 3.63 6.150 16.33 9.25 3.17 0.250 2.27 3.30 3.63 6.417 16.33 9.42 3.17 0.503 2.27 3.00 3.63 6.417 16.33 9.42 3.17 0.503 2.27 3.503 3.63 6.500 16.33 9.50 3.17 0.583 2.27 3.583 3.63 6.500 16.33 9.50 3.17 0.583 2.27 3.583 3.63 6.500 16.33 9.50 3.17 0.750 2.27 3.750 3.63 6.667 7.26 9.67 3.17 0.750 2.27 3.750 3.63 6.667 7.26 9.67 3.17 0.750 2.27 3.750 3.63 3.63 6.750 7.26 9.67 3.17 0.750 2.27 4.000 3.63 7.000 7.26 10.00 3.17 1.000 2.27 4.000 3.63 7.000 7.26 10.00 3.17 1.000 2.27 4.000 3.63 7.000 7.26 10.00 3.17 1.003 2.27 4.167 5.44 7.167 5.44 10.05 1.81 1.167 2.27 4.167 5.44 7.167 5.44 10.05 1.81 1.167 2.27 4.167 5.44 7.167 5.44 10.17 1.81 1.500 2.27 4.330 5.44 7.750 5.44 10.53 1.81 1.500 2.27 4.500 5.44 7.500 5.44 10.55 1.81 1.500 2.27 4.500 5.44 7.500 5.44 10.55 1.81 1.500 2.27 4.750 5.44 7.750 5.44 10.58 1.81 1.583 2.27 4.750 5.44 7.750 5.44 10.58 1.81 1.583 2.27 4.750 5.44 7.750 5.44 10.58 1.81 1.583 2.27 4.750 5.76 7.76 7.780 5.44 10.58 1.81 1.583 2.27 4.750 7.26 7.780 5.44 10.58 1.81 1.583 2.27 4.750 7.26 7.780 5.44 10.58 1.81 1.583 2.27 5.000 7.26 8.000 5.44 10.58 1.81 1.583 2.27 5.000 7.26 8.000 5.44 10.58 1.81 1.200 2.27 5.000 7.26 8.000 5.44 10.58 1.81 1.200 2.27 5.000 7.26 8.000 5.44 10.58 1.81 1.200 1.81 1.200 1.81 1.200 1.81 1.200 1. | hrs mm/hr hrs | The sem Mark | Average Slöpe Length Mannings n | (%)= (m)= = | 0.013 | 2.00 40.00 0.290 | IME STE | Ρ. | |
| | *** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! | "** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: (x) = 89.0 I a = Dep. Storage (Above) (ii) TIME STEP (OT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. CALIB STANDHYD (1112) Area (ha)= 0.97 D- 1 DT= 5.0 min Total Imp(%)= 78.00 Dir. Conn.(%)= 78.00 | (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: (x) = 89.0 I a = bep. Storage (Above) (ii) TIME STEP (OT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. CALIB STANDHYD (1112) Area (ha)= 0.97 Del DT= 5.0 min Total Imp(%)= 78.00 Dir. Conn.(%)= 78.00 SUrface Area (ha)= 0.97 Dep. Storage (mm)= 1.00 1.00 Average Slope (%)= 1.00 2.00 Length (m)= 80.42 40.00 Mannings n = 0.037 NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. TIME RAIN TIME | (1) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: (**)** 89.0 1 a = bep. Storage (Above) (*i1)** TIME STEP (DT) SHOULD BE SMALLER OR EQUAL (*i1)** TIME STEP (DT) SHOULD BE SMALLER OR EQUAL (*i1)** TIME STEP (DT) SHOULD BE SMALLER OR EQUAL (*i1)** TIME STEP (DT) SHOULD BE SMALLER OR EQUAL (*i1)** TIME STEP (DT) SHOULD BE SMALLER OR EQUAL (*i1)** TIME STEP (DT) SHOULD BE SMALLER OR EQUAL (*i1)** TIME STEP (DT) SHOULD BE SMALLER OR EQUAL (*i1)** TIME STEP (DT) SHOULD BE SMALLER OR EQUAL (*i1)** TIME STEP (DT) SHOULD BE SMALLER OR EQUAL (*i1)** TIME STEP (DT) SHOULD BE SMALLER OR EQUAL (*i1)** TIME STEP (DT) SHOULD BE SMALLER OR EQUAL (*i2)** TOTAL STEP (DT) SHOULD BE SMALLER OR EQUAL **IN)** TOTAL STEP (DT) SHOULD BE SMALLER OR EQUAL (*i2)** TOTAL STEP (DT) SHOULD BE SMALLER OR EQUAL (*i3)** TOTAL STEP (DT) SHOULD BE SMALLER OR EQUAL (*i4)** TIME STEP (DT) SHOULD BE SMALLER OR EQUAL **IN)** TOTAL STEP (DT) SHOULD BE SMALLER OR EQUAL **IN)** TOTAL STEP (DT) SHOULD BE SMALLER OR EQUAL **IN)** TOTAL STEP (DT) SHOULD BE SMALLER OR EQUAL **IN)** TOTAL STEP (DT) SHOULD BE SMALLER OR EQUAL **IN)** TOTAL STEP (DT) SHOULD BE SMALLER OR EQUAL **IN)** TOTAL STEP (DT) SHOULD BE SMALLER OR EQUAL **IN)** TOTAL STEP (DT) SHOULD BE SMALLER OR EQUAL **IN)** TIME STEP (DT) SHOULD BE SMALLER OR EQUAL **IN)** TIME STEP (DT) SHOULD BE SMALLER OR EQUAL **IN)** TIME STEP (DT) SHOULD BE SMALLER OR EQUAL **IN)** TIME STEP (DT) SHOULD BE SMALLER OR EQUAL **IN)** TIME STEP (DT) SHOULD BE SMALLER OR EQUAL **IN)** TIME STEP (DT) SHOULD BE SMALLER OR EQUAL **IN)** TIME STEP (DT) SHOULD BE SMALLER OR EQUAL **IN)** TIME STEP (DT) SHOULD BE SMALLER OR EQUAL **IN)** TIME STEP (DT) SHOULD BE SMALLER OR EQUAL **IN)** TIME STEP (DT) SHOULD BE SMALLER OR EQUAL **IN)** TIME STEP (DT) SHOULD BE SMALLER OR EQUAL **IN)** TIME STEP (DT) SHOULD BE SMALLER OR EQUAL **IN)** TIME STEP (DT) SHOULD BE SMALLER OR EQUAL **IN)** TIME STEP (DT) SHOULD BE SMALLER OR EQUAL **IN)** TIME STEP (DT) SHOULD BE SMALLER OR EQUAL **IN)** T | h 0.00 0.11 0.00 0.11 0.00 0.15 0.00 0.15 0.05 0.0 | rss mm/hrs; mm | hrs mm/ 3,083 3,3157 3,33,158 3,33,159 3,34,17 3,350 3 | hr i hrs i h | mm//hr 16.33 16.33 16.33 16.33 16.33 7.26 7.27 7.28 7.28 7.28 7.29 7.29 7.20 7.20 7.21 7.22 7.23 7.26 7.26 7.26 7.27 7.27 7.28 7.28 7.29 7.20 9 .08 9 .17 9 .08 9 .17 9 .9.25 9 .9.50 9 .58 9 .9.50 9 .58 9 .9.50 10 .01 10 .03 10 .67 10 .68 11 .08 11 .08 11 .15 11 . | mm/hr 3 .17 .18 .1 .1 .8 |

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PERVIOUS (i)
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Dep. Storage
Average Slope
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (ha)=
(mm)=
(%)=
(m)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0.82
1.00
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89.81
0.013
                                                                                                                                                                                                                                           Area (ha)= 1.22
Total Imp(%)= 69.00 Dir. Conn.(%)= 69.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                 IMPERVIOUS
0.84
1.00
1.00
90.18
0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PERVIOUS (i)
0.38
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0.290
                                                   Surface Area
Dep. Storage
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Mannings n
                                                                                                                                                                                                                         (ha)=
(mm)=
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over (min)
Storage Coeff. (min)
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
RUNOFF VOLUME (mm)=
RUNOFF COEFFICIENT (mm)=
RUNOFF COEFFICIENT (mm)=
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0.357 (iii)
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                                                Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
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2.23 (ii)
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9.87 (ii)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 *TOTALS*
0.361 (iii)
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                                                      PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                        0.28
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                                                * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                   V V I SSSSS U U AAA L
V V I SS U U AAAAA L
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   | CALIB | STANDHYD ( 1121) | Area (ha)= 1.21 | ID= 1 DT= 5.0 min | Total Imp(%)= 68.00 Dir. Conn.(%)= 68.00
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2.54 | 4.500

2.54 | 4.667

2.54 | 4.687

2.54 | 4.687

2.54 | 4.637

2.54 | 4.837

2.54 | 4.337

2.54 | 5.000

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Developed and Distributed by Smart City Water Inc
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DATE: 05-18-2022
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COMMENTS:
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Storage Coeff. (min) = Unit Hyd. Tpeak (min) = Unit Hyd. peak (cms) =
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                        PEAK FLOW (cms)=
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Comments: 50-Yr,12-hr SCS, City of Barrie
                  Ptotal=101.70 mm
                                                                                                                                                                                                                                                                                                                                                                                                           ***.112-hr SCS, CLs, RAIN | TIME | RMIN/hr | hrs | 4.07 | 6.25 | 4.07 | 6.57 | 4.07 | 6.57 | 4.07 | 7.25 | 6.10 | 7.25 | 6.10 | 7.25 | 6.10 | 7.50 | 8.14 | 8.00 | 12.20 | 8.25 | 12.20 | 8.53 | 134.24 | 9.00
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                  0.75
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| STANDHYD ( 10022)
|ID= 1 DT= 5.0 min |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Area (ha)= 0.83 Total Imp(\%)= 75.00 Dir. Conn.(\%)= 75.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IMPERVIOUS PERVIOUS (i)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (ha)=
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(m)=
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   | CALIB
| STANDHYD ( 10011)
|ID= 1 DT= 5.0 min
                                                                                                                                                                                                                                           Area (ha)= 0.21 Total Imp(\%)= 79.00 Dir. Conn.(\%)= 79.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                     Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TIME
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
1.083
                                                                                                                                                                                                                                                             mm/hr
18.31
18.31
18.31
18.31
18.31
18.31
8.14
8.14
8.14
8.14
8.14
6.10
6.10
                                                                                                                                                                                                                                                                                                                                            3.333
3.417
3.500
3.583
3.667
3.750
3.833
3.917
4.000
4.083
4.167
4.250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   10.08
10.17
10.25
10.33
10.42
10.50
10.58
10.67
10.75
10.83
10.92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6.10
6.10
6.10
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6.10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6.750
6.833
6.917
7.000
7.083
7.167
7.250
```

THAN THE STORAGE COEFFICIENT.

(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| 2.000 2.54 5.000 8.14 8.000 6.10 11.00 2.03 2.083 3.05 5.083 12.20 8.083 3.56 11.08 2.03 2.167 3.05 5.167 12.20 8.167 3.56 11.17 2.03 2.250 3.05 5.250 12.20 8.250 3.56 11.27 2.03 2.333 3.05 5.333 12.20 8.250 3.56 11.25 2.03 2.417 3.05 5.417 12.20 8.417 3.56 11.42 2.03 | 2.667 3.05 5.667 48.82 8.667 3.56 11.67 2 2.750 3.05 5.750 48.82 8.750 3.56 11.75 2 2.833 3.05 5.833 134.24 8.833 3.56 11.83 2 2.917 3.05 5.917 134.24 8.917 3.56 11.92 2 3.000 3.05 6.000 134.24 9.000 3.56 12.00 2 |
|---|---|
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | Max.Eff.Inten.(mm/hr)= 134.24 117.80 over (min) 5.00 10.00 Storage Coeff. (min)= 1.83 (ii) 6.62 (ii) Unit Hyd. Tpeak (min)= 5.00 10.00 Unit Hyd. peak (cms)= 0.32 0.14 *TOTALS* PEAK FLOW (cms)= 0.19 0.06 0.253 (iii) |
| Max.Eff.Inten.(mm/hr)= 134.24 117.80 over (min) 5.00 10.00 Storage Coeff. (min)= 1.90 (ii) 6.32 (ii) Unit Hyd. Tpeak (min)= 5.03 10.00 Unit Hyd. peak (cms)= 0.32 0.15 **TOTALS** PEAK FLOW (cms)= 0.23 0.06 0.291 (iii) TIME TO PEAK (frs)= 6.00 6.00 6.00 | RUNOFF VOLUME (mm) = 100.70 76.77 93.75 TOTAL RAINFALL (mm) = 101.70 101.70 101.70 RUNOFF COEFFICIENT = 0.99 0.75 0.92 **** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (1) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES. |
| TIME TO PEAK (hrs)= 6.00 6.00 6.00 RUNGFF VOLUME (mm)= 100.70 76.77 94.71 TOTAL RAINFALL (mm)= 101.70 101.70 101.70 RUNGFF COEFFICIENT = 0.99 0.75 0.93 ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN = 89.0 I a= Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. | CALIB CALIB Standhyld (10031) Area (ha)= 0.38 |
| (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. CALIB STANDHYD (10021) Area (ha) = 0.73 ID= 1 DT = 5.0 min Total Imp(%) = 71.00 Dir. conn.(%) = 71.00 | ID= 1 DT= 5.0 min Total Imp(%)= 66.00 Dir. Conn.(%)= 66.00 |
| Surface Area (ha)= 0.52 0.21 Dep. Storage (mm)= 1.00 1.00 Average Slope (%)= 1.00 2.00 Length (m)= 69.76 40.00 Mannings n = 0.013 0.290 | NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. TRANSFORMED HYETOGRAPH TIME RAIN TIME RAIN 'TIME RAIN TIME hrs mm/hr' hrs mm/hr' hrs mm/hr hrs mm 0.083 2.54 3.083 4.07 6.083 18.31 9.08 3 0.167 2.54 3.167 4.07 6.167 18.31 9.17 3 |
| NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. TRANSFORMED HYETOGRAPH TIME RAIN TIME RAIN TIME RAIN TIME RAIN TIME RAIN TO 1.083 2.544 3.083 4.07 5.083 3.56 0.167 2.54 3.167 4.07 6.167 18.31 9.17 3.56 0.250 2.54 3.250 4.07 6.250 18.31 9.17 3.56 | 0.250 2.54 3.250 4.07 6.250 18.31 9.25 3 0.333 2.54 3.333 4.07 6.333 18.31 9.33 3 3 0.417 2.54 3.417 4.07 6.347 18.31 9.42 3 0.509 2.54 3.509 4.07 6.509 18.31 9.50 3 0.509 2.54 3.509 4.07 6.509 18.31 9.50 3 0.509 2.54 3.588 4.07 6.509 18.31 9.50 3 0.588 2.54 3.588 4.07 6.589 8.14 9.55 3 0.589 2.54 3.583 4.07 6.589 8.14 9.57 3 0.589 2.54 3.583 4.07 6.583 8.14 9.75 3 0.583 2.54 3.583 4.07 6.583 8.14 9.83 3 0.917 2.54 3.833 4.07 6.833 8.14 9.83 3 0.917 2.54 3.813 4.07 6.833 8.14 9.83 |
| 0.333 2.54 3.333 4.07 6.333 18.31 9.33 3.56 0.417 2.54 3.417 4.07 6.427 18.31 9.42 3.56 0.500 2.54 3.500 4.07 6.500 18.31 9.50 3.56 0.583 2.54 3.583 4.07 6.500 18.31 9.50 3.56 0.660 2.54 3.600 4.07 6.560 8.14 9.58 3.56 0.666 2.54 3.660 4.07 6.650 8.14 9.57 3.56 0.667 2.54 3.660 4.07 6.650 8.14 9.67 3.56 0.660 2.54 3.660 4.07 6.650 8.14 9.67 3.56 0.660 0.683 2.54 3.83 4.07 6.683 8.14 9.83 3.56 0.680 8.14 9.67 3.56 0.681 8.14 9.82 3.56 0.681 8.14 9.82 3.56 0.681 8.14 9.82 3.56 0.817 2.54 3.917 4.07 6.917 8.14 9.92 3.56 | 1.000 2.54 4.000 4.07 7.000 8.14 10.00 3 1.083 2.54 4.083 6.10 7.083 6.10 10.08 2 1.167 2.54 4.167 6.10 7.167 6.10 10.17 2 1.259 2.54 4.259 6.10 7.259 6.10 10.25 2 1.259 2.54 4.259 6.10 7.259 6.10 10.25 2 1.333 2.54 4.333 6.10 7.337 6.10 10.33 2 1.337 2.54 4.333 6.10 7.337 6.10 11.33 2 1.500 2.54 4.50 6.10 7.50 6.10 10.50 2 1.583 2.54 4.583 8.14 7.583 6.10 10.58 2 1.667 2.54 4.667 8.14 7.583 6.10 10.58 |
| 1.083 2.54 4.083 6.10 7.083 6.10 10.08 2.03 1.167 2.54 4.167 6.10 7.167 6.10 10.17 2.03 1.250 2.54 4.250 6.10 7.167 6.10 10.17 2.03 1.250 2.54 4.250 6.10 7.333 6.10 10.25 2.03 1.337 2.03 1.437 2.54 4.433 6.10 7.333 6.10 10.33 2.03 2.03 1.447 2.554 4.410 6.10 7.333 6.10 10.33 2.03 1.447 2.554 4.410 6.10 7.430 6.10 10.25 2.03 1.583 2.03 1.667 2.54 4.450 8.14 7.683 6.10 10.25 2.03 1.583 2.03 1.667 2.54 4.458 8.14 7.583 6.10 10.58 2.03 1.667 2.54 4.583 8.14 7.583 6.10 10.58 2.03 1.667 2.54 4.578 8.14 7.687 6.10 10.57 2.03 1.750 2.54 4.750 8.14 7.758 6.10 10.57 2.03 1.750 2.54 4.750 8.14 7.758 6.10 10.57 2.03 1.750 2.03 1.750 2.54 4.750 8.14 7.758 6.10 10.57 2.03 1.750 2.03 1.750 2.54 4.750 8.14 7.758 6.10 10.57 2.03 1.750 2.03 1.750 2.54 4.750 8.14 7.750 6.10 10.57 2.03 | 1.750 2.54 4.750 8.14 7.750 6.10 10.75 2 1.833 2.54 4.833 8.14 7.833 6.10 10.83 2 1.917 2.54 4.917 8.14 7.917 6.10 10.92 2 2.007 2.54 5.009 8.14 8.00 6.10 11.00 2 2.083 3.05 5.085 112.20 8.088 3.56 11.00 2 2.287 3.05 5.085 112.20 8.088 3.56 11.107 2 2.250 3.05 5.250 12.20 8.250 3.56 11.125 2 2.333 3.05 5.353 12.20 8.250 3.56 11.25 2 2.333 3.05 5.333 12.20 8.333 3.56 11.33 2 2.417 3.05 5.417 12.20 8.413 3.56 11.142 2 |
| 1.833 2.54 4.833 8.14 7.833 6.10 10.83 2.03 1.917 2.54 4.917 8.14 7.917 6.10 10.92 2.03 2.00 2.54 15.000 8.14 18.000 6.10 10.92 2.03 2.00 2.54 15.000 8.14 18.000 6.10 11.00 2.03 2.03 2.08 3.05 15.083 12.20 8.083 3.66 11.08 2.03 2.03 2.03 2.03 2.03 2.03 2.03 2.03 | 2.500 3.05 5.500 12.20 8.500 3.56 11.50 2 2.583 3.05 5.583 48.82 8.583 3.56 11.58 2 2.667 3.05 5.667 48.82 8.667 3.56 11.67 2 2.750 3.05 5.750 48.82 8.760 3.56 11.75 2 2.833 3.05 5.833 134.24 8.823 3.56 11.83 2 2.917 3.05 5.917 134.24 8.917 3.56 11.92 2 3.000 3.05 6.000 134.24 9.000 3.56 12.00 2 |
| 2.417 3.05 5.417 12.20 8.417 3.56 11.42 2.03 2.500 3.05 5.500 12.20 8.500 3.56 11.50 2.03 2.583 3.05 5.583 48.82 8.583 3.56 11.58 2.03 | Max.Eff.Inten.(mm/hr)= 134.24 117.80 over (min) 5.00 10.00 |
| Storing Coeff (min) _ 150 (ii) | DINOTE CONTINUES - 0.09 0.75 0.04 |
| Storage Coeff. (min)= 1.50 (ii) 8.73 (ii) Unit Hyd. Tpeak (min)= 5.00 10.00 Unit Hyd. peak (cms)= 0.33 0.12 PEAK FLOW (cms)= 0.09 0.03 0.12; TIME TO PEAK (hrs)= 6.00 6.00 6.00 RNUNGF VOLUNE (mm)= 100.70 76.77 92.55 TOTAL RAINFALL (mm)= 101.70 101.70 101.70 RNUNGF COEFFICIENT = 0.99 0.75 0.91 | RUNOFF COEFFICIENT = 0.99 0.75 0.94 ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CM PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN* = 89.0 Ta = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAN FLOW DOES NOT INCLUDE BASEFLOW IF ANY. |
| UNIT HYD. PEAK (CIMS)= 0.33 0.12 PEAK FLOW (CIMS)= 0.09 0.03 0.127 (iii) TIME TO PEAK (hrs)= 6.00 6.00 6.00 RUNGFF VOLUME (mm)= 100.70 76.77 92.55 TOTAL RAINFALL (mm)= 101.70 101.70 101.70 RUNGF COEFFICIENT = 0.99 0.75 ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN* = 89.0 If a = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. | ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN* = 89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. CALIB STANDHYD (10041) Area (ha)= 0.35 ID= 1 DT= 5.0 min Total Imp(%)= 69.00 Dir. Conn.(%)= 69.00 MPERVIOUS PERVIOUS (i) Surface Area (ha)= 0.24 Surface Area (ha)= 0.24 O.11 |
| UNIT HYD, DEAK (CMS)= 0.33 0.12 *TOTALS* PEAK FLOW (CMS)= 0.09 0.03 0.127 (iii) TIME TO PEAK (hrs)= 6.00 6.00 6.00 6.00 RUNOFF VOLUME (mm)= 100.70 76.77 92.55 TOTAL RAINFALL (mm)= 101.70 101.70 101.70 ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN = 89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFCIENT. (iiii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. CALIB STANDHYD (10032) | ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: (ii) CN ST 89 0 IA Dep. Storage (Above) (iii) PERVIOUS COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. *********************************** |
| DITT HYD. PERK (CMS) = 0.33 0.12 *TOTALS* PEAK FLOW (CMS) = 0.09 0.03 0.127 (iii) TIME TO PEAK (hrs) = 6.00 6.00 6.00 6.00 RUNDSF VOLUME (mm) = 100.70 76.77 92.55 TOTAL RAINFALL (mm) = 101.70 101.70 101.70 101.70 RUNDSF COEFFICIENT = 0.99 0.75 0.91 ****** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN = 89.0 Ta = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. CALIB STANDHYD (10032) Area (ha) = 0.39 ID= 1 DT = 5.0 min Total Imp(%) = 79.00 Dir. Conn.(%) = 79.00 SURFACE Area (ha) = 0.31 0.08 Dep. Storage (mm) = 1.00 1.00 Area (mm) = 50.99 40.00 MANNING: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. | ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. *********************************** |
| PEAK FLOW (cms)= 0.33 0.12 *TOTALS* PEAK FLOW (cms)= 0.09 0.03 0.127 (iii) TIME TO PEAK (hrs)= 6.00 6.00 6.00 6.00 RUNOFF VOLUME (mm)= 100.70 76.77 92.55 TOTAL RAINFALL (mm)= 101.70 101.70 101.70 101.70 RUNOFF COEFFICIENT = 0.99 0.75 0.91 ****** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN = 89.0 Ta = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. ***** CALIB STANDHYD (10032) Area (ha)= 0.39 ID=1 DT=5.0 min Total Imp(%)= 79.00 Dir. Conn.(%)= 79.00 **** SURFACE Area (ha)= 0.31 0.08 D.00 0.00 0.00 0.00 0.00 0.00 0.00 0. | ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: |
| UNIT HYD. DEAK (CMS)= 0.33 0.12 PEAK FLOW (CMS)= 0.09 0.03 0.127 (iii) TIME TO PEAK (hrs)= 6.00 6.00 6.00 6.00 RUNOFF VOLUME (mm)= 100.70 76.77 92.55 TOTAL RAINFALL (mm)= 101.70 101.70 101.70 TOTAL RAINFALL (mm)= 101.70 101.70 101.70 RUNOFF COFFICIENT = 0.99 0.75 ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN = 89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (UT) CHOULD BE SMALLER OR EQUAL (iii) PEAK FLOW DOES NOT INCLUDE RASEFLOW IF ANY. ***** CALIBRATE COMPANY COMPANY | ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (1) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN' 89.0 1 a Dep Storage (Above) (11) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (111) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. *********************************** |
| UNIT HYD. DEAK (CMS)= 0.39 0.12 *TOTALS* PEAK FLOW (CMS)= 0.09 0.03 0.127 (iii) TIME TO PEAK (hrs)= 6.00 6.00 6.00 6.00 RUNOFF VOLUME (mm)= 100.70 76.77 92.55 TOTAL RAINFALL (mm)= 101.70 101.70 101.70 101.70 RUNOFF COEFFICIENT = 0.99 0.75 0.91 ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: | ****** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (1) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN' = 89.0 |
| UNIT HYD. DEAK (CMS)= 0.99 0.03 0.12 *TOTALS* PEAK FLOW (CMS)= 0.99 0.03 0.127 (iii) TIME TO PEAK (hrs)= 6.00 6.00 6.00 6.00 RUNGET VOLLIME (mm)= 101.70 76.77 92.55 TOTAL RAINFALL (mm)= 101.70 76.77 92.55 TOTAL RAINFALL (mm)= 101.70 101.70 101.70 RUNGET CORFEICLENT. S SMALLER THAN TIME STEP! *********************************** | ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (1) CIN PROCEDURE SELECTED FOR PERVIOUS LOSSES: (N) SPO. 12 a. Dep. STORTAGE COEFF. (1i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFF.ICENT. (1ii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. *********************************** |
| UNIT HYD. DEAK (CMS)= 0.99 0.03 0.12 *TOTALS* PEAK FLOW (CMS)= 0.99 0.03 0.127 (iii) TIME TO PEAK (hrs)= 6.00 6.00 6.00 6.00 RUNGET VOLLIME (mm)= 101.70 76.77 9.2.55 TOTAL RAINFALL (mm)= 101.70 101.70 101.70 RUNGET CORFFICIENT. 0.99 0.75 101.70 RUNGET CORFFICIENT SHALLER THAN TIME STEP! *********************************** | ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (1) CIN PROCEDURE SELECTED FOR PERVIOUS LOSSES: (N) \$89.0 \$1.3 Dept STOTAGE (ADOVE) (11) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFF.ICENT. (111) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. *********************************** |

2.03 2.03 2.03 2.03 2.03

RATN mm/hr m

RATN mm/hr 3 .56 .5 .5 .5 .5 .5 .5 .2 .03 .2

```
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Area (ha)= 0.38
Total Imp(%)= 74.00 Dir. Conn.(%)= 74.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         IMPERVIOUS
0.28
1.00
1.00
50.33
0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PERVIOUS (i)
0.10
1.00
2.00
40.00
0.290
                                                                                                                    Surface Area
Dep. Storage
Average Slope
Length
Mannings n

(ha)=
(mm)=
(%)=
(%)=
(m)=
                                                                                                                                                                                                                          NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TRANSFORMED HYETOGRAPH
ME RAIN | TIME R
RS 14,07 | 6.083 18.
550 4,077 | 6.250 18.
550 4,077 | 6.250 18.
550 4,077 | 6.250 18.
550 4,077 | 6.501 18.
550 4,077 | 6.501 18.
550 4,077 | 6.501 18.
550 4,077 | 6.501 18.
550 4,077 | 6.501 18.
550 4,077 | 6.501 18.
550 4,077 | 6.502 18.
550 4,07 | 6.503 18.
550 4,07 | 6.503 18.
550 4,07 | 6.750 8.
550 4,07 | 6.667 8.
550 4,07 | 6.750 8.
550 4,07 | 6.750 8.
550 4,07 | 6.750 8.
550 4,07 | 7.083 6.
567 | 6.10 | 7.167 | 6.
550 6,10 | 7.167 | 6.
550 6,10 | 7.167 | 6.
550 6,10 | 7.250 | 6.
550 6,10 | 7.250 | 6.
550 6,10 | 7.250 | 6.
550 6,10 | 7.250 | 6.
550 6,10 | 7.250 | 6.
550 8,14 | 7.750 | 6.
550 8,14 | 7.750 | 6.
550 8,14 | 7.750 | 6.
550 8,14 | 7.750 | 6.
550 8,14 | 7.550 | 6.
550 8,14 | 7.550 | 6.
550 8,14 | 7.550 | 6.
550 8,14 | 7.550 | 6.
550 8,14 | 7.533 | 6.
550 8,14 | 7.533 | 6.
550 8,14 | 7.533 | 6.
550 8,14 | 7.533 | 6.
550 8,14 | 7.533 | 6.
550 8,14 | 8.000 8,13 | 3.
550 48,28 | 8.850 3,3 | 3.
550 48,28 | 8.850 3,3 | 3.
550 48,28 | 8.850 3,3 | 3.
550 48,28 | 8.850 3,3 | 3.
550 48,28 | 8.850 3,3 | 3.
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550 48,28 | 8.850 3,3 | 3.
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550 48,28 | 8.850 3,3 | 3.
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550 48,28 | 8.850 3,3 | 3.
550 48,28 | 8.850 3,3 | 3.
550 48,28 | 8.850 3,3 | 3.
550 48,28 | 8.850 3,3 | 3.
550 48,28 | 8.850 3,3 | 3.
550 48,28 | 8.850 3,3 | 3.
550 48,28 | 8.850 3,3 | 3.
550 48,28 | 8.850 3,3 | 3.
550 48,28 | 8.850 3,3 | 3.
550 48,28 | 8.850 3,3 | 3.
550 48,28 | 8.850 3,3 | 3.
550 48,28 | 8.850 3,3 | 3.
550 48,28 | 8.850 3,3 | 3.
550 48,28 | 8.950 3,3 | 3.
550 48,28 | 8.950 3,3 | 3.
550 48,28 | 8.950 3,3 | 3.
550 48,28 | 8.950 3,3 | 3.
550 48,28 | 8.950 3,3 | 3.
550 48,28 | 8.950 3,3 | 3.
550 48,28 | 8.950 3,3 | 3.
550 48,28 | 8.950 3,3 | 3.
550 48,28 | 8.950 3,3 | 3.
550 48,28 | 8.950 3,3 | 3.
550 48,28 | 8.950 3,3 | 3.
550 48,28 | 8.950 3,3 | 3.
550 48,28 | 8.950 3,3 | 3.
550 48,28 | 8.950 3,3 | 3.
550 48,28 | 8.950 3,3 | 3.
550 48,28 | 8.950 3,3 | 3.
550 48,28 | 8.950 3,3 | 3.
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over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
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i) 6.02 (ii)
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RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
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                                                                                                                                                 WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^2=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. IT ANY LOW DOES NOT INCLUDE BASEFLOW IF ANY.
CALIB
| STAMDHYD ( 10012) | Area (ha)= 0.23
|ID= 1 DT= 5.0 min | Total Imp(%)= 78.00 Dir. Conn.(%)= 78.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TIME hrs 3.083 3.417 3.590 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.591 3.5
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Storage Coeff (min)=
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Unit Hyd. Tpeak (min)=
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TIME TO PEAK (hrs)=
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                                                                                                             * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                    Area (ha)= 0.36 Total Imp(\%)= 62.00 Dir. Conn.(\%)= 62.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5.0 MIN. TIME STEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 --- TRMS-FORMED MYETOGRAPH ---
RAIN | TIME RAIN | TIME RAIN | TIME MONTH | TIME MAIN | TIME MONTH | TIME MONT
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| Surface Area Dep. Storage Average Slope Length Mannings n NOTE: RAIN | (ha)= (mm)= (%)= (m)= = | IMPERVIOL 0.18 1.00 1.00 39.16 0.013 | ć | RVIOUS (i 0.05 1.00 2.00 40.00 0.290 | | Ρ. | |
|--|--|---|---|---|---|---|--|
| TIM hr: 0.08 0.16 0.233 0.134 0.434 0.506 0.588 0.66 0.7538 0.061 0.7538 0.061 0.7538 0.061 0.7538 0.061 0.7538 0.061 0.7538 0.061 0.7538 0.061 0.7538 0.061 0.7538 0.061 0.7538 0.061 0.7538 0.061 0.7538 0.061 0.7538 0.061 0.7538 0.061 0.7538 0.061 0.7538 0.061 0.7538 0.062 0.7538 0.062 0.7538 0.0638 0.0738 0. | s am/hr 1.54 2.554 1. | 3.083 3.167 3.233 3.333 3.333 3.583 3.667 3.750 3.833 3.917 4.000 4.833 4.167 4.200 4.230 4.230 4.230 4.230 4.230 5.000 | 4.07 4.07 4.07 4.07 4.07 4.07 4.07 4.07 | 17.80 | 18.31 18.31 18.31 18.31 18.31 18.31 18.31 8.14 8.14 8.14 8.14 8.14 8.14 8.14 8.14 8.14 8.14 8.14 8.16 6.10 6.60 6.10 | 9.15 9.25 9.25 9.25 9.58 9.58 9.92 10.00 10.08 10.17 10.25 10.67 10.67 10.83 10.67 10.83 11.108 11.108 11.108 11.115 11.158 11.158 11.158 11.158 | RAIN mm/hr 3.566 53.566 53.566 53.566 53.566 52.03 22. |
| MAX.EFF.Inten.(MAX.EFF.Inten.(OVER OVER UNIT Hyd. Tpeak UNIT Hyd. Tpeak UNIT Hyd. Peak FLOW TIME TO PEAK RUNOFF VOLUME TOTAL RAINFALL RUNOFF COFFICI: ***** WARNING: STORA (i) CN PROCEDI CN = CN = (i) CN PROCEDI | (min)= (cms)= (hrs)= (hrs)= (mm)= (mm)= ENT = | -D -FOR BE | IR THAN | occec. | *TOT 0. 6 95 101 | ALS* 082 (iii) .00 .42 .70 .94 | ı |
| (ii) TIME STEP THAN THE (iii) PEAK FLOW CALIB STANDHYD (10051) ID= 1 DT= 5.0 min Surface Area Dep. Storage Average Slope Length Mannings n NOTE: RAIN | Area Total II (ha)= (mm)= (%)= (m)= = | (ha)= np(%)= 6 IMPERVIOL 0.24 1.00 1.00 49.67 0.013 | 0.37 16.00 I | Dir. Conn |) | | |
| 0 33 0 41 0 .50 0 .58 0 .66 0 .75 0 .81 1 .08 1 .16 1 .25 1 .33 1 .34 1 .30 1 .38 1 .66 1 .75 2 .08 2 | 0 2.54 3 2.54 7 2.54 7 2.54 3 2.54 7 2.54 3 2.54 7 2.54 8 2.54 9 3.54 9 3.54 | 3.983 3.667 3.750 3.833 3.917 4.000 4.083 4.167 4.250 4.333 4.667 4.750 4.750 5.000 5.083 5.167 5.2533 5.417 5.500 5.583 | 6.10 6.10 6.10 6.10 6.10 8.14 8.14 8.14 12.20 12.20 12.20 12.20 48.82 | 6 .333 6 .633 6 .657 6 .583 6 .667 6 .833 7 .083 7 .7083 7 .7083 7 .7083 7 .7083 7 .7083 7 .7083 8 .8083 8 .8083 8 .8417 8 .8583 8 .8583 8 .8583 8 .8583 8 .8583 8 .9000 | 6.10 6.10 6.10 6.10 6.10 6.10 6.10 6.10 | 9.50 9.58 9.67 9.75 9.83 9.92 10.00 10.08 10.17 10.25 10.33 10.42 | 3.56 3.66 |
| Max.Eff.Inten.(over Storage Coeff. Unit Hyd. Tpeak Unit Hyd. peak PEAK FLOW TIME TO PEAK RUNGFF VOLUME TOTAL RAIMFALL RUNOFF COEFFICI ***** WARNING: STORA | nm/hr)= (min)= (min)= (cms)= (cms)= (hrs)= (mm)= (mm)= | 134.24 5.00 1.48 5.00 0.33 0.08 6.00 100.70 101.70 0.99 | (ii) : | 17.80 10.00 8.71 (ii 10.00 0.12 0.04 6.00 76.77 01.70 0.75 | *TOT 0. 6 91 101 | ALS* 119 (iii) | |
| (i) CN PROCED CN° = (ii) TIME STEP THAN THE (iii) PEAK FLOW CALIB STANDHYD (10062) ID= 1 DT= 5.0 min Surface Area Dep. Storage Average Slope Length Mannings n | R9.0 Ia (DT) SHOUI STORAGE COI DOES NOT | = Dep. S LD BE SMA EFFICIENT INCLUDE E | ASEFLOW 0.66 2.00 I | (Above) EQUAL IF ANY. | | 2.00 | |
| NOTE: RAIN hr: 0.026 0.255 0.33 0.41 0.500 0.58 0.75 0.83 0.91 | E RAIN mm/hr 2.54 7 2.54 2.54 7 2.54 2.54 7 | TRA TIME hrs 3.083 3.167 3.250 3.333 3.417 3.500 | NSFORMEI RAIN mm/hr 4.07 4.07 4.07 4.07 4.07 4.07 4.07 | D HYETOGR TIME hrs 6.083 6.167 6.250 6.333 | APH RAIN mm/hr 18.31 18.31 18.31 18.31 18.31 18.31 18.31 18.31 18.31 18.31 18.31 18.31 18.31 18.31 | TIME hrs 9.08 9.17 9.25 9.33 9.42 9.50 9.58 9.67 9.75 | RAIN mm/hr 3.56 3.56 3.56 3.56 3.56 3.56 3.56 3.56 |

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2.03
2.03
2.03
2.03
2.03
                                                                         Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   134.24 117.80
5.00 10.00
1.78 (ii) 9.00 (ii)
5.00 0.32 0.12
                                                                    PEAK FLOW (cms)=
TIME TO PEAK (mrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0.15
6.00
100.70
101.70
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   *TOTALS*
0.217 (iii)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0.06
6.00
76.77
101.70
0.75
                                                           ** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                         (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN° = 89.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
         CALIB
| STANDHYD ( 10061)
|ID= 1 DT= 5.0 min
                                                                                                                                                                                                                                                                                                                                                                Area (ha)= 0.65 Total Imp(\%)= 65.00 Dir. Conn.(\%)= 65.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         IMPERVIOUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PERVIOUS (i)
                                                                         Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                       (ha)=
(mm)=
(%)=
(m)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0.42
1.00
1.00
65.83
0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0.23
1.00
2.00
40.00
0.290
                                                                                                                                         NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RAIN mm/hr 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TIME hrs 0.083 0.167 0.250 0.333 0.417 0.500 0.833 0.917 1.000 1.083 1.167 1.250 1.333 1.417 1.503 1.583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TIME hrs 3.083 3.167 3.250 3.333 3.417 3.500 3.583 3.667 3.750 4.083 4.167 4.250 4.333 4.417 4.500 4.583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TIME hrs 9.08 9.17 9.25 9.17 9.25 9.58 9.67 9.75 10.00 10.08 10.17 10.25 10.33 10.42 10.58
                                                                                                                                                                                                                                                                                                                                                                                            6.250
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6.417
6.500
6.583
6.667
6.750
6.833
6.917
7.000
7.083
7.167
7.250
7.333
7.417
7.500
7.583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                12.20 | 8.333
12.20 | 8.417
12.20 | 8.500
48.82 | 8.583
48.82 | 8.667
48.82 | 8.750
134.24 | 8.917
134.24 | 8.917
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2.417
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5.417
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6.000
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11.42
11.50
11.58
11.67
11.75
11.83
11.92
12.00
                                                                    Max.Eff.Inten.(mm/hr) = over (min)  
Storage Coeff. (min)  
Unit Hyd. Tpeak (min)  
Unit Hyd. Tpeak (min)  
PEAK FLOW (cms)  
PEAK FLOW (cms)  
TIME TO PEAK (hrs)  
TOTAL RAINFALL (mm)  
RUNOFF COEFFICIENT  
RUNOFF COEFFICIENT  

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         134.24
5.00
1.84 (ii)
5.00
0.32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 117.80
10.00
6.63 (ii)
10.00
0.14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               *TOTALS*
0.256 (iii)
6.00
93.75
101.70
0.92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0.20
6.00
100.70
101.70
0.99
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6.00
76.77
101.70
0.75
***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                             (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
    | CALIB
| STANDHYD ( 10071)
|ID= 1 DT= 5.0 min
                                                                                                                                                                                                                                                                                                                                                                     Area (ha)= 0.72 Total Imp(\%)= 60.00 Dir. Conn.(\%)= 60.00
                                                                                                                                                                                                                                                                                                                                                  | IMPERVIOUS
| (ha) = 0.43
| (mm) = 1.00
| (%) = 1.00
| (m) = 69.28
| = 0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PERVIOUS (i)
0.29
1.00
2.00
40.00
0.290
                                                                             Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                         NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                         RAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TIME hrss 9,08 9,17 9,25 9,95 9,50 9,50 9,50 9,50 10,08 10,17 10,50 10,00 11,00 11,17 11,17 11,17 11,17 11,17 11,17 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,18 11,1
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   hrss 3.083 3.167 3.308 3.167 3.250 3.333 3.150 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3.350 3
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2.03
2.03
2.03
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7.333
7.417
7.500
7.583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2.03
2.03
2.03
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7.750
7.833
7.917
8.000
8.083
8.167
8.250
8.333
8.417
8.583
8.667
8.758
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8.758
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2.03 2.03 2.03 2.03 2.03 2.03

| Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= | 4.750 8. 4.833 8. 4.917 8. 5.000 8. 5.083 12. 5.250 12. 5.250 12. 5.417 12. 5.417 12. 5.583 48. 5.750 48. 5.750 48. 5.750 48. 5.750 48. 5.750 48. 5.750 48. 5.750 48. 5.750 48. 5.750 48. 5.770 48. 5. | 14 8.000 20 8.083 20 8.167 20 8.250 20 8.333 20 8.417 20 8.500 82 8.567 82 8.750 24 8.833 24 8.8917 | 6.10 6.10 6.10 6.10 6.10 3.56 3.56 3.56 3.56 3.56 3.56 3.56 | 10.75 10.83 10.92 11.00 11.08 11.17 11.25 11.33 11.42 11.50 11.58 11.67 11.75 11.83 11.92 | 2.03 2.03 2.03 2.03 2.03 2.03 2.03 2.03 |
|---|--|--|--|---|--|
| Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= Unit Hyd. peak (cms)= PEAK FLOW (cms)= TIME TO PEAK (hrs)= RUNOFF VOLUME (mm)= TOTAL RAINFALL (mm)= RUNOFF COEFFICIENT = ***** WARNING: STORAGE COEFF. | 5.00 0.32 0.16 6.00 100.70 101.70 0.99 | 10.00 0.12 0.06 6.00 76.77 101.70 0.75 | *T01 0. 6 92 101 | FALS* .216 (iii 5.00 2.32 1.70).91 |) |
| (i) CN PROCEDURE SELECT CN° = 89.0 IA (ii) TIME STEP (DT) SANO THAN THE STORAGE CC (iii) PEAK FLOW DOES NOT | | us Losses. | | | |
| ID= 1 DT= 5.0 min Total I | (ha)= 0.74 mp(%)= 71.00 IMPERVIOUS | Dir. Conr PERVIOUS (i | | 71.00 | |
| Surface Area (ha)= Dep. Storage (mm)= Average Slope (%)= Length (m)= Mannings n = | 0.53 1.00 1.00 70.24 0.013 | 1.00 2.00 40.00 0.290 | TIME STE | ≣P. | |
| TIME hrs mm/hr 0.0837 2.54 0.137 2.54 0.333 2.54 0.500 2.54 0.500 2.54 0.6672 2.54 0.6837 2.54 0.6837 2.54 0.6972 2.54 0.917 2.54 1.000 2.54 1.1087 2.54 1.1087 2.54 1.1087 2.54 1.1500 2.54 1.1500 2.54 1.1500 2.54 1.1500 2.54 1.1500 2.54 1.1500 2.54 1.1500 2.54 1.1500 2.54 1.1500 2.54 1.1500 2.54 1.250 2.54 1.333 2.54 1.333 2.54 1.417 2.54 1.500 2.54 1.582 2.54 1.583 2.54 1.683 2.54 1.683 2.54 1.683 2.54 1.683 2.54 1.683 2.54 1.683 3.05 | TIME RA Mmm/ 3.083 4. 3.167 4. 3.250 4. 3.333 4. 3.417 4. 3.500 4. 3.583 4. 3.667 4. 3.833 4. 4.083 6. 4.167 6. 4.250 6. 4.333 6. 4.167 6. 4.417 6. 4.417 6. | 07 6.083 07 6.167 07 6.250 07 6.250 07 6.333 07 6.6417 07 6.662 07 6.663 07 6.663 07 6.667 07 6.917 07 7.000 07 6.917 07 7.000 10 7.000 10 7.500 10 7.500 10 7.500 11 7.500 14 7.500 14 7.500 14 7.500 14 7.500 14 7.667 14 7.667 14 7.667 14 7.667 15 7.667 16 7.667 17 7.667 18 7.667 19 7.667 10 7.67 10 7.67 10 7.500 10 7.500 10 7.500 10 7.500 10 7.500 10 7.500 10 7.67 10 7.500 10 7.67 10 7.500 10 7.500 10 7.67 10 7.500 10 7.67 10 7.67 10 7.67 10 7.607 11 7.607 12 7.607 13 7.607 14 7.607 15 7.607 16 7.607 17 7.607 18 7.607 19 7.607 10 7.607 1 | RAPH | 9.25 9.33 9.42 9.50 9.58 9.67 9.75 9.83 9.92 10.00 10.08 10.10 10.35 10.42 10.58 10.67 10.75 10.83 10.83 10.90 11.00 | RAIN mm/hr 3.556 6 3.566 |
| Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= | 6.000 134. 134.24 5.00 1.82 (ii) 5.00 | 24 9.000 117.80 10.00 9.05 (ii | | 12.00 | 2.03 |
| Unit Hyd. Tpeak (min) = Unit Hyd. peak (cms) = PEAK FLOW (cms) = TIME TO PEAK (hrs) = RUNDFF VOLUME (mm) = TOTAL RAINFALL (mm) = RUNDFF COLEFICIENT = | 0.32 0.16 6.00 | 0.12 0.07 6.00 76.77 101.70 0.75 | 91 | FALS* .235 (iii 5.00 1.12 1.70).90 |) |
| ***** WARNING: STORAGE COEFF. (i) CN PROCEDURE SELECT CN° = 89.0 IZ (ii) TIME STEP (DT) SHOL THAN THE STORAGE CC (iii) PEAK FLOW DOES NOT | ED FOR PERVIO | IIS LOSSES: | P! | | |
| | (ha)= 0.21 mp(%)= 52.00 | | | 52.00 | |
| Average Slope (%)= Length (m)= Mannings n = | | 2.00 40.00 0.290 | | _ | |
| 2.833 3.05 2.917 3.05 3.000 3.05 | TRANSFOR RAME RAME RAME RAME RAME RAME RAME RAM | RMED HYETOGRAPH TIME | APH | P. TIME 9, 108 9, 17 9, 18 9, 17 9, 18 9, 17 9, 18 9, 18 9, 17 9, 18 9, 18 9, 18 9, 18 9, 18 10, 18 10, 18 10, 18 10, 18 10, 18 10, 18 10, 18 10, 18 10, 18 10, 18 10, 18 11, 18 | 2.03 |
| Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= | 5.00 0.33 | 8.48 (ii 10.00 0.12 | | ΓALS* | |

0.067 (iii) 6.00 89.19 101.70 0.88 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^{\circ}=89.0$ Ia = bep. Storage (Above) (ii) TIME STEP (OT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT = 0.04 6.00 100.70 101.70 0.99 ** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^{\circ}=89.0$ Ia = bep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. Surface Area Dep. Storage Average Slope Length Mannings n 0.51 1.00 1.00 64.81 0.013 0.12 1.00 2.00 40.00 0.290 NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. Surface Area (ha)= 0.18 0.03
Dep. Storage (mm)= 1.00 1.00
Average Slope (%)= 1.00 2.00
Length (m)= 37.42 40.00
Mannings n = 0.013 0.290 RALIN | mm/hr | m/hr | TIME hrs
6.083
6.167
6.250
6.333
6.417
6.500
6.583
6.667
6.750
6.833
6.917
7.000
7.083 TIME hrs 3.083 3.167 3.250 3.333 3.417 3.500 3.583 3.667 3.750 3.833 3.917 4.000 4.083 hrss (0.163) (0.164) (NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. RAIN TIME RAIN T TIME hrs 0.083 0.167 0.250 0.333 0.417 0.500 0.667 0.760 0.833 0.917 1.000 1.083 1.167 1.250 1.333 1.417 1.583 1.477 2.000 2.167 2.253 2.417 2.508 2.583 2.417 2.583 2.417 2.583 2.667 2.833 2.833 7.167 7.253 7.333 7.417 7.583 7.667 7.750 8.083 8.167 8.257 8.250 8.333 8.417 8.500 8.583 8.670 8.783 8.793 Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= 134.24 5.00 1.75 (ii) 5.00 0.32 117.80 10.00 5.59 (ii) 10.00 0.16 *TOTALS* 0.225 (iii) 6.00 96.15 101.70 0.95 PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT = 0.19 6.00 100.70 101.70 0.99 0.03 6.00 76.77 101.70 0.75 2.917 3.000 Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= 134.24 117.80 5.00 5.00 1.26 (ii) 4.46 (ii) 5.00 0.33 0.23 ***** WARNING: STORAGE COFFE. IS SMALLER THAN TIME STEP! *TOTALS* 0.077 (iii) 6.00 97.58 101.70 0.96 PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT = 0.07 6.00 100.70 101.70 0.99 0.01 6.00 76.77 101.70 0.75 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^{\circ}=89.0$ Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! Length Mannings n (m)= 77.89 = 0.013 40.00 0.290 Area (ha)= 0.50 Total Imp(%)= 74.00 Dir. Conn.(%)= 74.00 NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. IMPERVIOUS PERVIOUS (i) 0.37 0.13 1.00 1.00 2.00 57.74 40.00 0.013 0.290 Surface Area Dep. Storage Average Slope Length Mannings n (ha)= (mm)= (%)= (m)= RAIN | TIME RAIN | TIME RAIN | Nrs mm/hr | 2.54 | 3.083 | 4.07 | 2.54 | 3.160 | 4.07 | 2.54 | 3.160 | 4.07 | 2.54 | 3.160 | 4.07 | 2.54 | 3.160 | 4.07 | 2.54 | 3.160 | 4.07 | 2.54 | 3.583 | 4.07 | 2.54 | 3.583 | 4.07 | 2.54 | 3.583 | 4.07 | 2.54 | 3.583 | 4.07 | 2.54 | 3.583 | 4.07 | 2.54 | 3.660 | 4.07 | 2.54 | 4.000 | 4.07 | 2.54 | 4.000 | 4.07 | 2.54 | 4.000 | 4.07 | 2.54 | 4.000 | 4.07 | 2.54 | 4.000 | 6.10 | 2.54 | 4.160 | 6.10 | 2.54 | 4.160 | 6.10 | 2.54 | 4.160 | 6.10 | 2.54 | 4.160 | 6.10 | 2.54 | 4.587 | 8.14 | 2.54 | 4.687 | 8.14 | 2.54 | 4.687 | 8.14 | 2.54 | 4.687 | 8.14 | 2.54 | 4.687 | 8.14 | 2.54 | 4.687 | 8.14 | 2.54 | 4.687 | 8.14 | 2.54 | 4.687 | 8.14 | 2.54 | 4.687 | 8.14 | 2.54 | 4.687 | 8.14 | 2.54 | 4.687 | 8.14 | 2.54 | 3.05 | 5.087 | 12.20 | 3.05 | 5.550 | 12.20 | 3.05 | 5.550 | 12.20 | 3.05 | 5.500 | 12.20 | 3.05 | 5.500 | 12.20 | 3.05 | 5.500 | 12.20 | 3.05 | 5.500 | 12.20 | 3.05 | 5.500 | 12.20 | 3.05 | 5.500 | 12.20 | 3.05 | 5.500 | 12.20 | 3.05 | 5.500 | 12.20 | 3.05 | 5.500 | 12.20 | 3.05 | 5.500 | 12.20 | 3.05 | 5.500 | 12.20 | 3.05 | 5.500 | 12.20 | 3.05 | 5.500 | 12.20 | 3.05 | 5.500 | 12.20 | 3.05 | 5.500 | 12.20 | 3.05 | 5.500 | 12.20 | 3.05 | 5.500 | 12.20 | 3.05 | 5.500 | 12.20 | 3.05 | 5.500 | 12.20 | 3.05 | 5.500 | 12.20 | 3.05 | 5.500 | 12.20 | 3.05 | 5.500 | 12.20 | 3.05 | 5.500 | 12.20 | 3.05 | 5.500 | 12.20 | 3.05 | 5.500 | 12.20 | 3.05 | 5.500 | 12.20 | 3.05 | 5.500 | 12.20 | 3.05 | 5.500 | 12.20 | 3.05 | 5.500 | 12.20 | 3.05 | 5.500 | 12.20 | 3.05 | 5.500 | 12.20 | 3.05 | 5.500 | 12.20 | 3.05 | 5.500 | 12.20 | 3.05 | 5.500 | 12.20 | 3.05 | 5.500 | 12.20 | 3.05 | 5.500 | 12.20 | 3.05 | 5.500 | 12.20 | 3.05 | 5.500 | 12.20 | 3.05 | 5.500 | 12.20 | 3.05 | 5.500 | 12.20 | 3.05 | 5.500 | 12.20 | 3.05 | 5.500 | 12.20 | 3.05 | 5.000 | 12.20 | 3.05 | 5.000 | 12.20 | 3.05 | 5.000 | 12.20 | 3.05 | 5.000 | 12.20 | 3.05 | 5.000 | 12.20 | 3.05 | 5.000 | 12.20 | 3.05 | 5.000 | 12.20 | 3.05 | 5.000 | 12.20 | 3.05 | 5.000 | 12.20 | 3.05 | 5.000 | 12.20 | 3.05 | 5.000 | 12.20 | 3.05 TIME hrs 0.083 0.0417 0.250 0.250 0.167 0.250 0.167 0.250 0.417 0.250 0.417 0.250 0.417 0.250 0.417 0.500 0. NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. TRANSFORMED HYETOGRAPH RAIN m2.54 4 2.55 4 2.5 | MARIN | NEW | NE TIME hrs 0.083 0.167 0.250 0.333 0.417 0.500 0.583 0.667 0.750 0.833 0.917 1.000 1.083 1.167 1.250 1.333 1.417 TIME 3.083 3.167 3.250 3.333 3.417 3.500 3.583 3.750 3.867 4.083 4.167 4.253 4.167 4.253 4.450 4.583 4.467 4.583 4.677 4.583 4.677 5.000 5.167 8.083 8.167 8.250 8.333 8.417 8.500 8.583 8.667 8.750 8.833 8.917 9.000 10.50 10.58 10.67 10.75 10.83 10.92 11.00 11.08 11.17 11.25 11.33 11.42 11.50 11.58 11.67 11.83 11.83 11.92 1.500 1.583 1.667 1.750 1.833 1.917 2.000 2.083 2.167 2.250 2.333 2.417 2.500 2.583 2.750 2.833 2.913 5.250 5.333 5.417 5.500 5.583 5.667 5.750 5.833 5.917 6.000 Max.Eff.Inten.(mm/hr)= 134.24 117.80 over (min) 5.00 110.00 Storage Coeff. (min)= 1.95 (ii) 9.18 (ii) unit hyd. Tpeak (min)= 5.00 10.00 unit hyd. Tpeak (cms)= 0.31 0.10 *TOTALS* 0.291 (iii) 6.00 89.92 101.70 0.88 0.19 6.00 100.70 101.70 0.99 0.10 6.00 76.77 101.70 0.75 PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT = Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)= 134.24 5.00 1.63 (ii) 5.00 0.32 117.80 10.00) 6.15 (ii) 10.00 0.15 **** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! *TOTALS*
0.175 (iii)
6.00
94.47
101.70
0.93 PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT = 0.14 6.00 100.70 101.70 0.99 0.04 6.00 76.77 101.70 0.75 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $\text{CN}^\circ = 89.0$ Ia = bep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. ** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $\text{CN}^\circ = 89.0$ Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. Area (ha)= 0.88 Total Imp(%)= 72.00 Dir. Conn.(%)= 72.00 IMPERVIOUS 0.63 0.25 1.00 1.00 2.00 76.59 40.00 0.013 0.290 Surface Area Dep. Storage Average Slope Length Mannings n (ha)= (mm)= (%)= (m)= = 0.63 1.00 1.00 76.59 0.013 | CALIB | STANDHYD (1101) | Area (ha)= 0.91 | Total Imp(%)= 55.00 Dir. Conn.(%)= 55.00 CALIB NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. Surface Area ---- TRANSFORMED HYETOGRAPH ---TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN

2.03 2.03 2.03 2.03 2.03 2.03 2.03 2.03

2.03 2.03 2.03 2.03 2.03 2.03

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0.083
0.167
0.250
0.333
0.667
0.500
0.603
0.607
1.083
0.667
1.250
0.917
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over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
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i) 9.27 (ii)
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TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
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over (min)

storage Coeff. (min)=

unit Hyd. Tpeak (min)=

unit Hyd. peak (ms)=

PEAN FLOW

ENWEYD PEAK (hrm)=

RUNOFF VOLUME

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RUNOFF COEFFICIENT

RUNOFF COEFFICIENT
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           *TOTALS*
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                                                                        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN° = 89.0 Ia = Dep. Storage (Above)
(i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL

THAN THE STORAGE COEFFICIENT.
THAN THE STORAGE TO TINCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | CALIB | STANDHYD ( 1112) | Area (ha)= 0.97 | Total Imp(%)= 78.00 | Dir. Conn.(%)= 78.00 | IMPERVIOUS | PERVIOUS (i)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Surface Area
Dep. Storage
Average Slope
Length
Mannings n
NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APH ----
RAIN | mm/hr | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TRANSFORMED HYETOGRAPH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ED HYETOGR hrs hrs 6.083 6.167 6.250 6.333 6.417 6.500 6.583 6.667 6.750 6.833 6.917 7.000 7.083 7.167 7.250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TIME hrs 3.083 3.167 3.250 3.3417 3.500 3.583 3.667 3.750 3.833 4.1000 4.083 4.167 4.250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
1.083
1.167
1.250
                                                                                                                                             NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RAIN
mm/hr
2.54
2.54
2.54
2.54
2.54
2.54
2.54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RAIN
mm/hr
18.31 |
18.31 |
18.31 |
18.31 |
18.31 |
18.31 |
8.14 |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TIME hrs 9.08 9.17 9.25 9.33 9.42 9.50 9.58
                                                                                                                                                                                                                                                          TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RAIN
mm/hr
3.56
3.56
3.56
3.56
3.56
3.56
3.56
                                                                                                                                                                                                                                                                                                                                                                                          2.54 | 4.333 | 6.10 | 7.437 | 7.254 | 4.417 | 6.10 | 7.417 | 7.500 | 6.10 | 7.417 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.500 | 7.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2.54 | 5.000 | 8.14

3.05 | 5.083 | 12.20

3.05 | 5.167 | 12.20

3.05 | 5.250 | 12.20

3.05 | 5.333 | 12.20

3.05 | 5.410 | 12.20

3.05 | 5.410 | 12.20

3.05 | 5.400 | 12.20

3.05 | 5.583 | 48.82

3.05 | 5.567 | 48.82

3.05 | 5.567 | 48.82

3.05 | 5.583 | 13.24

3.05 | 5.687 | 134.24

3.05 | 6.000 | 134.24
                                                                                                                                                                                                                                                                   1.333
1.417
1.500
1.583
1.667
1.750
1.833
1.917
2.000
2.083
2.167
2.250
2.333
2.417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               10. 33
10. 42
10. 50
10. 58
10. 67
10. 75
10. 83
10. 92
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11. 58
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2.667
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2.833
2.917
3.000
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5.00 10.00
2.13 (ii) 7.11 (ii)
5.00 10.00
0.31 0.14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                          2.417
2.500
2.583
2.667
2.750
2.833
2.917
3.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mM)=
TOTAL RAINFALL (mM)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0.31
6.00
100.70
101.70
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0.10
6.00
76.77
101.70
0.75
                                                                        Max.Eff.Inten.(mm/h-)= 134,24 117,80 over (min) 5.00 10.00 10.00 Storage Coeff. (min)= 1.99 (ii) 6.13 (ii) Unit Hyd. Tpeak (min)= 5.00 10.00 10.00 Unit Hyd. Ppeak (cms)= 0.31 0.15 PEAK FLOW (cms)= 0.31 0.15 PEAK FLOW (cms)= 0.28 0.06 TIME TO PEAK (hrs)= 6.00 6.00 RUNOFF VOLUME (mm)= 100.70 76.77 TOTAL RAINFALL (mm)= 101.70 101.70 RUNOFF COEFFICIENT 0.99 0.75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         **** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           *TOTALS*
0.343 (iii)
6.00
95.43
101.70
0.94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = Dep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                      WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN° = 89.0 Ia = Dep. Storage (Above)

(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL

THAN THE STORAGE COEFFICIENT.

(iii) PEAK FLOW DOES NOT INCLIDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | CALIB | STANDHYD ( 1121) | Total Imp(%)= 68.00 | Dir. Conn.(%)= 68.00 | Dir. Conn.(%)= 68.00 | Check                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Surface Area (ha)=
Dep. Storage (mm)=
Average Slope (%)=
Length (m)=
Mannings n =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IMPERVIOUS PERVIOUS (i)

0.82 0.39

1.00 1.00

1.00 2.00

89.81 40.00

0.013 0.290
                           CALIB
STANDHYD ( 1122)
ID= 1 DT= 5.0 min
                                                                                                                                                                                                                                                                                                                                                                   Area (ha)= 1.22 Total Imp(\%)= 69.00 Dir. Conn.(\%)= 69.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                   (ha) = 0.84 0.38 (mm) = 1.00 2.00 (%) = 1.00 2.00 (%) = 90.18 40.00 (%) = 0.013 0.290
                                                                             Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Hrss
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2.333
2.1417
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                                                                                                                                             NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TRANSFORMED HYETOGRAPH
ME RAIN ' TIME F
1'S mm/hr | 6.067 18.2
3 4.07 6.063 18.2
50 4.07 6.250 18.3
31 4.07 6.333 18.2
17 4.07 6.417 18.0
00 4.07 6.590 18.3
33 4.07 6.590 18.3
33 4.07 6.590 18.3
33 4.07 6.590 8.3
33 4.07 6.590 8.3
33 4.07 6.500 18.3
33 4.07 6.500 18.3
33 4.07 6.500 18.3
33 4.07 6.500 18.3
33 4.07 6.637 8.3
35 6.10 7.083 6.5
36 6.10 7.16 6.5
36 6.10 7.13 6.5
37 6.10 7.250 6.5
38 8.14 7.533 6.5
38 8.14 7.533 6.5
38 8.14 7.533 6.5
38 8.14 7.533 6.5
39 8.14 7.500 6.5
30 8.14 7.500 6.5
31 8.14 7.563 6.5
31 8.14 7.563 6.5
31 8.14 7.563 6.5
31 8.14 7.563 6.5
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18.31 |
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TOTALS 0.343 (iii) 6.00 90.88 101.70 0.89

TIME hrs 9.08 9.17 9.25 9.33 9.42 9.50 9.58 9.67 9.75 9.83 9.92 10.00 10.08

11.00 11.08 11.17 11.25 11.33 11.42 11.50 11.58 11.67 11.75 11.83 11.92 12.00

TOTALS 0.418 (iii) 6.00 93.28 101.70 0.92

TIME hrss 9.087 9.127 9.253 9.342 9.588 9.675 9.875 9.8810.125 10.088 10.175 10.588 10.675 10.832 11.08 11.125 11.325 11.42

10.75 10.83 10.92 11.00 11.08 11.17 11.25 11.33 11.42 11.50 11.58

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3.37 | 5.50 | 13.50 | 8.50 | 3.94 | 11.50
3.37 | 5.75 | 54.00 | 8.75 | 3.94 | 11.75
3.37 | 6.00 | 148.50 | 9.00 | 3.94 | 12.00
                                               Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                          134.24
5.00
2.13 (ii)
5.00
0.31
                                                                                                                                                                                                                                                                                                                                                                                              117.80
10.00
9.35 (ii)
10.00
0.12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | CALIB |
| STANDHYD ( 10011) |
|ID= 1 DT= 5.0 min |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Area (ha)= 0.21 Total Imp(\%)= 79.00 Dir. Conn.(\%)= 79.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     *TOTALS*
0.405 (iii)
6.00
93.04
101.70
0.91
                                               PEAK FLOW (Cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                0.31
6.00
100.70
101.70
0.99
                                                                                                                                                                                                                                                                                                                                                                                                           0.10
6.00
76.77
101.70
0.75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                             * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RANSFORMED TO 5.0 MIN. TIME STE

--- TRANSFORMED HYETOGRAPH ---
| TIME RAIN | 'ITME                                              (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \mathbb{CN}^2=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   hrs
0.083
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0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
1.083
1.167
                                                                                                                   V I SSSSS U U A L
V I SS U U A A L
I SS U U AAAAA L
I SS U U A A L
I SSSSS UUUUU A A LLLL
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1.250
1.313
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                         Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\Vo2\Voin.dat
Output filename: C:\Users\caef070146\Apppata\Local\Civica\WF\$\00056449-8c07-4086-8157-8729fb3caba3\710b9e08
summary filename: C:\Users\caef070146\Apppata\Local\Civica\WF\$\0005056449-8c07-4086-8157-8729fb3caba3\710b9e08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DATE: 05-18-2022
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     USER:
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over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           148.50
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TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                            Filename: C:\Users\caef070146\AppD
ata\Loca\\Temp\
b414f864-f56d-471c-a2fc-7a8c6cfa5585\13bf36c4
Comments: 100-Yr,12-hr SCS, City of Barrie
                                        READ STORM
                    Ptotal=112.50 mm
                                                                                                                                                                                                                      RAIN | mm/hr | 2.81 | 2.81 | 2.81 | 2.81 | 2.81 | 2.81 | 2.81 | 2.81 | 2.81 | 2.81 | 3.37
                                                                                                                                                                                                                                                                                                                                                                RAIN | mm/hr | 4.50 | 4.50 | 4.50 | 4.50 | 6.75 | 9.00 | 9.00 | 13.50 |
                                                                                                                                                                                                                                                                                                                                                                                                                                       TIME
hrs
6.25
6.50
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7.00
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mm/hr
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9.00
6.75
6.75
6.75
6.75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                               TIME
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3.50
3.75
4.00
4.25
4.50
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CN* = 89.0 Ia = Dep. Storage (Above)

(i) TIME STEP (OT) SHOULD BE SMALLER OR EQUAL

THAN THE STORAGE COEFFICIENT.

(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    mm/h
3.94
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       Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                         IMPERVIOUS 0.62 0.21 0.00 1.00 1.00 1.00 2.00 74.39 40.00 0.013 0.290
                                                    Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TIME hrss 3.083 3.1650 3.250 3.333 3.417 3.500 3.583 3.667 3.758 4.000 4.083 4.167 4.250 4.833 4.667 4.250 4.833 4.900 5.083 5.167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       mm/hr
4 .50 | 4 .50 | 4 .50 | 4 .50 | 4 .50 | 4 .50 | 4 .50 | 4 .50 | 4 .50 | 4 .50 | 4 .50 | 4 .50 | 4 .50 | 4 .50 | 4 .50 | 4 .50 | 4 .50 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 6 .75 | 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TIME hrss 6.083 6.167 6.250 6.333 6.417 6.583 6.657 6.917 7.008 7.150 7.250 7.333 7.150 7.508 7.250 7.333 7.7500 8.083 8.167
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TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0.07
6.00
87.00
112.50
0.77
                                                  Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                     148.50
5.00
1.83 (ii)
5.00
0.32
                                                                                                                                                                                                                                                                                                                                                                                              132.61
10.00
6.07 (ii)
10.00
0.15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              *TOTALS*
0.324 (iii)
6.00
105.37
112.50
0.94
                                               PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                       0.26
6.00
111.50
112.50
0.99
                                                                                                                                                                                                                                                                                                                                                                                                      0.07
6.00
87.00
112.50
0.77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN° = 89.0 Ia = Dep. Storage (Above)

(i) TIME STEP (DT) SMOULD BE SMALLER OR EQUAL

THAN THE STORAGE COEFFICIENT.

(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                     ** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CALIB
STANDHYD ( 10031)
ID= 1 DT= 5.0 min
                                               (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 I as bep. Storage (Above) (ii) TIME STEP (OT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Area (ha)= 0.38
Total Imp(%)= 66.00 Dir. Conn.(%)= 66.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | IMPERVIOUS | PERVIOUS (1) | 0.25 | 0.13 | 0.13 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Surface Area
Dep. Storage
Average Slope
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (ha)=
(mm)=
(%)=
(m)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length
Mannings n
                                                                                                                                                                                                            Area (ha)= 0.73 Total Imp(\%)= 71.00 Dir. Conn.(\%)= 71.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                 PERVIOUS (i)
0.21
1.00
2.00
40.00
                                                                                                                                                                                                                                                                   IMPERVIOUS
0.52
1.00
1.00
69.76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ---- TRANSFORMED HYETOGRAPH ----
TIME RAIN | TIME RAIN | TIME RAIN |
hrs mm/hr | hrs mm/hr | hrs mm/hr | hrs mm/hr
                                               Dep. Storage
Average Slope
Length
```

2.25 2.25 2.25 2.25 2.25 2.25

2.25 2.25 2.25 2.25 2.25 2.25

TOTALS 0.282 (iii) 6.00 104.39 112.50 0.93

9.08 9.17 9.25 9.33 9.42 9.50 9.58 9.67 9.75 9.83 9.92 10.00 10.08 10.17

11.33 11.42 11.50 11.58 11.67 11.75 11.83 11.92 12.00

TOTALS 0.083 (iii) 6.00 106.34 112.50 0.95

| 0.083 2.81 3.083 4.50 6.083 20.25 9.08 3.94 0.167 2.81 3.167 4.50 6.167 20.25 9.17 3.94 0.250 2.81 3.250 4.50 6.250 20.25 9.17 3.94 0.333 2.81 3.333 4.50 6.333 20.25 9.33 3.94 0.417 2.81 3.417 4.50 6.333 20.25 9.38 3.94 0.427 2.81 3.417 4.50 6.333 20.25 9.38 3.94 0.583 2.81 3.383 4.50 6.30 20.25 9.58 3.94 0.667 2.81 3.667 4.50 6.80 20.25 9.58 3.94 0.750 2.81 3.750 6.67 4.50 6.667 9.00 9.67 3.94 0.750 2.81 3.917 4.50 6.75 9.00 9.75 3.94 0.917 2.81 3.917 4.50 6.75 9.00 9.75 3.94 0.917 2.81 3.917 4.50 6.917 9.00 9.07 3.94 1.100 2.81 4.00 4.50 7.003 6.833 9.00 9.83 3.94 1.100 2.81 4.00 4.50 7.703 6.917 9.00 9.27 3.94 1.120 2.81 4.167 6.75 7.067 7.003 6.75 10.07 2.25 1.333 2.81 4.333 6.75 7.333 6.75 10.57 2.25 1.333 2.81 4.333 6.75 7.333 6.75 10.33 2.25 1.347 2.81 4.417 6.75 7.7457 6.75 10.02 2.25 1.350 2.81 4.50 8.75 7.50 6.75 10.50 2.25 1.550 2.81 4.50 8.75 7.50 6.75 10.50 2.25 1.550 2.81 4.50 9.00 7.687 6.75 10.58 2.25 1.570 2.81 4.50 9.00 7.687 6.75 10.58 2.25 1.580 2.81 4.53 9.00 7.687 6.75 10.58 2.25 1.167 2.81 4.417 6.75 9.00 7.687 6.75 10.50 2.25 1.183 2.81 4.383 9.00 7.687 6.75 10.58 2.25 1.197 2.81 4.417 6.75 9.00 7.75 6.75 10.58 2.25 1.197 2.81 4.438 9.00 7.687 6.75 10.58 2.25 1.197 2.81 4.917 9.00 7.987 6.75 10.58 2.25 1.197 2.81 4.937 9.00 7.687 6.75 10.58 2.25 1.197 2.81 4.917 9.00 7.917 6.75 10.02 2.25 2.083 3.37 5.083 3.37 5.083 3.39 11.10 2.25 2.266 7.337 5.000 9.00 8.000 6.75 10.03 2.25 2.266 7.337 5.500 9.00 9.00 8.000 6.75 10.03 2.25 2.267 2.268 3.37 5.588 5.400 8.080 3.94 11.10 2.25 2.268 3.37 5.588 5.00 9.00 9.00 8.000 3.94 11.10 2.25 2.267 2.271 3.37 5.500 13.50 8.803 3.94 11.13 2.25 2.266 7.337 5.500 13.50 8.803 3.94 11.13 2.25 2.267 3.37 5.500 13.50 8.803 3.94 11.13 2.25 2.267 3.37 5.500 13.50 8.803 3.94 11.20 2.25 2.268 7.337 5.500 13.50 8.803 3.94 11.20 2.25 2.268 7.337 5.500 13.50 8.803 3.94 11.20 2.25 2.267 | ****** |
|--|-----------------------|
| (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: (N° = 89.0 I am Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. | ST/ ID= |
| CALIB STANDHYD (10032) Area (ha) = 0.39 Dir. Conn.(%) = 79.00 | |
| TIME RAIN TIME RAIN TIME RAI | |
| 1.417 | |
| Max.Eff.Inten.(mm/hr)= 148.50 132.61 yor (min)= 5.00 10.00 Storage Coeff. (min)= 1.4 (ii) 6.19 (ii) Unit Hyd. Tpeak (min)= 5.00 10.00 unit Hyd. peak (cms)= 0.33 0.15 | *** |
| PEAK FLOW (cms)= 0.10 0.03 "TOTALS" TRINGTO PEAK (hrs)= 6.00 6.00 6.00 RINGTO PEAK (hrs)= 6.00 8.00 6.00 ROOT FALMEN (mm)= 112.00 112.00 112.00 RUNGF ALMEAL (mm)= 0.99 0.77 0.92 | |
| ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: (CN* = 89.0 I a= Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. | CAI ST/ ID= |
| CALIB STANDHYD (10042) ID0 = 1 DT= 5.0 min Total Imp(%)= 74.00 Dir. Conn.(%)= 74.00 Surface Area (ha)= 0.28 0.10 Dep. Storage (mm)= 1.00 1.00 Average Slope (%)= 1.00 2.00 Length (m)= 50.33 40.00 Mannings n = 0.013 0.290 | |
| NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. | |
| TIME RAIN TIME R | |

| Max.Eff.I Storage C Unit Hyd. PEAK ELOW TIME TO PI RUNOFF VO ***** WARNING: (I) CN (C) (ii) TIM (II) PEA | over (mi peaff. (mi Tpeak (mi peak (cm (cm EAK (hr LUME (m NFALL (m EFFICIENT | 2.81 2.881 2.881 2.881 2.881 2.881 2.881 2.881 2.881 2.881 2.881 3.37 3.337 3. | 4.333 4.333 4.400 4.583 4.683 4.683 4.683 4.681 5.000 5.083 5.167 5.253 5.253 5.253 5.253 5.253 6.000 6.00 | 13.50 13.50 13.50 13.50 13.50 13.50 13.50 13.50 148.50 148.50 148.50 148.50 148.50 | 7.533 7.417 7.500 7.417 7.500 7.417 7.500 7.583 7.657 | 6.75 6.75 6.75 6.75 6.75 6.75 6.75 6.75 | 9.92 10.00 10.08 10.08 10.17 10.25 10.33 10.42 10.58 10.67 10.83 11.08 11.08 11.08 11.25 11.25 11.35 11.42 11.58 11.58 11.58 11.58 11.58 11.58 11.58 | 3.94 3.94 3.94 3.94 3.94 2.25 2.25 2.25 2.25 2.25 2.25 2.25 2.2 |
|---|--|---|---|--|---|---|--|---|
| CALIB STANDHYD (11 ID= 1 DT= 5.0 Surface A Dep. Stor: Average S Length Mannings : | rea (h age (m lope (| na)= m)= %)= m)= = | IMPERVIOU 0.24 1.00 1.00 48.30 0.013 | IS PEI | Dir. Conn RVIOUS (i) 0.11 1.00 2.00 40.00 0.290 5.0 MIN. |) | | |
| | TIME hrs 0.083 0.167 0.250 0.333 0.417 0.500 0.583 0.667 0.783 0.917 1.000 1.083 1.167 1.250 | mm/hr 2.81 2.81 2.81 2.81 2.81 2.81 2.81 2.81 | TIME hrs 3.083 3.167 3.250 3.333 3.167 3.250 3.353 3.917 4.000 4.083 4.167 4.250 4.333 | 4.50 4.50 4.50 4.50 4.50 4.50 4.50 4.50 | D HYETOGRA: TIME hrs 6.083 6.167 6.250 6.333 6.167 6.500 6.583 6.667 6.700 7.083 7.000 7.083 | RAIN mm/hr 20.25 20.25 20.25 20.25 20.25 20.25 9.00 9.00 9.00 9.00 9.00 9.00 6.75 6.75 | 9.17 9.25 | RAIN mm/hr 3.94 3.94 3.94 3.94 3.94 3.94 3.94 3.94 |
| | | | 5.500 5.583 5.667 5.750 5.833 5.917 6.000 | 13.50 13.50 54.00 54.00 54.00 148.50 148.50 | 9.000 | 3.94 3.94 3.94 3.94 3.94 3.94 3.94 | 11.08 11.17 11.25 11.33 11.42 11.50 11.58 11.67 11.75 11.83 11.92 12.00 | 2.25 2.25 2.25 2.25 2.25 2.25 2.25 2.25 |
| MAX.Eff.II Storage Ci Unit Hyd. Unit Hyd. PEAK FLOW TIME TO PI RUNOFF VOI TOTAL RAIL RUNOFF COI ***** WARNING: | over (mi peff. (mi Tpeak (mi peak (cm EAK (hr LUME (m NFALL (m EFFICIENT | n) n)= n)= n)= ns)= ns)= ns)= m)= m)= = | IS SMALLE | (ii) | | *T01 0. 105 112 | FALS* 148 (iii) 5.00 5.12 5.50 0.93 |) |
| CALIB CALIB STANDHYD (14 ID= 1 DT= 5.0 Surface A Dep. Stor. Average S Length Mannings | rea (h age (m lope (| rea otal I m)= %)= m)= = | (ha)= mp(%)= 7 IMPERVIOU 0.18 1.00 1.00 39.16 0.013 | 0.23 8.00 I | Dir. Conn RVIOUS (i) 0.05 1.00 2.00 40.00 0.290 |) | | |
| | TIME hrs 0.083 0.167 0.258 0.1633 0.583 0.583 0.657 0.759 0.937 1.1083 1.167 1.250 0.937 1.1083 1.167 0.220 0.83 1.241 0.220 0.83 1.241 0.220 0.83 1.241 0.220 0.233 1.241 0.220 0.2 | 2.81 2.81 2.81 2.81 2.81 2.81 2.81 2.81 | TIME 3 1.067 3.250 3.083 3.417 3.250 3.508 | 4,50 4,50 4,50 4,50 4,50 4,50 4,50 4,50 | HYETOGRA TIME 6.083 6.083 6.251 6.252 6.351 6.650 6.351 6.650 6.750 6.750 6.831 7.7083 7.7084 | 20.25 20.25 20.25 20.25 20.25 9.00 9.00 9.00 6.75 6.75 6.75 6.75 6.75 6.75 6.75 6.75 | 9.08 9.17 9.25 9.33 9.42 9.50 9.58 | RAIN mm/hr 3.94 3.94 3.94 3.94 3.94 3.94 3.94 3.94 |

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3.94 | 11.75
3.94 | 11.83
3.94 | 11.92
3.94 | 12.00
                                                                          Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               148.50
5.00
1.24 (ii)
5.00
0.33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    132.61
10.00
5.21 (ii)
10.00
0.16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           *TOTALS*
0.091 (iii)
6.00
106.09
112.50
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6.00
111.50
112.50
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0.02
6.00
87.00
112.50
0.77
                                                                              PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                 * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                          (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
    CALIB
STANDHYD ( 10051)
ID= 1 DT= 5.0 min
                                                                                                                                                                                                                                                                                                                                                    Area (ha)= 0.37 Total Imp(\%)= 66.00 Dir. Conn.(\%)= 66.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                        IMPERVIOUS 0.24 0.13
1.00 1.00
1.00 2.00
49.67 40.00
0.013 0.290
                                                                          Surface Area (ha)=
Dep. Storage (mm)=
Average Slope (%)=
Length (m)=
Mannings n =
                                                                                                                                       NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Time | 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RAIN I MIN /                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | TIME hrss 9.08 9.17 5 9.08 9.17 5 9.08 9.17 5 9.08 9.17 5 9.09 9.59 9.59 9.59 9.67 10.00 10.08 10.07 10.03 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05 10.05
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4.250
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5.583
5.667
5.753
5.917
6.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    148.50
5.00
1.43 (ii)
***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                          (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\pm}=89.0 Ia = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STRAGE COEFFICIENT. (iii) PEAK FLOW DDES NOT INCLUDE BASEFLOW IF ANY.
                 (ha)=
(mm)=
(%)=
(m)=
                                                                              Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                       NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TRANSFORMED HYETOGRAPH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TTME hrs 0.083 0.0417 0.250 0.250 0.167 0.250 0.250 0.450 0.450 0.450 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.500 0.667 0.500 0.833 0.450 0.750 0.500 0.833 0.450 0.750 0.833 0.450 0.750 0.833 0.450 0.750 0.833 0.450 0.750 0.833 0.450 0.750 0.833 0.450 0.750 0.833 0.450 0.750 0.833 0.450 0.750 0.833 0.450 0.750 0.833 0.450 0.750 0.833 0.450 0.750 0.833 0.450 0.750 0.833 0.450 0.750 0.833 0.450 0.750 0.833 0.450 0.750 0.833 0.450 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.
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over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       148.50
5.00
1.70 (ii)
5.00
0.32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            132.61
10.00
i) 8.60 (ii)
10.00
0.12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  *TOTALS*
0.243 (iii)
6.00
102.18
112.50
0.91
                                                                              PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0.17
6.00
111.50
112.50
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0.07
6.00
                                                                                               WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                          (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^\circ=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
```

| Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= PEAK FLOW (cms)= TIME TO PEAK RUNOFF VOLUME (mm)= TOTAL RAINFALL (mm)= | 5.00 0.33 0.10 6.00 | 10.00 0.13 0.04 6.00 87.00 112.50 0.77 | *TOTALS* 0.138 (iii) 6.00 |
|--|--|--|--|
| RUNOFF VOLUME (mm)= TOTAL RAINFALL (mm)= RUNOFF COEFFICIENT = | 6.00 111.50 112.50 0.99 | 87.00 112.50 0.77 | 6.00 103.16 112.50 0.92 |
| ***** WARNING: STORAGE COEFF. I | S SMALLER THAN | TIME STEP! | |
| (i) CN PROCEDURE SELECTE CM* = 83.0 Ia (ii) TIME STEP (DT) SHOUL THAN THE STORAGE COE (iii) PEAK FLOW DOES NOT I | D FOR PERVIOUS = Dep. Storage D BE SMALLER OF FFICIENT. NCLUDE BASEFLOR | LOSSES: (Above) R EQUAL W IF ANY. | |
| | (ha)= 0.36 pp(%)= 62.00 | Dir. Conn.(%)= | = 62.00 |
| Surface Area (ha)= Dep. Storage (mm)= Average Slope (%)= Length (m)= Mannings n = | 0.22 1.00 1.00 48.99 | ERVIOUS (i) 0.14 1.00 2.00 40.00 0.290 | |
| NOTE: RAINFALL WAS TR | ANSFORMED TO | 5.0 MIN. TIME | STEP. |
| hrs mm/hr mm/hr c. 181 c | 3.083 4.50 3.167 4.50 3.167 4.50 3.530 4.50 3.530 4.50 3.530 4.50 3.500 4.50 3.500 4.50 3.500 4.50 3.500 4.50 3.607 4.50 3.607 4.50 3.607 4.50 3.607 4.50 3.607 4.50 3.607 4.50 3.607 4.50 3.607 4.50 3.607 4.50 3.607 4.50 3.607 4.50 3.607 4.50 3.607 4.50 3.607 4.50 3.607 4.50 3.607 4.50 3.607 5.607 3.607 5. | 6.1857 02.0.6 6.1857 02.0.6 6.1857 02.0.6 6.1857 02.0.6 6.1858 02.0.0.6 6.1858 02.0.0.0 02.0.0.0 02. | 10 9.75 3.94 |
| Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= FAK FLOW (cms)= FIME TO PEAK (hrs)= RUNOFF VOLUME (mm)= TOTAL RAINFALL (mm)= RUNOFF COEFFICIENT = | 5.00 1.42 (ii) 5.00 0.33 0.09 6.00 111.50 112.50 0.99 | 0.00 8.31 (ii) 10.00 0.13 0.04 6.00 87.00 112.50 0.77 | FTOTALS* 0.133 (iii) 6.00 102.18 112.50 0.91 |
| | MPERVIOUS P 0.42 1.00 1.00 65.83 0.013 | Dir. Conn. (%): ERNYIOUS (i) 0.23 1.00 2.00 40.00 0.290 5.0 MIN. TIME | |
| TIME DATA I | | ED HYETOGRAPH - ' TIME RA ' hrs mm, 6.083 20.2 6.167 20.2 6.250 20.2 6.333 20.2 | |

| | TIME hrs | RAIN mm/hr | TIME hrs | RAIN mm/hr | D HYETOGRA ' TIME ' hrs | RAIN mm/hr | hrs | RAIN mm/hr |
|------|---|--|---|--|---|---|--|---|
| | 0 .083 0 .183 0 .153 0 .153 0 .417 0 .583 0 .917 0 .758 1 .000 1 .000 1 .1687 1 .1500 1 .1500 1 .1500 1 .1500 1 .1500 1 .1500 2 .1500 2 .2500 2 .2500 | 2.81 2.81 2.81 2.881 2.881 2.881 2.881 2.881 2.881 2.881 2.881 2.881 3.377 3.3377 3.3377 3.3377 | 3.083 3.167 3.250 3.333 3.417 3.500 3.583 3.400 4.083 4.167 4.083 4.167 4.250 4.333 4.167 4.583 4.167 4.583 4.167 5.000 5.083 5.583 5.667 6.75 5.583 5.583 5.595 6.750 6 | 4.50 4.50 4.50 4.50 4.50 4.50 4.50 4.50 | 6.083 6.167 6.250 6.333 6.417 6.503 6.503 6.507 6.503 6.697 7.083 7.167 7.083 7.157 7.250 7.357 | 1881/19 20 21 25 20 22 5 20 22 5 20 22 5 20 22 5 20 22 5 20 22 6 20 22 6 20 22 6 20 22 6 20 22 6 20 22 6 20 22 6 20 22 6 20 22 6 20 22 6 20 22 6 20 22 6 20 20 20 20 20 20 20 20 20 20 20 20 20 | 9.08 9.17 9.25 9.33 9.42 9.50 9.58 9.58 9.67 10.00 10.17 10.00 10.17 10.33 10.67 10.83 10.67 11.08 11.108 11.108 11.155 11.158 11.158 11.58 | IIII 0.04 3 3 3 9.94 3 3 3 9.94 3 3 3 3 9.94 3 3 3 3 9.94 3 3 3 3 9.95 3 3 3 3 9.95 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 |
| e Co | over (n eff. (n Tpeak (n | nin) nin)= | 5.00 1.70 5.00 0.32 | (ii) | 32.61 10.00 8.59 (ii) 10.00 0.12 |) *TOT | ALS* | |
| OW | (1 | -ms)= | 0.17 | | 0.07 | | 241 (iii) |) |

Storage Unit Hy Unit Hy PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =

**** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $\text{CN}^\circ = 89.0$ Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

IMPERVIOUS PERVIOUS (i)

```
Surface Area
Dep. Storage
Average Slope
Length
                                                                                                                                                                                                                                                                                                                                                               (ha)=
(mm)=
(%)=
(m)=
=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0.53
1.00
1.00
70.24
0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0.21
1.00
2.00
40.00
0.290
                                                                                       lannings n
                                                                                                                                        NOTE: RAINFALL WAS TRANSFORMED TO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5.0 MIN. TIME STEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TIME hrs 3.083 3.167 3.250 3.333 3.417 3.350 3.500 3.583 3.500 4.083 4.000 4.083 4.000 4.083 4.417 4.250 5.083 5.517 5.250 5.833 5.417 5.250 5.883 5.417 5.250 5.883 5.417 5.250 6.000 5.883 5.417 5.250 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.0
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                                                                                                                                                                                                                                                                                                                                                                                                      Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   148.50
5.00
1.76 (ii)
5.00
0.32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               132.61
10.00
6.37 (ii)
10.00
0.15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          *TOTALS*
0.285 (iii)
6.00
104.39
112.50
0.93
                                                               PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0.22
6.00
111.50
112.50
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0.07
6.00
87.00
112.50
0.77
                                                                                       WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                               Area (ha)= 0.72
Total Imp(%)= 60.00 Dir. Conn.(%)= 60.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PERVIOUS (i)
0.29
1.00
2.00
40.00
0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IMPERVIOUS
0.43
1.00
1.00
69.28
0.013
                                                                    Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                   NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3.417 4.50 | 6.417

3.500 4.50 | 6.500

3.883 4.50 | 6.583

3.667 4.50 | 6.650

3.833 4.50 | 6.683

3.837 4.50 | 6.683

3.917 4.50 | 6.917

4.000 4.50 | 7.000

4.83 6.75 | 7.053

4.167 6.75 | 7.167

4.253 | 6.75 | 7.257

4.253 | 6.75 | 7.357

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4.253 | 6.75 | 7.357

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4.253 | 6.75 | 7.357

4.253 | 6.75 | 7.357

4.250 | 0.00 | 7.633

4.267 | 0.00 | 7.633

4.267 | 0.00 | 8.003

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                                                          Max.Eff.Inten.(mm/hr)
over (min)
over (min)
storage Coeff. (min)=
unit Hyd. Tpeak (min)=
unit Hyd. peak (ms)=
PEAN FLOW
TIME TO PEAK (hrs)=
RUNOFF VOLUME
TOTAL RAINFALL (mm)=
TOTAL RAINFALL =
RUNOFF COEFFICIENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           148.50
5.00
1.21 (ii)
5.00
0.33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   132.61
10.00
(ii) 8.10
10.00
0.13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          *TOTALS*
0.075 (iii)
6.00
99.72
112.50
0.89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0.05
6.00
111.50
112.50
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0.03
6.00
87.00
112.50
0.77
                                                          * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                               (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^\circ = 89.0 Ia = Dep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
IMPERVIOUS

a) = 0.18

m) = 1.00

%) = 1.00

m) = 37.42

= 0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PERVIOUS (i)
0.03
1.00
2.00
40.00
0.290
                                                               Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                        NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HYETOGR
TIME
hrs
6.083
6.167
6.250
6.333
6.417
6.500
6.583
6.667
6.750
6.833
6.917
7.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TIME
hrs
3.083
3.167
3.250
3.333
3.417
3.500
3.583
3.667
3.750
3.833
3.917
4.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RAIN
mm/hr
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20.25
20.25
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20.25
20.25
9.00
9.00
9.00
9.00
9.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9.08
9.17
9.25
9.33
9.42
9.50
9.58
9.67
9.75
9.83
9.92
                                                                                                                                                                                                                                                             hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
```

| 0.533 0.417 0.500 0.583 0.667 0.753 0.813 0.107 1.000 1.083 1.167 1.250 1.333 1.147 1.250 1.333 1.917 1.500 2.250 2.333 2.417 2.500 2.833 2.417 2.500 2.833 2.417 2.500 2.833 2.417 2.500 | RAIN TIME mm/hr 1 3.063 2.81 3.167 2.81 3.167 2.81 3.250 2.81 3.427 2.81 3.450 2.81 3.450 2.81 3.450 2.81 3.450 2.81 4.083 2.81 4.083 2.81 4.083 2.81 4.083 2.81 4.083 2.81 4.50 2.81 4.53 2.81 4.50 2.81 4.53 2.81 5.53 3.37 5.53 3.37 5.56 3.37 5.56 3.37 5.56 3.37 5.583 3.37 5.583 3.37 5.583 3.37 5.583 3.37 5.583 3.37 5.583 3.37 5.583 | 4.50 6 4.50 6 4.50 6 4.50 6 4.50 6 4.50 6 4.50 6 6.75 7 7 6.75 7 7 6.75 7 6.75 7 6.75 7 6.75 7 6.75 7 6.75 7 6.75 7 6.75 7 6.75 7 6.75 7 6.75 7 6.75 7 6.75 7 6.75 7 7 6.75 7 6.75 7 6.75 7 6.75 7 6.75 7 6.75 7 6.75 7 6.75 7 6.75 7 6.75 7 6.75 7 6.75 7 6.75 7 6.75 7 7 6.75 7 6.75 7 6.75 7 6.75 7 6.75 7 6.75 7 6.75 7 7 6.75 7 6.75 7 6.75 7 7 7 6.75 7 7 7 6.75 7 7 7 6.75 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 | . 333 | 9.23 9.33 9.42 9.50 9.58 9.67 9.75 | RAINI mm/M11 3.94 3.94 3.94 3.94 3.94 3.94 3.94 3.94 |
|---|--|---|---|--|---|
| Storage Coeff. (Unit Hyd. Tpeak (Unit Hyd. peak (PEAK FLOW TIME TO PEAK (RUNOFF VOLUME TOTAL RAINFALL RUNOFF COEFFICIEN | cms)= 0.18 nrs)= 6.00 (mm)= 111.50 (mm)= 12.50 r = 0.99 | 0. 6. 87. 112. 0. | 64 (ii) 00 12 *TO 08 00 00 00 10 50 11 | TALS* .263 (iii) 6.00 1.69 2.50 0.90 |) |
| ***** WARNING: STORAGE (i) CN PROCEDURING (n)* = 89 (ii) TIME STEP (I THAN THE STI (iii) PEAK FLOW DO | SELECTED FOR B | EDVITOUS LOS | eec. | | |
| Surface Area Dep. Storage Average Slope Length Mannings n | Area (ha) = Total Imp(%) = IMPERVIC (ha) = 0.11 (mm) = 1.00 (%) = 1.00 (m) = 37.42 = 0.013 | DUS PERVI 0. 1. 2. 40. | | | |
| NOTE: RAINFAI TIME hrs 0.083 0.167 0.252 0.333 | TR RAIN TIME mm/hr hrs 2.81 3.083 2.81 3.167 2.81 3.250 2.81 3.333 | ANSFORMED H | 0 MIN. TIME ST IYETOGRAPH TIME RAIN hrs mm/hr 1.083 20.25 1.167 20.25 5.250 20.25 5.253 20.25 | - TIME | RAIN mm/hr 3.94 3.94 3.94 3.94 |
| 1.083 1.167 1.253 1.333 1.337 1.500 1.583 1.667 1.753 2.083 2.167 2.253 2.213 2.214 2.253 | 2.81 4.083 2.81 4.157 2.81 4.317 2.81 4.320 2.81 4.320 2.81 4.500 2.81 4.500 2.81 4.500 2.81 4.500 2.81 4.500 3.37 5.030 3.37 5.030 3.37 5.030 3.37 5.533 3.37 5.533 | 6.75 7 9.00 7 9.00 7 9.00 7 9.00 7 9.00 7 9.00 8 13.50 8 13.50 8 13.50 8 13.50 8 13.50 8 13.50 8 13.50 8 | .333 6.75 .417 6.75 .583 6.75 .583 6.75 .667 6.75 .750 6.75 .917 6.75 .000 6.75 .083 3.94 .250 3.94 .250 3.94 .333 3.94 .333 3.94 | 10.08 10.17 10.25 10.33 10.42 10.58 10.67 10.75 10.83 10.92 11.00 11.17 11.25 11.33 11.42 11.50 11.67 11.83 11.83 11.83 11.83 11.83 11.83 12.00 | 2. 25 2. 25 25 25 25 25 25 25 25 25 25 25 25 25 2 |
| Max.Eff.Inten.(mm, over (r Storage Coeff. (r Unit Hyd. Tpeak (r Unit Hyd. peak (d PEAK FLOW (TIME TO PEAK (I RUNOFF VOLUME | /hr)= 148.50 nin) 5.00 nin)= 1.21 nin)= 5.00 cms)= 0.33 cms)= 0.08 rrs)= 6.00 | 132. 5. (ii) 4. 5. 0. | 61 00 29 (ii) 00 23 *TO | TALS* .085 (iii) 6.00 8.30 2.50 | |
| ***** WARNING: STORAGE (i) CN PROCEDURI CN* = 89; (ii) TIME STEP (I THAN THE STI (iii) PEAK FLOW DO | COEFF. IS SMALL E SELECTED FOR F O Ia = Dep. OT) SHOULD BE SM DRAGE COEFFICIEN | ER THAN TIME ERVIOUS LOS Storage (A MALLER OR EQ IT. | SSES: lbove) QUAL | | |
| Surface Area Dep. Storage Average Slope Length Mannings n | Area (ha)= Total Imp(%)= IMPERVIC (ha)= 0.51 (mm)= 1.00 (%)= 1.00 (m)= 64.81 = 0.013 | US PERVI 0. 1. 2. 40. | ous (i) 12 00 00 00 | | |
| NOTE: RAINFAI TIME hrs 0.087 0.167 0.033 0.417 0.500 0.583 0.667 0.083 0.17 1.000 1.083 1.167 1.150 | | ANSFORMED H RAIN ' mm/hr ' 4.50 6 4.50 6 | TIME RAIN hrs mm/hr | - TTME | RAIN mm/hr 3.94 3.94 3.94 3.94 3.94 3.94 3.94 3.94 |

| 1.750 2.81 4.750 9.00 7.750 6.75 10.75 2.25 1.833 2.81 4.833 9.00 7.833 6.75 10.92 2.25 1.212 2.81 4.917 9.00 7.910 6.75 10.92 2.25 2.163 3.77 5.083 3.75 8.083 3.25 4.11.03 2.25 2.163 3.77 5.083 3.75 8.083 3.25 4.11.03 2.25 2.163 3.77 5.167 13.50 8.167 3.94 11.17 2.25 2.133 3.77 5.147 13.50 8.167 3.94 11.17 2.25 2.133 3.77 5.147 13.50 8.167 3.94 11.17 2.25 2.143 3.77 5.471 13.50 8.143 3.94 11.42 2.25 2.163 3.77 5.487 13.50 8.133 3.94 11.42 2.25 2.163 3.77 5.687 4.00 8.667 3.94 11.07 2.25 2.163 3.77 5.687 4.00 8.667 3.94 11.07 2.25 2.183 3.77 5.687 4.00 8.667 3.94 11.07 2.25 2.237 3.77 5.687 5.680 8.833 3.94 11.53 2.25 2.237 3.75 5.97 148.50 8.917 3.94 11.00 2.25 3.25 3.25 3.25 3.25 3.25 3.26 3.27 5.83 148.50 8.917 3.94 11.00 3.27 3.27 3.27 5.97 148.50 8.917 3.94 11.00 3.27 3.27 3.27 3.27 3.27 3.27 4.28 3.28 3.28 3.28 3.28 3.28 3.28 4.28 3.28 3.28 3.28 3.28 3.28 5.29 3.28 3.28 3.28 3.28 3.28 5.20 3.27 3.28 3.28 3.28 3.28 3.28 5.20 3.20 3.20 3.20 3.28 6.25 3.25 3.25 3.28 3.28 3.28 6.25 3.25 3.25 3.28 3.28 3.28 7.28 3.28 3.28 3.28 3.28 8.28 3.28 3.28 3.28 3.28 8.28 3.28 3.28 3.28 3.28 8.28 3.28 3.28 3.28 3.28 8.28 3.28 3.28 3.28 3.28 8.28 3.28 3.28 3.28 3.28 8.28 3.28 3.28 3.28 3.28 9.28 3.28 3.28 3.28 3.28 9.28 3.28 3.28 3.28 3.28 9.28 3.28 3.28 3.28 3.28 9.28 3.28 3.28 3.28 9.28 3.28 3.28 3.28 3.28 9.28 3.28 3.28 3.28 3.28 9.28 3.28 3.28 3.28 3.28 9.28 3.28 3.28 3.28 3.28 9.28 3.28 3.28 3.28 3.28 9.28 | 2.417 3.37 5.417 13.50 8.417 |
|---|---|
| MAX. EFF. Inter-(emp/hr) | TIME TO PEAK (hrs)= 6.00 6.00 RUNOFF VOLIME (mm)= 11.50 87.00 RUNOFF CAPILLER (mm)= 11.50 87.00 RUNOFF CAPILLER (mm)= 11.50 12.50 RUNOFF CAPILLER (mm)= 11.50 12.50 RUNOFF CAPILLER (mm)= 11.50 12.50 RUNOFF COFFICIENT (mm)= 11.50 12.50 RUNOFF COFFICIENT (mm)= 11.50 12.50 (i) CU PROCEDURE SELECTED FOR PERVIOUS LOSSES: (N°= 89.0 La Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. |

| 2.417 3.37 2.500 3.37 2.583 3.37 2.667 3.37 2.750 3.37 2.833 3.37 2.917 3.37 | 5.583 54. | 50 8.417 50 8.500 00 8.583 00 8.667 00 8.750 50 8.833 50 8.917 50 9.000 | 3.94 3.94 3.94 3.94 3.94 3.94 3.94 | 11.42 11.50 11.58 11.67 11.75 11.83 11.92 12.00 | 2.25 2.25 2.25 2.25 2.25 2.25 2.25 |
|--|--|---|--|--|---|
| ***** | 148.50 5.00 1.57 (ii) 5.00 0.33 | | | 12.00 | 2.25 |
| PEAK FLOW (cms)= TIME TO PEAK (hrs)= RUNOFF VOLUME (mm)= TOTAL RAINFALL (mm)= RUNOFF COEFFICIENT = | 0.15 6.00 111.50 112.50 0.99 | 0.04 6.00 87.00 112.50 0.77 | 105 112 | TALS* 195 (iii) 5.00 5.13 2.50).93 |) |
| **** WARNING: STORAGE COEFF. (i) CN PROCEDURE SELECT CN* = 89.0 Ia (ii) TIME STEP (DT) SHOU THAN THE STORAGE CO (iii) PEAK FLOW DOES NOT | IS SMALLER TH | AN TIME STEP | ! | | |
| CALTR | (ha)= 0.91 mp(%)= 55.00 | | (%)- ' | | |
| Surface Area (ha)= pep. Storage (mm)= Average Slope (%)= Length (m)= Mannings n = | TMDED\/TOUS | PERVIOUS (i 0.41 1.00 2.00 40.00 0.290 | | | |
| NOTE: RAINFALL WAS T | RANSFORMED TO | | | | |
| 0.083 2.81 0.157 2.83 0.157 2.83 0.157 2.83 0.233 2.81 0.500 2.81 0.500 2.81 0.500 2.81 0.667 2.81 0.672 2.81 0.672 2.81 0.687 2.81 1.083 2.81 1.083 2.81 1.1250 2.81 1.250 3.37 2.250 3.37 2.250 3.37 2.250 3.37 2.250 3.37 2.250 3.37 2.250 3.37 2.250 3.37 2.250 3.37 2.250 3.37 2.250 3.37 2.250 3.37 | 3,400 4, 3,583 4, 3,667 4, 3,687 4, 3,837 4, 3,833 4, 4,083 4, 4,167 6, 4,250 9, 4,333 9, 4,250 13, 5,250 14, 5,250 | 500 6.083 501 6.167 502 6.333 503 6.333 503 6.333 504 6.500 505 6.500 505 6.500 506 6.500 506 6.500 507 6.675 507 6.683 508 6.683 508 6.693 509 6.6833 509 6.6833 509 6.6833 509 6.6930 500 6.795 500 6.833 500 6.930 500 6.833 500 6.930 500 6.833 | 20.255 20 | 9.08 9.17 9.25 | RAIN mm/hr 3. 94 3. 94 4. 3. 92 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2 |
| 2.833 3.37 2.917 3.37 3.000 3.37 | 5.917 148. 6.000 148. | 50 9.000 | 3.94 | 12.00 | 2.23 |
| 3.000 3.37 TIME TO PEAK (hrs)= RUNOFF VOLUME (mm)= TOTAL RAINFALL (mm)= RUNOFF COEFFICIENT = ***** WARNING: STORAGE COEFF. (i) CN PROCEDURE SELECT CN* = 89.0 tal (ii) TIME STEP (DT) SHOU THAN THE STORAGE CO | 6.000 148. 6.00 111.50 112.50 0.99 1S SMALLER TH ED FOR PERVIO = Dep. Stora LD BE SMALLER | 6.00 87.00 112.50 0.77 AN TIME STEP US LOSSES: ge (Above) OR EQUAL | 3.94 | | 2.25 |
| TIME TO PEAK (hrs)= RUNOFF VOLUME (mm)= TOTAL RAINFALL (mm)= RUNOFF COEFFICIENT = ***** WARNING: STORAGE COEFF. (i) CN PROCEDURE SELECT CN* = 89.0 Ia (ii) TIME STEP (0T) SHOU THAN THE STORAGE CO (iii) PEAK FLOW DOES NOT | 6.00 148. 6.00 111.50 112.50 0.99 IS SMALLER TH ED FOR PERVIO = DEP. STOTA DB E SMALLER EFFICIENT. INCLUDE BASEF | 6.00 87.00 112.50 0.77 AN TIME STEP US LOSSES: US (Above) OR EQUAL LOW IF ANY. | 3.94 6 104 112 ! | 5.00 1.64 2.50 2.93 | |
| TIME TO PEAK (hrs)= RUNOFF VOLUME (mm)= TOTAL RAINFALL (mm)= RUNOFF COEFFICIENT = ***** WARNING: STORAGE COEFF. (i) CN PROCEDURE SELECT CN* = 89.0 (ii) TIME STEP (DT) SHOU THAN THE STORAGE CO (iii) PEAK FLOW DOES NOT | 6.000 148. 6.00 111.50 112.50 0.99 1S SMALLER TH ED FOR PERVIO = Dep. Stora LD BE SMALLER | 6.00 87.00 112.50 0.77 AN TIME STEP US LOSSES: US (Above) OR EQUAL LOW IF ANY. | 3.94 6 104 112 (! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! ! | 5.00 1.64 2.50 2.93 | |
| TIME TO PEAK (hrs)= RINOFF VOLUME (mm)= TOTAL RAINFALL (mm)= RINOFF COEFFICIENT = ***** WARNING: STORAGE COEFF. (i) CN PROCEDURE SELECT (ii) TIME TEP (DT) SHOL (iii) TIME TEP (DT) SHOL (iii) TIME STORAGE CO (iii) PEAK FLOW DOES NOT | 6.000 148. 6.000 111.50 112.50 0.99 IS SMALLER TH ED FOR PERVIO BEP. STOTA BEP. STOTA EFFICIENT INCLUBE BASEF (ha)= 1.06 mp(%)= 59.00 IMPERVIOUS 0.600 1.00 84.06 0.013 RANNSFORMED TO | 6.00 87.00 112.15 0.77 AN TIME STORY OR EQUAL LOW IF ANY. DIF. CONN 10.01 10.01 10.01 40.00 40.00 0.290 5.0 MIN. | 3.94 6 6 104 112 | 5.00 1.64 2.50 3.93 | |
| TIME TO PEAK | 6.000 148. 6.000 111.50 112.50 0.99 IS SMALLER TH ED FOR PERVIO DEP. STORA EFFICURE BASEF (ha)= 1.06 mp(%)= 59.00 IMPERVIOUS 0.63 1.00 84.06 0.013 RANSFORMED TO 1.01 1.01 1.02 1.03 1.03 1.00 1.03 1.00 1.03 1.00 1.03 1.00 1.03 1.00 1.03 1.00 1.03 1.00 1.03 1.00 1.03 1.00 1.03 1.00 1.03 1.00 1.03 1.00 1.03 1.00 1.03 1.00 1.03 1.00 1.03 1.00 1.03 1.00 1.03 1.00 1.03 1.00 1.03 1.03 | 6.000 | 3.94 (%) | 5.000 1.64 1.50 1.93 1.50 1.93 1.93 1.94 1.90 | RAIN mm/hr 3.94 3.94 3.94 3.94 3.94 3.94 3.94 3.94 |
| TIME TO PEAK | 6.000 148. 6.000 111.50 112.50 0.99 IS SMALLER TH ED FOR PERVIO DEP. STOTA EFFECUES SMALLER INCLUDE BASEF (ha)= 1.06 mp(%)= 59.00 IMPERVIOUS 0.63 1.00 84.06 0.013 RANSFORMED TO 1.01 1.01 1.02 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 | 6.000 | 3.94 (i) (i) (ii) (ii) (ii) (ii) (ii) (ii) | 5.000 1.64 1.500 1.93 1.93 1.93 1.94 | RAIN mm/hr 3.94 3.94 3.94 3.94 3.94 3.94 3.94 3.94 |

CN* = 89.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. Area (ha)= 0.97 Total Imp(%)= 78.00 Dir. Conn.(%)= 78.00 | IMPERVIOUS | (ha) = 0.76 | (mm) = 1.00 | (%) = 1.00 | (m) = 80.42 | = 0.013 PERVIOUS (i) 0.21 1.00 2.00 40.00 0.290 Surface Area Dep. Storage Average Slope Length Mannings n NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. 0.83 0.083 0.167 0.250 0.250 0.417 0.500 0.500 0.500 0.667 0.750 0.750 0.833 1.167 1.500 1.15 Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= 132.61 10.00 5.88 (ii) 10.00 0.15 148.50 5.00 1.91 5.00 0.31 (ii) *TOTALS* 0.382 (iii) 6.00 106.11 112.50 0.94 PEAK FLOW (Cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT = 0.31 6.00 111.50 112.50 0.99 0.07 6.00 87.00 112.50 0.77 ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^2=89.0$ Ia = Dep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. IT ANY LOW DOES NOT INCLUDE BASEFLOW IF ANY. | CALIB | 0.013 0.290 Mannings n NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

| TIME | RAIN | IK | RAIN | D HYETOGR | RAIN | TIME | RAIN |
|----------------|--------------|-------|-----------------|----------------|--------------|----------------|--------------------------------------|
| hrs | mm/hr | hrs | mm/hr | ' hrs | mm/hr | hrs | mm/hr |
| 0.083 | 2.81 | 3.083 | 4.50 | 6.083 | 20.25 | 9.08 | 3.94 |
| 0.167 | 2.81 | 3.167 | 4.50 | 6.167 | 20.25 | 9.17 | 3.94 |
| 0.250 | 2.81 | 3.250 | 4.50 | 6.250 | 20.25 | 9.25 | 3.94 |
| 0.333 | 2.81 | 3.333 | 4.50 | 6.333 | 20.25 | 9.33 | 3.94 |
| 0.417 | 2.81 | 3.417 | 4.50 | 6.417 | 20.25 | 9.42 | 3.94 |
| 0.500 | 2.81 | 3.500 | 4.50 | 6.500 | 20.25 | 9.50 | 3.94 |
| 0.583 | 2.81 | 3.583 | 4.50 4.50 | 6.583 | 9.00 | 9.58 | 3.94 |
| 0.750 | 2.81 | 3.750 | 4.50 | 6.750 | 9.00 | 9.75 | 3.94 3.94 |
| 0.833 | 2.81 | 3.833 | 4.50 | 6.833 | 9.00 | 9.83 | 3.94 |
| 0.917 | 2.81 | 3.917 | 4.50 | 6.917 | 9.00 | 9.92 | 3.94 |
| 1.000 | 2.81 | 4.000 | 4.50 | 7.000 | 9.00 | 10.00 | 3.94 |
| 1.083 | 2.81 | 4.083 | 6.75 | 7.083 | 6.75 | 10.08 | 2.25 |
| 1.167 | 2.81 | 4.167 | 6.75 | 7.167 | 6.75 | 10.17 | 2.25 |
| 1.250 | 2.81 | 4.250 | 6.75 | 7.250 | 6.75 | 10.25 10.33 | 2.25 2.25 2.25 2.25 2.25 |
| 1.333 | 2.81 | 4.333 | 6.75 | 7.417 | 6.75 | 10.33 | 2.25 |
| 1.500 | 2.81 | 4.500 | 6.75 | 7.500 | 6.75 | 10.42 | 2.25 |
| 1.583 | 2.81 | 4.583 | 9.00 | 7.583 | 6.75 | 10.58 | 2.25 |
| 1.667 | 2.81 | 4.667 | 9.00 | 7.667 | 6.75 | 10.67 | 2 25 |
| 1.750 | 2.81 | 4.750 | 9.00 | 7.750 | 6.75 | 10.75 | 2.25 2.25 2.25 2.25 |
| 1.833 | 2.81 | 4.833 | 9.00 | 7.833 | 6.75 | 10.83 | 2.25 |
| 1.917 | 2.81 | 4.917 | 9.00 | 7.917 | 6.75 | 10.92 | 2.25 |
| 2.000 | 2.81 | 5.000 | 9.00 | 8.000 | 6.75 | 11.00 | 2.25 |
| 2.083 | 3.37 3.37 | 5.083 | 13.50 13.50 | 8.083 8.167 | 3.94 3.94 | 11.08 11.17 | 2.25 |
| 2.250 | 3.37 | 5 250 | 13.50 | 8.250 | 3.94 | 11.25 | 2 25 |
| 2.333 | 3.37 | 5.250 | 13.50 | 8.333 | 3.94 | 11.33 | 2.25 |
| 2.417 | 3.37 | 5.417 | 13.50 | 8.417 | 3.94 | 11.42 | 2.25 |
| 2.500 | 3.37 | 5.500 | 13.50 | 8.500 | 3.94 | 11.50 | 2.25 |
| 2.583 | 3.37 | 5.583 | 54.00 | 8.583 | 3.94 | 11.58 | 2.25 |
| 2.667 | 3.37 | 5.667 | 54.00 | 8.667 | 3.94 | 11.67 | 2.25 |
| 2.750 2.833 | 3.37 | 5.750 | 54.00 148.50 | 8.750 8.833 | 3.94 | 11.75 11.83 | 2.25 |
| 2.033 | 3.37 | 5.917 | 148.50 | 8.917 | 3.94 | 11.92 | 2.25 |
| 3.000 | 3.37 | 6.000 | 148.50 | 9.000 | 3.94 | 12.00 | 2.25 |
| 500 | | | | , | | | |

Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= 148.50 5.00 2.04 (ii) 5.00 0.31 132.61 10.00 6.92 (ii) 10.00 0.14 *TOTALS* 0.461 (iii) 6.00 103.66 112.50 0.92 PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT = 0.34 6.00 111.50 112.50 0.99 0.12 6.00 87.00 112.50 0.77

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

 CN° = 89.0 Ia = Dep. Storage (Above).

 I) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL

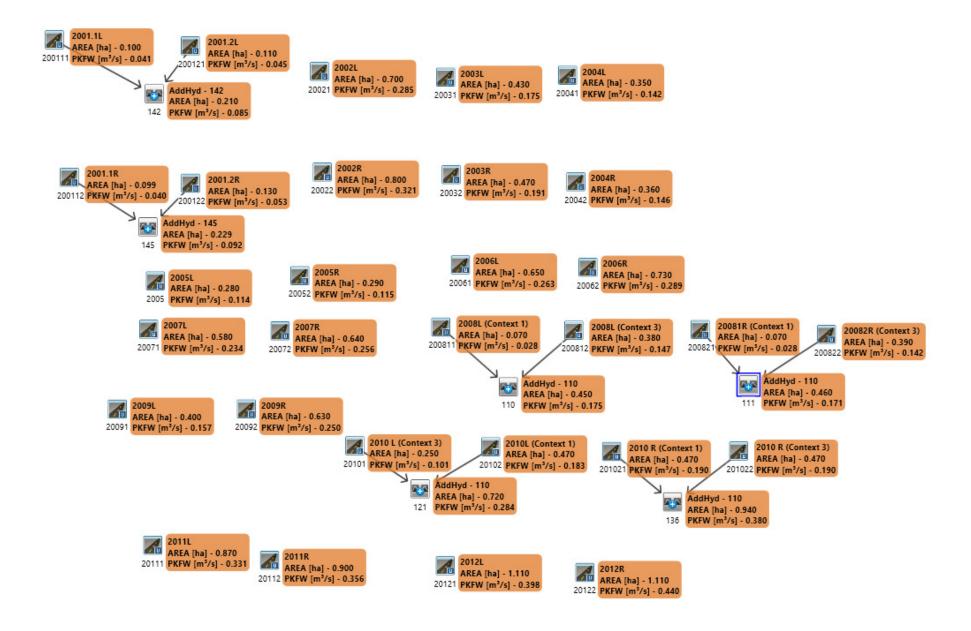
 THAN THE STORAGE COEFFICIENT.

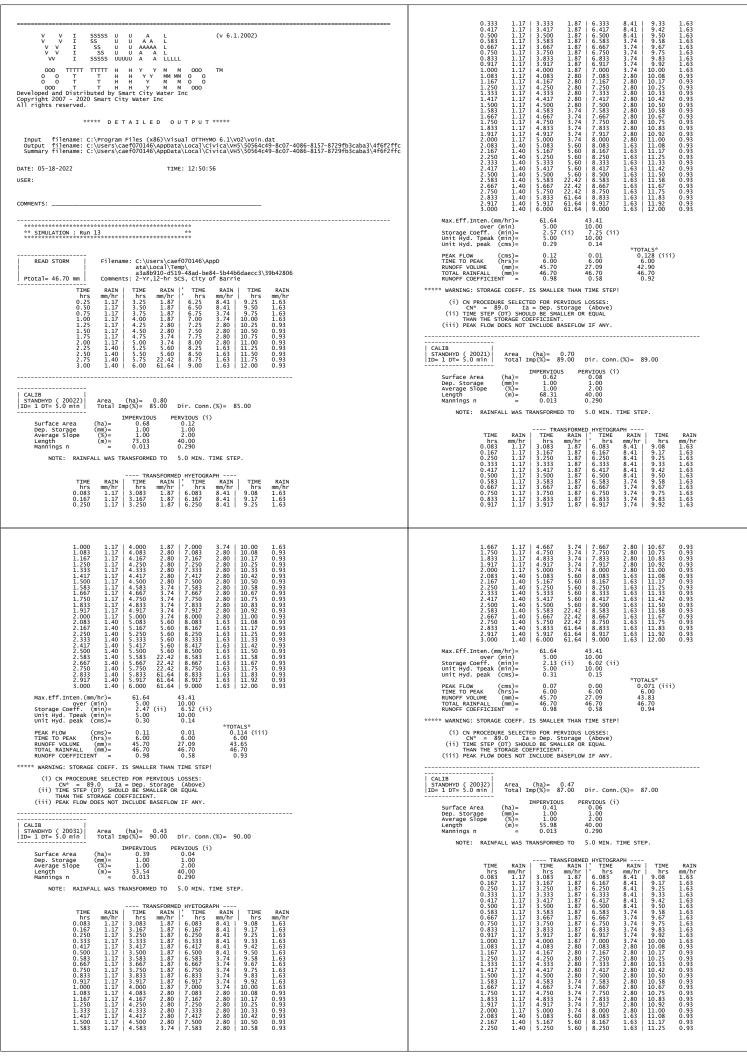
 (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

FINISH

| STANDHYD (1122)| |ID= 1 DT= 5.0 min | Area (ha)= 1.22 Total Imp(%)= 69.00 Dir. Conn.(%)= 69.00 IMPERVIOUS PERVIOUS (i) Surface Area Dep. Storage Average Slope Length Mannings n (ha)= (mm)= (%)= (m)= 10.18
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10.0 NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. TIME hrs 9.08 9.17 9.28 9.33 9.42 9.58 9.67 9.75 9.83 9.60 10.00 10.02 10.25 10.33 10.42 10.58 10.67 10.75 10.83 TIME for some state of the stat 10.92 11.00 11.08 11.17 11.25 11.33 11.42 11.50 11.58 11.67 11.75 11.83 11.92 12.00 Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)= 148.50 5.00 2.05 (ii) 5.00 0.31 132.61 10.00 6.83 (ii) 10.00 0.14 *TOTALS*
0.466 (iii)
6.00
103.90
112.50
0.92 PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT = 0.35 6.00 111.50 112.50 0.99 0.12 6.00 87.00 112.50 0.77 ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^{\pm}=89.0$ Ia = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. Area (ha)= 1.21 Total Imp(%)= 68.00 Dir. Conn.(%)= 68.00 Surface Area Dep. Storage Average Slope Length

100-yr Post-developmet Roadway Drainge Area Flows (12-hr SCS II)





```
1.40
1.40
1.40
1.40
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1.40
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5.667
5.750
5.833
5.917
6.000
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11.42
11.50
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11.67
11.75
11.83
11.92
12.00
                                                                                                                                                                2.667
2.750
2.833
2.917
3.000
                                           Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                   61.64
5.00
2.19 (ii)
5.00
0.31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             43.41
10.00
6.57 (ii)
10.00
0.14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      *TOTALS*
0.076 (iii)
6.00
43.27
46.70
0.93
                                              PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                   0.07
6.00
45.70
46.70
0.98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0.01
6.00
27.09
46.70
0.58
***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                           (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN* = 89.0 Ia = Dep. Storage (Above)

(i) TIME STEP (DT) SMOULD BE SMALLER OR EQUAL

THAN THE STORAGE COEFFICIENT.

(iii) PEAK FLOW DOES NOT INCLIDE BASEFLOW IF ANY.
  | CALIB | STANDHYD ( 20041) | Area (ha)= 0.35 | Dir. conn.(%)= 89.00 | Conn. (%)= 89.00 |
                                                                                                                                                                                                                                                                                             IMPERVIOUS PERVIOUS (i) 0.31 0.04 1.00 1.00 1.00 2.00 48.30 40.00 0.013 0.290
                                              Surface Area
Dep. Storage (mm)=
Average Slope
Length (m)=
Mannings n =
                                                                                       NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                   TRANSFORMED TO 5.0 MIN. TIME

TRANSFORMED HYETOGRAPH

MES MIN, 1 TIME

RAITN | TIME

TRANSFORMED HYETOGRAPH

MES MIN, 1 TIME

RAITN | TIME

RA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TIME hrs 0.083 0.167 0.250 0.333 0.417 0.500 0.750 0.750 0.750 1.000 1.083 1.167 1.250 1.333 1.417 1.500 1.583 1.417 1.500 1.583 1.667 1.750 1.833 1.917
                                                                                                                                                                                                                                                  TIME
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2.083
2.167
2.250
2.333
2.417
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2.667
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                                                                                                                                                                                                                                                                                                                              5.000
5.083
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5.500
5.583
5.667
5.750
5.833
5.917
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0.058 (iii)
6.00
42.90
46.70
0.92
                                                                                                                                                                                                                                                                                                                                         0.05
6.00
45.70
46.70
0.98
                                                          WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                              (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^\circ = 89.0 Ia = Dep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                     Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                       NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                         TRANSFORMED HYFTOGRAPH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TIME hrs 0.083 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.050 0.0
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over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                      61.64
5.00
1.89 (ii)
5.00
0.32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             41.44
15.00
12.87 (ii)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   *TOTALS*
0.043 (iii)
6.00
41.58
46.70
0.89
                                              PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                         0.04
6.00
45.70
46.70
0.98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0.00
6.08
27.09
46.70
0.58
**** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
```

| | 2.00 | 00 1.40 | 1 6 000 | 61 64 | 1 0 000 | 1 62 1 | 12 00 | 0.02 | | |
|---|---|--|---|--|--|--|---|--|--|--|
| | Max.Eff.Inten.(over Storage Coeff. Unit Hyd. Tpeak Unit Hyd. peak | (mm/hr)_ | 61.64 5.00 2.00 5.00 | (ii) | 43.41 10.00 6.06 (ii) 10.00 0.15 |) | | | | |
| | PEAK FLOW TIME TO PEAK RUNOFF VOLUME TOTAL RAINFALL RUNOFF COEFFICE | (cms)= (hrs)= (mm)= (mm)= (ENT = | 0.05 6.00 45.70 46.70 0.98 | | 0.00 6.00 27.09 46.70 0.58 | - 101 | ALS* 057 (iii) i.00 i.65 i.70 |) | | |
| *** | * WARNING: STORA | GE COEFF. | | | | ! | | | | |
| | (i) CN PROCEE CN* = (ii) TIME STEF THAN THE (iii) PEAK FLOW | OT) SHOUL STORAGE COL DOES NOT | LD BE SMA EFFICIENT INCLUDE E | ALLER OF T. BASEFLOW | R EQUAL V IF ANY. | | | | | |
| CA ST ID= | LIB ANDHYD (20042) 1 DT= 5.0 min | Area Total I | (ha)= mp(%)= 8 | 0.36 85.00 | Dir. Conn | | 5.00 | | | |
| | Surface Area Dep. Storage Average Slope Length Mannings n | (ha)= (mm)= (%)= (m)= | IMPERVIOU 0.31 1.00 1.00 48.99 0.013 | JS PE | ERVIOUS (1) 0.05 1.00 2.00 40.00 0.290 |) | | | | |
| NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. | | | | | | | | | | |
| | TIN hh 0.00 0.11 0.12 0.14 0.15 0.15 0.16 0.17 0.17 0.17 0.18 0.19 0.19 0.10 | 77 1.17 10 1.17 13 1.17 13 1.17 13 1.17 13 1.17 14 1.17 15 1.17 16 1.17 17 1.17 17 1.17 18 1.1 | 3.917 4.000 4.083 4.167 4.250 4.333 4.417 4.500 4.583 4.417 4.500 4.583 5.167 5.083 5.167 5.250 5.333 5.167 5.583 5.417 5.583 5.667 5.750 5.883 5.983 5.667 5.750 5.883 5.983 | 1.87 2.80 2.80 2.80 2.80 2.80 3.74 3.74 3.74 5.60 5.60 5.60 5.60 22.42 22.42 22.42 22.42 61.64 61.64 | 6. 500 6. 6.750 6. 750 6. 750 6. 831 7. 000 7. 003 7. 100 7. 250 7. 250 | 3.74 3.74 2.80 2.80 2.80 2.80 2.80 2.80 2.80 2.80 | 9 50 9 50 9 67 9 ,67 9 ,83 9 ,83 10 ,00 10 ,17 10 ,33 10 ,50 10 ,67 10 ,83 10 ,67 11 ,17 11 ,17 11 ,17 11 ,58 11 ,67 11 ,58 11 ,67 11 ,83 11 ,67 11 ,83 | RAIN mm/hr 1.63 1.63 1.63 1.63 1.63 1.63 1.63 1.63 | | |
| | Max.Eff.Inten.(over Storage Coeff. Unit Hyd. Tpeak Unit Hyd. peak | (mm/hr)= (min)= (min)= (min)= (cms)= | 51.64 5.00 2.02 5.00 0.31 | (ii) | 43.41 10.00 6.70 (ii) 10.00 0.14 | *тот | `ALS* | | | |
| (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^2=89.0$ Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. | | | | | | | | | | |
| CA ST ID= | LIB ANDHYD (20062) 1 DT= 5.0 min | Area Total I | (ha)= mp(%)= 8 | 0.73 80.00 | Dir. Conn | . (%)= 8 | 80.00 | | | |
| | Surface Area Dep. Storage Average Slope Length Mannings n | (ha)= (mm)= (%)= (m)= = | IMPERVIOL 0.58 1.00 1.00 69.76 0.013 | JS PE | 0.15 1.00 2.00 40.00 0.290 |) | | | | |
| | NOTE: RAIN | | | | | | Р. | | | |

| Mannings n | = | 0.013 | 0.290 | | | | | | | | |
|---|--|---|---|--|--|--|--|--|--|--|--|
| NOTE: | RAINFALL WAS T | RANSFORMED T | O 5.0 MIN. | TIME STEP. | | | | | | | |
| | 0.250 1.17 0.417 1.117 0.417 1.17 0.417 1.17 0.417 1.17 0.417 1.17 0.667 1.17 0.683 1.17 0.683 1.17 0.833 1.17 0.833 1.17 1.1000 1.17 1.1000 1.17 1.1000 1.17 1.1000 1.17 1.25 | 3 087 1 1 3 1 3 1 3 1 3 1 3 1 3 1 3 1 3 1 3 | ORNED HYETOOG AT TIME AND IN IT TIME IN IN IT TIME IN | mm/hr 90.8 4.41 91.1 4.8 4.41 91.1 4.8 4.41 91.1 4.8 4.41 91.1 4.8 4.41 91.1 4.8 4.41 91.1 4.8 4.41 91.1 4.8 4.41 91.1 4.8 4.41 91.1 4.8 4.41 91.1 4.8 4.41 91.1 4.8 4.41 91.1 4.8 4.41 91.1 4.8 4.8 4.41 91.1 4.8 4.8 4.41 91.1 4.8 4.8 4.8 4.1 91.1 4.8 4.8 4.8 4.1 91.1 4.8 4.8 4.8 4.1 4.8 4.8 4.8 4.1 4.8 4.8 4.8 4.8 4.8 4.8 4.8 4.8 4.8 4.8 | rs mm/hrs | | | | | | |
| Storage Coe Unit Hyd. 1 | ten.(mm/hr)= over (min) | 61.64 5.00 2.50 (ii 5.00 0.29 | 64 9.000 41.44 15.00 13.47 (ii 15.00 0.08 | | 0 0.93 | | | | | | |
| PEAK FLOW TIME TO PEA RUNOFF VOLU TOTAL RAINF RUNOFF COEF | JME (mm)= FALL (mm)= | 0.10 6.00 45.70 46.70 0.98 | 0.01 6.08 27.09 46.70 0.58 | 0.109 (6.00 41.97 46.70 0.90 | iii) | | | | | | |
| ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! | | | | | | | | | | | |
| (i) CM PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN° 89.0 Ta = Dep Storrage (Above) (ii) TIME STEP (OT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. | | | | | | | | | | | |

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| CALIB
| STANDHYD ( 20061)|
|ID= 1 DT= 5.0 min |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (m)=
=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            40.00
0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          65.32
0.013
                                                                                                                                                                                                                                                     Area (ha)= 0.65
Total Imp(%)= 85.00 Dir. Conn.(%)= 85.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                              IMPERVIOUS
0.55
1.00
1.00
65.83
0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PERVIOUS (i)
0.10
1.00
2.00
40.00
0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TRANSFORMED HYETOGRAPH
WE RAIN | TIME
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RAIN | TAME
RAIN
                                                   Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TIME
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0.250
0.333
0.417
0.500
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0.750
0.750
0.1000
1.083
1.167
1.253
1.417
1.500
1.583
1.417
1.253
1.417
1.750
1.833
1.917
2.083
2.1667
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2.333
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mm/hr
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1.63
1.63
1.63
1.63
1.63
1.63
                                                                                                  NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3.417
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3.583
3.667
3.750
                                                                                                                                                                                                                                                                                                                                                              TIME
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9.25
9.33
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9.50
9.75
9.87
9.75
9.87
10.08
10.17
10.25
10.33
10.42
10.50
10.50
10.50
                                                                                                                                                                            mm/hr | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1
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over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
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0.102 (iii)
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TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
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over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
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0.104 (iii)
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                                                      PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
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                                                            WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                   (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0   Ia= Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Area (ha)= 0.58
Total Imp(%)= 85.00 Dir. Conn.(%)= 85.00
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Dep. Storage
Average Slope
Length
Mannings n
            CALIB
STAMPHO (20072)
| Area (ha)= 0.64
| Total Imp(%)= 84.00 | Dir. Conn.(%)= 84.00 |
| IMPERVIOUS | PERVIOUS (i)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                               Surface Area
Dep. Storage
Average Slope
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ---- TRANSFORMED HYETOGRAPH ----
TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                 mm/hr | hr. 8.41 | 9.17 | 9.08 | 8.41 | 9.17 | 8.8 | 9.08 | 8.41 | 9.27 | 8.8 | 9.27 | 8.8 | 9.27 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 9.28 | 
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         22.80
22.80
22.80
22.80
22.80
22.80
22.80
22.80
11.63
11.63
11.63
11.63
11.63
11.63
                                                                                                                                                                               2.333
2.417
2.500
2.583
2.667
2.750
2.833
2.917
3.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0.93
0.93
0.93
0.93
0.93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
PEAK FLOW (cms)=
PEAK FLOW (cms)=
TIME FO VELWE (hrs)=
RUNOFF COEFFICIENT =
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61.64
5.00
2.39 (ii)
5.00
0.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            41.44
15.00
13.36 (ii)
15.00
0.08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  *TOTALS*
0.095 (iii)
6.00
42.15
46.70
0.90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0.09
6.00
45.70
46.70
0.98
                                                   Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                     61.64
5.00
2.33 (ii)
5.00
0.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       43.41
10.00
7.01 (ii)
10.00
0.14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                *TOTALS*
0.093 (iii)
6.00
42.90
46.70
0.92
                                                      PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                        0.08
6.00
45.70
46.70
0.98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0.01
6.00
27.09
46.70
0.58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                   (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Surface Area
Dep. Storage
Average Slope
Length
Mannings n
   | CALIB | STANDHYD ( 20092) | Area (ha) = 0.63 | Dir. Conn.(%) = 81.00 | Dir. Conn.(%) = 81.00 | Conn.(%) = 
                                                                                                                                                                                                                                           Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                hrs
3.083
3.167
3.250
3.333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         mm/hr
1.87
1.87
1.87
1.87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           mm/hr
1.63
1.63
1.63
1.63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     hrs
9.08
9.17
9.25
9.33
9.42
9.50
9.58
9.67
9.75
9.83
9.92
10.00
10.08
10.17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
1.083
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               hrs
6.083
6.167
6.250
6.333
6.417
6.500
6.583
6.667
6.750
6.833
6.917
7.000
7.083
7.167
7.250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3.333
3.417
3.500
3.583
3.667
3.750
3.833
3.917
4.000
4.083
4.167
4.250
                                                                                                                                                                                                                                                                                                                                                                                                                 TRANSFORME
E RAIN
S mm/hr
3 1.87
7 1.87
0 1.87
3 1.87
7 1.87
0 1.87
3 1.87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1.87
1.87
1.87
1.87
1.87
1.87
1.87
2.80
2.80
2.80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1.63
1.63
1.63
1.63
1.63
1.63
0.93
0.93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       O HYETOGRAPH

' TIME

' hrs n

6.083 &

6.167 &

6.250 &

6.333 &

6.417 &

6.500 &

6.583 &
                                                                                                                                                                                                                                                                                                                                                           TIME
hrs
3.083
3.167
3.250
3.333
3.417
3.500
3.583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RAIN
mm/hr
8.41 |
8.41 |
8.41 |
8.41 |
8.41 |
8.41 |
8.41 |
3.74 |
                                                                                                                                                                               TIME
hrs
0.083
0.167
0.250
0.333
0.417
                                                                                                                                                                                                                                                                        RAIN
mm/hr
1.17
1.17
1.17
1.17
1.17
1.17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TIME
hrs
9.08
9.17
9.25
9.33
9.42
9.50
9.58
```

| NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. TRANSFORMED NETGOGRAPH TIME RAIN TIME | IMPERVIOUS PERVIOUS (i) | NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY. | ADD HYD (0110) AREA QPEAK TPEAK R.V. | (111) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. | RUNOFF VOLUME (mm)= 45.70 27.09 42.71 TOTAL RAINFALL (mm)= 46.70 46.70 46.70 RUNOFF COEFFICIENT = 0.98 0.58 0.91 ***** WARNING: STORAGE COEFF. IS SMALLER THAN ITME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: | Max.Eff.Inten.(mm/nr)= b1.64 43.41 over (min) 5.00 10.00 Unit Hyd. Tpeak (min)= 1.24 (ii) 6.06 (ii) Unit Hyd. Tpeak (min)= 0.01 0.00 Unit Hyd. Deak (cms)= 0.33 0.15 PEAK FLOW (cms)= 0.01 0.00 0.011 (iii) TIME TO PEAK (hrs)= 6.00 6.00 6.00 RUNGF VOLUME (mm)= 45.70 27.09 42.71 TOTAL RAINFALL (mm)= 46.70 46.70 46.70 RUNGF COEFFICIENT = 0.98 0.58 0.91 | 2.667 1.40 5.667 22.42 8.667 1.63 11.67 0.93 2.750 1.40 5.750 22.42 8.750 1.63 11.75 0.93 2.750 1.40 5.833 61.64 8.833 1.63 11.83 0.93 2.917 1.40 5.917 61.64 8.917 1.63 11.83 0.93 2.917 1.40 5.917 61.64 8.917 1.63 11.92 0.93 3.000 1.40 6.000 61.64 9.000 1.63 12.00 0.93 3.000 6.64 8.917 1.63 11.92 0.93 3.000 6.918 6.64 8.917 1.63 12.00 0.93 3.000 6.918 6.64 | TIME RAIN TIME RAIN TIME RAIN TIME RAIN TIME RAIN TIME TIME RAIN TIME TIME | IMPERVIOUS PERVIOUS (i) | (1) TIME STEP (DT) SOULD BE SMALLER OR EQUAL (THAN THE STORAGE COEFFICIENT. (IT PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. CALIB STANDHYD (200812) Area (ha) = 0.38 ID= 1 DT = 5.0 min Total Imp(%) = 70.00 DIF (CONN.(%) = 70.00 DIF | #**OTALLS* PEAK FLOW (cms)= 0.05 0.01 0.059 (iii) TIME TO PEAK (hrs)= 6.00 6.08 6.00 RUNGF VOLUME (mm)= 45.70 27.09 41.40 TOTAL RAINFALL (mm)= 46.70 46.70 46.70 RUNGF COEFFICIENT = 0.05 ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN* = 89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT: | Max.Eff.Inten.(mm/hr)= 61.64 41.44 ver (min) 5.00 15.00 Storage Coeff. (min)= 2.09 (ii) 13.06 (ii) Unit Hyd. rpeak (min)= 5.00 15.00 Unit Hyd. peak (cms)= 0.31 0.08 PEAK FLOW (cms)= 0.05 0.01 0.059 (iii) TIME TO PEAK (hrs)= 6.00 6.08 6.00 RUNOFF VOLUME (mm)= 45.70 27.09 41.40 | 2. 4477 1. 40 5. 4477 5. 60 8. 4477 1. 63 11. 42 0. 93 2. 500 1. 40 5. 500 5. 60 8. 500 1. 63 11. 50 0. 93 2. 583 1. 40 5. 583 22. 42 8. 583 1. 63 11. 58 0. 93 2. 667 1. 40 5. 667 22. 42 8. 667 1. 63 11. 57 0. 93 2. 750 1. 40 5. 750 22. 42 8. 750 1. 63 11. 75 0. 93 2. 750 1. 40 5. 750 22. 42 8. 750 1. 63 11. 75 0. 93 2. 813 1. 40 5. 833 61. 64 8. 833 1. 63 11. 83 0. 93 2. 917 1. 40 5. 917 61. 64 8. 917 1. 65 11. 92 0. 93 3. 000 1. 40 6. 000 61. 64 9. 900 1. 65 12. 00 0. 93 | 1. 417 1.17 4.417 2.80 7.417 2.80 1.0.42 0.93 1.500 1.17 4.500 2.80 7.500 2.80 10.50 0.93 1.583 1.17 4.583 3.74 7.583 2.80 10.50 0.93 1.583 1.17 4.583 3.74 7.583 2.80 10.58 0.93 1.667 3.174 7.667 3.74 7.676 7.676 7.00 10.58 0.93 1.833 1.17 4.833 3.74 7.637 2.80 10.67 0.93 1.833 1.17 4.833 3.74 7.833 2.80 10.83 0.93 1.917 1.17 4.833 3.74 7.833 2.80 10.83 0.93 2.000 1.17 5.000 3.74 8.000 2.80 11.00 0.93 2.001 1.17 5.000 3.74 8.000 2.80 11.00 0.93 2.167 1.40 5.583 5.60 8.083 1.63 11.00 0.93 2.167 1.40 5.555 5.60 8.167 1.63 11.17 0.93 | 1,333 1.17 4,333 2,80 7,333 2,80 10.33 0.93 |
|--|----------------------------|---|---|---|--|--|---|---|---|---|---|---|---|--|---|
| 0.253 0.313 0.450 0.450 0.450 0.550 0.675 0.683 0.665 0.750 0.833 1.080 1.108 1.1253 1.133 1.150 1.253 1.253 2.255 2.255 2.255 2.255 2.253 2.255 2.253 2.255 | NOTE: RAINI TIMI hr: 0.08: | Surface Area Dep. Storage Average Slope Length Mannings n | CALIB STANDHYD (200821) ID= 1 DT= 5.0 min | (i) CN PROCEDI CN* = : (ii) TIME STEP THAN THE: (iii) PEAK FLOW | PEAK FLOW TIME TO PEAK RUNOFF VOLUME TOTAL RAINFALL RUNOFF COEFFICI | 2.91 3.001 Max.Eff.Inten.(i over Storage Coeff. Unit Hyd. Tpeak Unit Hyd. peak | 2.33 2.41 2.50 2.58 2.66 2.75 2.83 2.91 | 0.58 0.666 0.757 0.83 0.91 1.00 1.08 1.1.33 1.1.33 1.1.33 1.1.39 1.50 1.58 1.66 1.757 1.83 1.20 2.00 2.00 2.255 2.33 2.41 2.50 2.55 | NOTE: RAIN TIM hr 0.08 0.16 0.25 0.33 0.41 | Surface Area Dep. Storage Average Slope Length Mannings n | (ii) TIME STEP THAN THE: (iii) PEAK FLOW CALIB STANDHYD (200811) | TIME TO PEAK RUNOFF VOLUME TOTAL RAINFALL RUNOFF COEFFICI ***** WARNING: STORA (i) CN PROCEDI CN* = : | Max.Eff.Inten.() OVET Storage Coeff. Unit Hyd. Tpeak Unit Hyd. peak PEAK FLOW TIME TO PEAK | 2.00 2.08 2.16 2.25 2.33 2.44 2.50 2.50 2.75 2.83 2.91 3.00 | 2 00 |

| MAX.EFF.Inten.(mm/hr)= 61.64 41.44 vor (min) | _ |
|--|---|
| CALIB STANDHYD (200811) Area (ha) = 0.07 Impervious Penvious (i) Surface Area (ha) = 0.06 0.01 0.00 | = |
| Surface Area (ha)= 0.06 0.01 Dep. Storage (mm)= 1.00 1.00 Average Slope (%)= 1.00 2.00 Length (m)= 21.60 40.00 Mannings n = 0.013 0.290 NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. TIME RAIN TI | = |
| Surface Area (ha)= 0.06 0.01 Dep. Storage (mm)= 1.00 1.00 Average Slope (%)= 1.00 2.00 Length (m)= 21.60 40.00 Mannings n = 0.013 0.290 NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. TIME RAIN TI | |
| TIME RAIN TIME R | |
| 0.500 1.17 3.500 1.87 6.500 8.41 9.50 1.63 0.583 1.17 3.583 1.87 6.583 3.74 9.58 1.63 0.667 1.17 3.667 1.87 6.667 3.74 9.67 1.63 0.750 1.17 3.750 1.87 6.667 3.74 9.75 1.63 0.833 1.17 3.833 1.87 6.833 3.74 9.83 1.63 | |
| 1.750 1.17 4.750 3.74 7.750 2.80 10.75 0.93 1.833 1.17 4.833 3.74 7.833 2.80 10.83 0.93 1.917 1.17 4.917 3.74 7.917 2.80 10.92 0.93 | |
| 2.000 1.17 5.000 3.74 8.000 2.80 11.00 0.93 2.083 1.40 5.083 5.60 8.083 1.63 11.08 0.93 2.167 1.40 5.167 5.60 8.167 1.63 11.17 0.93 2.250 1.40 5.250 5.60 8.250 1.63 11.25 0.93 2.331 1.40 5.250 5.60 8.250 1.63 11.25 0.93 2.337 1.40 5.333 5.60 8.333 1.63 11.33 0.93 2.337 1.40 5.333 5.60 8.497 1.64 1.42 0.93 2.330 1.40 5.583 22.42 8.583 1.63 11.58 0.93 2.583 1.40 5.583 22.42 8.583 1.63 11.58 0.93 | |
| 2.333 1.40 5.333 5.60 8.333 1.63 11.33 0.93 2.417 1.40 5.417 5.60 8.417 1.63 11.42 0.93 2.500 1.40 5.500 5.60 8.500 1.63 11.50 0.93 2.583 1.40 5.583 22.42 8.583 1.63 11.58 0.93 2.667 1.40 5.686 22.42 8.583 1.63 11.58 0.93 2.667 1.40 5.686 22.42 8.583 1.63 11.67 0.93 2.750 1.40 5.666 22.42 8.583 1.63 11.67 0.93 2.750 1.40 5.667 22.42 8.583 1.63 11.75 0.93 2.750 1.40 5.667 22.42 8.750 1.63 11.75 0.93 2.750 1.75 1.75 1.75 1.75 1.75 1.75 1.75 1.75 | |
| Max.Eff.Inten.(mm/hr)= 61.64 41.44 vore (mm/hr)= 5.00 16.00 15.00 16.00 15.00 16.00 | |
| ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: (n) = 89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASFELOW IF ANY. | |
| CALIB STANDHYD (200821) Area (ha)= 0.07 ID= 1 DT= 5.0 min | - |
| Surface Area (ha) = 0.06 0.00 | |
| TRANSFORMED HYETOGRAPH TIME RAIN TIME RAIN TIME RAIN TIME RAIN | |
| TIME RAIN TIME RAIN TIME RAIN TIME RAIN Hrs mm/hr hrs | |

| 3.000 1.40 6.000 61.64 9.000 1.63 12.00 0.93 Max.Eff.Inten.(mm/hr)= 61.64 43.41 Storage Cover* (min) 5.00 (i) 10.00 (ii) Unit Hyd. Tpeak (min)= 5.00 (i) 10.00 (ii) Unit Hyd. Tpeak (min)= 5.00 (i) 10.00 (ii) Unit Hyd. Tpeak (cms)= 0.33 0.15 PEAK FLOW (cms)= 0.01 0.00 0.611 (iii) TIME TO PEAK (hrs)= 6.00 6.00 6.00 6.00 6.00 (6.00 min) RUNGF YOLUME (mm)= 46.70 46.70 46.70 min)= 46.70 min 46.70 (iii) min 46.70 (iii) min 46.70 min 46.70 (iii) min 46 | Max.Eff Storage Unit H) PEAK FIT TUNIT H) PEAK FIT TUNIT H) FUNDOFF ***** WARNIN (i) (ii) 1 (iii) 5 CALIB STANDHYO ID= 1 DT= 5 Average Length Manning NOT |
|--|--|
| 1.00 | Max.Eff Max.Eff Storage Unit Hy Unit Hy FEAK FITTIME TO RUNOFF TOTAL F RUNOFF WARNIN ***** WARNIN |
| ADD HYD (0121) | (ii) (iii) F |
| hrs | Max.Eff Storage Unit My Unit My |

| 2.750 1.40 2.833 1.40 2.917 1.40 3.000 1.40 | 5.667 | 8.667 8.750 8.833 8.917 9.000 | 1.63 11.67 1.63 11.75 1.63 11.83 1.63 11.92 1.63 12.00 | 0.93 0.93 0.93 0.93 0.93 |
|--|--|--|---|--|
| Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= | 61.64 5.00 2.19 (ii) 5.00 0.31 | 41.44 15.00 13.16 (ii) 15.00 0.08 | *TOTAL S* | |
| PEAK FLOW (cms)= TIME TO PEAK (hrs)= RUNOFF VOLUME (mm)= TOTAL RAINFALL (mm)= RUNOFF COEFFICIENT = | 0.06 6.00 45.70 46.70 0.98 | 0.08 0.01 6.08 27.09 46.70 0.58 | 0.068 (iii) 6.00 40.84 46.70 0.87 | |
| ***** WARNING: STORAGE COEFF. (i) CN PROCEDURE SELECT (i) TIME STEP (DT) SHOU THAN THE STORAGE CO (iii) PEAK FLOW DOES NOT | ED FOR PERVIOUS = Dep. Storage ILD BE SMALLER O DEFFICIENT. | LOSSES: (Above) R EQUAL | | |
| CALIB STANDHYD (20101) Area ID= 1 DT= 5.0 min Total I | THREE TOUS | Dir. Conn. | (%)= 82.00 | |
| Surface Area (ha)= Dep. Storage (mm)= Average Slope (%)= Length (m)= Mannings n = | 0.20 1.00 1.00 40.82 0.013 | 1.00 2.00 40.00 0.290 | | |
| NOTE: RAINFALL WAS T | RANSFORMED TO | 5.0 MIN. T | IME STEP. | |
| 0.233 1.17 0.417 1.17 0.500 1.17 0.500 1.17 0.667 1.17 0.750 1.17 0.833 1.17 0.917 1.17 | 3.583 1.87 | 6.583 6.667 6.750 6.833 6.917 | 8.41 9.08 8.41 9.17 8.41 9.25 8.41 9.33 8.41 9.50 3.74 9.58 3.74 9.75 | RAIN mm/hr 1.63 1.63 1.63 1.63 1.63 1.63 1.63 1.63 |
| 1.417 1.17 1.500 1.17 1.583 1.17 1.667 1.17 1.750 1.17 1.833 1.17 1.833 1.17 1.900 1.17 2.083 1.40 2.167 1.40 2.250 1.40 2.250 1.40 2.333 1.40 2.417 1.40 2.583 1.40 2.583 1.40 2.583 1.40 2.583 1.40 2.583 1.40 2.583 1.40 | 4.417 2.88 4.500 2.88 4.583 3.74 4.667 3.74 4.750 3.77 4.833 3.74 5.000 3.75 5.000 3.75 5.167 5.66 5.250 5.66 5.333 5.66 5.417 5.66 5.533 5.66 5.533 5.66 5.550 5.66 5.550 5.66 | 7.417 7.500 7.583 7.583 7.667 7.750 7.833 7.917 8.000 8.167 8.250 8.333 8.417 8.333 8.4417 | 2.80 10.33 2.80 10.42 2.80 10.42 2.80 10.50 10.50 10.58 2.80 10.67 2.80 10.67 2.80 10.67 2.80 10.83 2.80 10.92 2.80 10.92 2.80 11.08 1.63 11.15 1.63 11.33 1.63 11.42 1.63 11.55 | 0.93 0.93 0.93 0.93 0.93 0.93 0.93 0.93 |
| 2.750 1.40 2.833 1.40 | 5 833 61 64 | 8.667 8.750 8.833 8.917 9.000 | 1.63 11.75 | 0.93 0.93 0.93 0.93 |
| <pre>Max.Eff.Inten.(mm/hr)= over (min)</pre> | 61.64 5.00 | 41.44 15.00 | | |
| | | | | |
| 3.000 1.40 | | | | |
| | | 41 44 | 1.63 12.00 | 0.93 |
| Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= PEAK FLOW (cms)= TIME TO PEAK (hrs)= RUNOFF VOLUME (mm)= TOTAL RAINFALL (mm)= RUNOFF COEFFICIENT = | 61.64 5.00 2.63 (ii) 5.00 0.29 0.10 6.00 45.70 46.70 0.98 | 41.44 15.00 13.61 (ii) 15.00 0.08 0.02 6.08 27.09 46.70 0.58 | *TOTALS* 0.118 (iii) 6.00 39.55 46.70 0.85 | 0.93 |
| Max.Eff.Inten.(mm/hr)= | 61.64 5.00 2.63 (iii) 5.00 0.29 0.10 6.00 45.70 46.70 0.98 IS SMALLER THAN TED FOR PERVIOUS LE DEPO Storage LID BE SMALLER C | 41.44 15.00 13.61 15.00 0.08 0.02 6.08 27.09 46.70 0.58 TIME STEP! (.OSSES: (.OSSES: | *TOTALS* 0.118 (iii) 6.00 39.55 46.70 0.85 | 0.93 |
| Max.Eff.Inten.(mm/hr) = 0.00 fr (min) = 0.00 f | 61.64 5.00 5.00 5.00 5.00 6.00 45.70 46.70 9.98 15 SMALLER THAN ED FOR PERVIOUS 1= Dep. Storage LID BE SMALLED THAN ED FOR PERVIOUS 1= Dep. Storage LID BE SMALLED THAN ED FOR PERVIOUS | 41.44 15.00 13.61 (iii) 15.00 0.08 0.08 27.09 46.70 0.58 TIME STEP! (Above) in EQUAL | *TOTALS* 0.118 (iii) 6.00 39.55 46.70 0.85 | 0.93 |
| Max.Eff.Inten.(mm/hr) = 0.00 fr (min) = 0.00 f | 61.64 5.00 5.00 5.00 5.00 6.00 45.70 46.70 6.00 45.70 9.98 15 SMALLER THAN TED FOR PERVIOUS 1= Dep. Storage LID BE SMALLER THAN THE PERVIOUS 1= Dep. Storage LID BE SMALLER THAN THE PERVIOUS 1= Dep. Storage (ha) = 0.90 mp(%) = 80.00 | 41.44 15.00 15.61 15.00 15.01 15.00 0.08 0.02 6.08 27.09 0.58 17.00 0.58 (Above) R EQUAL Dir. Conn. ERVIOUS (i) 0.08 | *TOTALS* 0.118 (iii) 6.00 39.55 46.70 0.85 | 0.93 |
| MAX.Eff.Inten.(mm/hr)= with the control of the con | 61.64 5.00 5.00 0.29 0.10 6.00 6.70 46.70 0.98 IS SMALLER THAN ED FOR PERVIOUS EDEPTICIENT INCLUDE BASEFLC (ha)= 0.90 IMPERVIOUS 0.72 1.00 IMPERVIOUS 1.00 IMPERVIOUS 0.772 0.716 0.013 | 41.44 15.00 13.61 15.00 0.08 0.02 6.08 0.02 6.08 26.70 0.58 TIME STEP! LOSSES: (Above) R EQUAL W IF ANY. DIT. Conn. ERVIOUS (1) 0.18 1.00 0.20 0.200 | *TOTALS* 0.118 (iii) 6.00 39.35 46.0 0.85 | 0.93 |
| MAX.Eff.Inten.(mm/hr)= with the control of the con | 61.64 5.00 5.00 0.29 0.10 6.00 6.70 46.70 0.98 IS SMALLER THAN ED FOR PERVIOUS EDEPTICIENT INCLUDE BASEFLC (ha)= 0.90 IMPERVIOUS 0.72 1.00 IMPERVIOUS 1.00 IMPERVIOUS 0.772 0.716 0.013 | 41.44 15.00 13.61 15.00 0.08 0.02 6.08 0.02 6.08 26.70 0.58 TIME STEP! LOSSES: (Above) R EQUAL W IF ANY. DIT. Conn. ERVIOUS (1) 0.18 1.00 0.20 0.200 | *TOTALS* 0.118 (iii) 6.00 39.35 46.0 0.85 | |
| MAX.EFF.Inten.(mm/hr)= | 61.64 5.00 0.29 0.10 6.00 0.29 0.10 6.00 45.70 46.70 0.98 IS SMALLER THAN ED FOR PERVIOUS = Dep. STORE EFFICIENT. INCLUDE BASEFLC (ha)= 0.90 mp(%)= 80.00 IMPERVIOUS 6.0.10 1.00 77.46 0.013 78.45 0.103 78.46 0.013 78.46 0.013 78.46 0.013 78.46 0.16 71.4 | 41.44 41.55.00 13.61 (ii) 13.60 (ii) 13.60 (ii) 13.60 (ii) 15.00 0.08 0.08 0.02 6.08 0.02 6.08 0.58 TIME STEP! (Above) R EQUAL DIT. Conn. SERVIOUS (i) 0.18 1.00 0.18 0.18 | *TOTALS* 0.118 (iii) 6.00 33.05 46.70 0.85 46.70 0.85 (%) = 80.00 **IME STEP.** PH RAIN TIME mm/hr hrs 8.41 9.08 14.41 9.33 8.41 9.42 8.41 9.58 3.74 9.58 3.74 9.58 3.74 9.58 3.74 9.58 3.74 9.58 3.74 9.22 8.01 10.08 2.80 10.08 2.80 10.08 2.80 10.08 2.80 10.58 | RAIN mm/hr 1.1.63 1.1.6 |
| MAX.EFF.Inten.(mm/hr)= wor (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= PEAK FLOW (ms)= PEAK FLOW (ms)= RINDFF VOLUME (mm)= RINDFF COEFFICIENT = ***** WARNING: STORAGE COEFF. (i) CN PROCEDURE SELECT (N° = 89.0 In a color of the color of t | 61, 64 5.00 6.10 6.00 6.00 6.00 6.00 6.00 6.00 6 | 11.44 15.00 13.61 (ii) 15.00 0.08 0.08 0.02 6.08 27.09 46.70 0.58 TIME STEP! LOSSES: (Above) R EQUAL W IF ANY. DIr. Conn. EREVIOUS (i) 0.18 1.00 0.20 0.20 0.50 MIN. T DIR. Conn. T. Conn. DIR. Conn. DIR. Conn. T. Co | *TOTALS* 0.118 (iii) 3.05 46.70 0.85 39.55 46.70 0.85 (%)= 80.00 **IME STEP.** PH | RAIN mm/hr 1.63 1.63 1.63 1.63 1.63 1.63 1.63 1.63 |

0.135 (iii) 6.00 41.97 46.70 0.90 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^{\circ}=89.0$ Ia = bep. Storage (Above) (ii) TIME STEP (OT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. PEAK FLOW (cms)= TIME TO PEAK (hrs)= RUNOFF VOLUME (mm)= TOTAL RAINFALL (mm)= RUNOFF COEFFICIENT = 0.12 6.00 45.70 46.70 0.98 * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^{\circ}=89.0$ Ia = bep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. | CALIB STANDHYD (20122) | Area (ha)= 1.11 | ID= 1 DT= 5.0 min | Total Imp(%)= 81.00 Dir. Conn.(%)= 81.00 IMPERVIOUS PERVIOUS (i) = 0.90 0.21 = 1.00 1.00 = 1.00 2.00 = 86.02 40.00 = 0.013 0.290 Surface Area Dep. Storage Average Slope Length Mannings n NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. | 1.87 | 6.050 | 1.87 | 6.050 | 1.87 | 6.500 | 1.87 | 6.500 | 1.87 | 6.500 | 1.87 | 6.500 | 1.87 | 6.500 | 1.87 | 6.500 | 1.87 | 6.500 | 1.87 | 6.500 | 1.87 | 6.630 | 1.87 | 6.630 | 1.87 | 6.630 | 1.87 | 6.630 | 1.87 | 6.630 | 1.87 | 6.630 | 1.87 | 6.630 | 1.87 | 6.700 | 1.87 | 7.000 | 1.87 | 7.000 | 1.87 | 7.000 | 1.87 | 7.000 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 | 7.050 | 1.87 TIME No. 0.83 0.167 0.500 0.83 0.167 0.500 0.83 0.667 0.500 0.83 0.667 0.750 0.750 0.83 0.667 0.750 0.83 0.917 0.910 0.9 RAIN mm.l/T mm/hr ml.l/T ml.l/ 3.500 3.503 3.563 3.917 4.003 4.083 4.167 4.257 4.253 4.417 4.583 4.417 5.000 4.583 5.167 5.083 5.167 5.250 5.333 5.167 5.250 5.333 5.250 5.333 2.917 3.000 Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= 61.64 5.00 2.83 (ii) 5.00 0.28 41.44 15.00 13.81 (ii) 15.00 0.08 *TOTALS* 0.167 (iii) 6.00 42.16 46.70 0.90 PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT = 0.15 6.00 45.70 46.70 0.98 0.02 6.08 27.09 46.70 0.58 ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! Area (ha)= 0.47
Total Imp(%)= 85.00 Dir. Conn.(%)= 85.00 PERVIOUS (i) 0.07 1.00 2.00 40.00 0.290 IMPERVIOUS Surface Area Dep. Storage Average Slope Length Mannings n (ha)= (mm)= (%)= (m)= = 0.40 1.00 1.00 55.98 0.013 NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. TRANSFORMED HYETOGRAPH TIME hrs 6.083 6.167 6.250 6.333 6.417 6.500 6.583 6.667 6.750 16.683 7.080 7.083 7.167 7.250 7.333 7.417 TIME hrs 0.083 0.167 0.250 0.333 0.417 0.500 0.583 0.667 0.750 0.833 0.917 1.000 1.083 1.167 1.253 1.253 1.253 TIME hrs 3.083 3.417 3.250 3.333 3.417 3.500 4.083 3.917 4.250 4.084 4.000 4.083 4.917 4.250 5.083 5.517 5.500 5.583 5.417 5.558 3.55 5.77 5.550 5.583 5.417 5.750 5.883 5.417 5.750 5.750 5.883 5.417 5.750 RAIN mm/hr 8. 41 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 1. 41 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 441 | 8. 1.500 1.583 1.667 1.750 1.833 1.917 2.000 2.083 2.167 2.250 2.333 2.417 2.500 2.583 2.750 2.833 2.913 7.500 7.583 7.667 7.750 7.833 7.917 8.000 8.083 8.167 8.250 8.333 8.417 8.500 8.583 8.750 8.833 8.917 9.000 Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)= 61.64 5.00 2.19 (ii) 5.00 0.31 43.41 10.00 6.87 (ii) 10.00 0.14 *TOTALS* 0.075 (iii) 6.00 42.90 46.70 0.92 PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT = 0.07 6.00 45.70 46.70 0.98 0.01 6.00 27.09 46.70 0.58 * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $\text{CN}^\circ = 89.0$ Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. ADD HYD (0136) | 1 + 2 = 3 | AREA (ha) 0.47 0.47 QPEAK (cms) 0.075 0.075 TPEAK (hrs) 6.00 6.00 R.V. (mm) 42.90 42.90 ID1= 1 (201021): + ID2= 2 (201022): ID = 3 (0136): 0.151 6.00 42.90

CALIB STANDHYD (201021) ID= 1 DT= 5.0 min Area (ha)= 0.47Total Imp(%)= 85.00 Dir. Conn.(%)= 85.00IMPERVIOUS PERVIOUS (i) Surface Area Dep. Storage Average Slope Length Mannings n 0.40 1.00 1.00 55.98 0.013 0.07 1.00 2.00 40.00 0.290 NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. TIME Firss 3.083 3.167 3.250 3.333 3.417 3.500 3.583 3.666 3.783 4.083 4.167 4.583 4.667 4.4583 4.667 4.583 4.667 4.583 4.917 5.000 5.583 5.127 5.583 5.583 5.575 6.583 5.750 RAIN mm/hr 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. 41 | 8. RAIN mm/hr 1.63 1.63 1.63 1.63 1.63 1.63 1.63 hrss (0.163) (0.164) (0.93 0.93 0.93 0.93 0.93 0.93 0.93 0.93 Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= 61.64 5.00 2.19 (ii) 5.00 0.31 43.41 10.00 6.87 (ii) 10.00 0.14 *TOTALS* 0.075 (iii) 6.00 42.90 46.70 0.92 PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT = 0.07 6.00 45.70 46.70 0.98 0.01 6.00 27.09 46.70 0.58 ***** WARNING: STORAGE COFFE. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^{\circ}=89.0$ Ia = Dep. Storage (Above) (ii) TIME STEP (OT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| NOTE: PEAK FLOWS | DO NOT INCLUDE | BASEFLOWS IF ANY. | |
|---|--|-------------------------------|-------|
| CALIB STANDHYD (2005) ID= 1 DT= 5.0 min | Area (ha)= Total Imp(%)= | 0.28 90.00 Dir. Conn.(%)= | 90.00 |
| | (ha)= 0.25 (mm)= 1.00 (%)= 1.00 (m)= 43.20 = 0.013 | 0.03 1.00 2.00 40.00 | |

| Mannings n | = | 0.013 | | 0.290 | | | |
|--------------------------|-----------------------------|--------------------------|---------------|--------------------|---------------|-------------------|---------------|
| NOTE: | RAINFALL WAS | TRANSFORM | ED TO | 5.0 MIN. T | IME STE | Р. | |
| | | | | | | | |
| | | TR | ANSFORME | ED HYETOGRA | РН | | |
| | | IN TIME | RAIN | | RAIN | | RAIN |
| | hrs mm/l | nr hrs L7 3.083 | mm/hr 1.87 | ' hrs | mm/hr 8.41 | hrs 9.08 | mm/hr 1.63 |
| | 0.167 1. | L7 3.063 L7 3.167 | 1.87 | 6 167 | 8.41 | 9 17 | 1.63 |
| | 0.250 1. | | 1.87 | 6.250 | 8.41 | 9.25 | 1.63 |
| | 0.333 1. 0.417 1. | | 1.87 | 6.333 | 8.41 | 9.33 9.42 | 1.63 |
| | 0.500 1.3 | L7 3.500 | 1.87 | 6.500 | 8.41 | 9.50 | 1.63 |
| | 0.583 1. | | 1.87 | 6.583 | 3.74 | 9.58 | 1.63 |
| | 0.667 1.1 0.750 1.1 | L/ 3.66/ L7 3.750 | 1.87 | | 3.74 | 9.67 | 1.63 |
| | 0.833 1.3 | 17 3.833 | 1.87 | 6.833 | 3.74 | 9.83 | 1.63 |
| | 0.917 1.1 1.000 1.1 | | 1.87 | 6.917 | 3.74 | 9.92 10.00 | 1.63 |
| | 1.083 1. | L7 4.000 L7 4.083 | 2.80 | 7.000 | 3.74 | 10.08 | 0.93 |
| | 1.167 1.1 | L7 4.167 | 2.80 | 1 7.167 | 2.80 | 10.17 | 0.93 |
| | 1.250 1.1 1.333 1.1 | L7 4.250 L7 4.333 | 2.80 | 7.250 | 2.80 | 10.25 | 0.93 |
| | 1.417 1. | | 2.80 | 7.417 | 2.80 | 10.42 | 0.93 |
| | 1.500 1. | L7 4.500 | 2.80 | 7.500 | 2.80 | 10.50 | 0.93 |
| | 1.583 1.1 1.667 1.1 | L7 4.583 L7 4.667 | 3.74 | 7.583 | 2.80 | 10.58 10.67 | 0.93 |
| | 1.750 1.3 | L7 4.750 | 3.74 | 7.750 | 2.80 l | 10.75 | 0.93 |
| | 1.833 1.1 1.917 1.1 | | 3.74 | 7.833 7.917 | 2.80 | 10.83 10.92 | 0.93 |
| | 2.000 1.3 | 17 i 5.000 | | 8.000 | 2.80 | | 0.93 |
| | 2.083 1.4 | 10 5.083 | | 8.083 | 1.63 | | 0.93 |
| | 2.167 1.4 2.250 1.4 | | 5.60 | 8.167 | 1.63 | 11.17 11.25 | 0.93 |
| | 2.333 1.4 | 10 5.333 | 5.60 | 8.333 | 1.63 | 11.33 | 0.93 |
| | 2.417 1.4 2.500 1.4 | 10 5.417 10 5.500 | 5.60 | 8.417 | 1.63 | | 0.93 |
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| | 2.667 1.4 | 10 5.667 | 22.42 | 8.667 | 1.63 | 11.67 | 0.93 |
| | 2.750 1.4 | 10 5.750 | 61.64 | 8.750 | 1.63 | 11.75 11.83 | 0.93 |
| | 2.833 1.4 2.917 1.4 | 10 5.833 10 5.917 | 61.64 | 8.917 | 1.63 | 11.92 | 0.93 |
| | 3.000 1.4 | 10 6.000 | 61.64 | 9.000 | 1.63 | 12.00 | 0.93 |
| Max.Eff.In | ten.(mm/hr)= | 61.64 | | 43.41 | | | |
| | over (min) | 5.00 | | 10.00 | | | |
| Storage Co | eff. (min)= Tpeak (min)= | | (11) | 5.76 (ii) 10.00 | | | |
| Unit Hyd. | | | | 0.15 | | | |
| PEAK FLOW | (cms)= | 0.04 | | 0.00 | | ALS* 046 (iii) | |
| TIME TO PE | AK (hrs)= | 6.00 | | 6.00 | 6 | .00 | |
| RUNOFF VOL | | 45.70 | | 27.09 | 43 | .83 .70 | |
| TOTAL RAIN RUNOFF COE | | 46.70 0.98 | | 46.70 0.58 | | .94 | |
| ***** WARNING: | | | ER THAN | | - | - | |
| | ROCEDURE SELI | CTED FOR P | ERVIOUS | LOSSES: | | | |
| CN* | = 89.0 STEP (DT) SI | Ia = Dep. | Storage | (Above) | | | |
| (II) IIME | SIEF (DI) SI | TOULD BE SM | ALLER UP | LQUAL | | | |

THAN THE STORAGE COEFFICIENT.

(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Area (ha)= 1.11 Total Imp(%)= 56.00 Dir. Conn.(%)= 56.00

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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PERVIOUS (i)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8. 41 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3.74 | 3
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11.17
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11.33
11.42
11.50
11.58
11.67
11.75
11.83
11.92
12.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61.64
5.00
1.38 (ii)
5.00
0.33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             43.41
10.00
5.35 (ii)
10.00
0.16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    *TOTALS*
0.016 (iii)
6.00
43.74
46.70
0.94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mM)=
TOTAL RAINFALL (mM)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0.02
6.00
45.70
46.70
0.98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0.00
6.00
27.09
46.70
0.58
                                                               Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61.64
5.00
2.83 (ii)
5.00
0.28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          41.44
15.00
13.81 (ii)
15.00
0.08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     *TOTALS*
0.138 (iii)
6.00
37.50
46.70
0.80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \mathbb{CN}^{\mathbb{F}}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUIT. THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                   PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0.11
6.00
45.70
46.70
0.98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0.04
6.08
27.09
46.70
0.58
                                 *** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                               (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^\circ = 89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IMPERVIOUS PERVIOUS (i) 0.10 0.01 1.00 1.00 2.00 27.08 40.00 0.013 0.290
        CALIB STANDHYD (200111) | Area (ha)= 0.10 | Total Imp(%)= 89.50 | Dir. Conn.(%)= 89.50
                                                               NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                         0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
1.083
1.167
1.250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3.333
3.417
3.500
3.583
3.667
3.750
4.083
4.167
4.250
4.333
4.417
4.500
4.583
4.667
4.750
4.750
4.831
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6.333
6.417
6.500
6.583
6.667
6.750
6.833
6.917
7.000
7.083
7.167
7.250
7.333
7.417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8.41 | 9.33

8.41 | 9.50

8.41 | 9.50

8.41 | 9.50

3.744 | 9.50

3.744 | 9.61

3.744 | 9.62

3.744 | 9.92

3.744 | 9.92

3.744 | 9.92

3.744 | 9.92

3.749 | 9.83

3.749 | 9.92

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3.083
3.167
3.250
3.333
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                                                               Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
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5.00
1.42 (ii)
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over (min)
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15.00
12.35 (ii)
15.00
0.08
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0.018 (iii)
6.00
43.27
46.70
0.93
                                                               PEAK FLOW (Cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0.02
6.00
45.70
46.70
0.98
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6.00
27.09
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0.015 (iii)
6.00
41.75
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0.89
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TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
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6.08
27.09
46.70
0.58
***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                           (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^2=89.0 Ia = Dep. Storage (Above) if TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. THAN THE STORAGE TO TINCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
            ADD HYD ( 0142) | AREA QPEAK (ms) (cms) | 1 + 2 = 3 | AREA (cms) | QPEAK (ms) | 101= 1 (200111): 0.10 0.016 | 102= 2 (200121): 0.11 0.018 | 10 = 3 ( 0142): 0.21 0.034
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Area (ha)= 0.13
Total Imp(%)= 86.00 Dir. Conn.(%)= 86.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              6.00 43.49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       IMPERVIOUS PERVIOUS (i)
0.11 0.02
1.00 1.00
1.00 2.00
29.44 40.00
0.013 0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (ha)=
(mm)=
(%)=
(m)=
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                                                                   NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
    NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                           IMPERVIOUS PERVIOUS (i)
0.08 0.02
1.00 1.00
1.00 2.00
25.69 40.00
0.013 0.290
                                                                   Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                   (ha)=
(mm)=
(%)=
(m)=
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ME RAIN | '

rs mm/hr | '

83 1.87 | 6.67 1.87 | 6.67 1.87 | 6.33 1.87 | 6.00 1.87 | 6.00 1.87 | 6.00 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6.83 1.87 | 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | TIME | RAIN | TIME | Frame |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TIME
hrs
3.083
3.167
3.250
3.333
3.417
3.500
3.583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TIME
hrs
0.083
0.167
0.250
0.333
0.417
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mm/hr
1.17
1.17
1.17
1.17
1.17
1.17
                                                                                                                           NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                             ---- TRANSFORMED HYETOGRAPH ----
TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN
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0.667
0.750
0.833
0.917
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3.74
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Filename: C:\Users\caef070146\AppD
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a3a8b910-d519-48ad-be84-5b44b6daecc3\5b7ccddc
Comments: 2-Yr,12-hr SCs, City of Barrie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ptotal= 64.30 mm
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TIME
hrs
0.25
0.50
0.75
1.00
1.25
1.75
2.00
2.25
2.50
2.75
3.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RAIN | mm/hr | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.93 | 1.93 | 1.93 | 1.93 |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TIME
hrs
3.25
3.50
3.75
4.00
4.25
4.50
4.50
5.25
5.50
5.75
6.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RAIN
mm/hr
2.57
2.57
2.57
2.57
3.86
3.86
5.14
7.72
7.72
30.86
84.88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TIME
hrs
6.25
6.50
6.75
7.00
7.25
7.50
7.75
8.00
8.25
8.75
9.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RAIN
mm/hr
11.57 |
11.57 |
5.14 |
5.14 |
3.86 |
3.86 |
3.86 |
3.86 |
2.25 |
2.25 |
2.25 |
2.25 |
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mm/hi
2.25
2.25
2.25
2.25
1.29
1.29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9.25
9.50
9.75
10.00
10.25
10.50
11.00
11.25
11.50
11.75
12.00
                                             Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                 61.64
5.00
1.49 (ii)
5.00
0.33
                                                                                                                                                                                                                                                                                                                                                                                                                        43.41
10.00
6.02 (ii)
10.00
0.15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1.29
1.29
1.29
1.29
1.29
1.29
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0.021 (iii)
6.00
43.08
46.70
0.92
                                                    PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                    0.02
6.00
45.70
46.70
0.98
                                                                                                                                                                                                                                                                                                                                                                                                                        0.00
6.00
27.09
46.70
0.58
                                     ** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                             (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \mathbb{CN}^p=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASSFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Area (ha)= 0.80
Total Imp(%)= 85.00 Dir. Conn.(%)= 85.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IMPERVIOUS

0.68

1.00

1.00

73.03

0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PERVIOUS (i)
0.12
1.00
2.00
40.00
0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (ha)=
(mm)=
(%)=
(m)=
               ADD HYD ( 0145) | 1 + 2 = 3
                                                                                                                                                                                                                                                              AREA QPEAK
(ha) (cms)
0.10 0.015
0.13 0.021
                                                                                                                                                                                                                                                                                                                                                                                                                     TPEAK
(hrs)
6.00
6.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         R.V.
(mm)
41.75
43.08
                                                       ID1= 1 (200112):
+ ID2= 2 (200122):
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TRANSFORMED HYETOGRAPH
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                                                    NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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Developed and Distributed by Saart city Water Inc
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                                                                                                                                                                           ***** DETAILED OUTPUT ****
                    Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\VO2\voin.dat
                                                                                                                                                                                                                                                                                                                                                              7.72 | 8.083
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over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 *TOTALS*
0.159 (iii)
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TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0.15
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6.00
42.31
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2.26 (ii)
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0.16
6.00
63.30
64.30
0.98
                                             Max.Eff.Inten.(mm/hr)=
over (min)=
storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
PEAK FLOW (cms)=
PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RINOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RINOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                     66.77
10.00
6.38 (ii)
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6.00
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64.30
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              *TOTALS*
0.179 (iii)
6.00
60.15
64.30
0.94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN* = 89.0 Ia = Dep. Storage (Above)

(i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL

THAN THE STORAGE COEFFICIENT.

(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                        ** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                               (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CALIB
STANDHYD ( 20031)
ID= 1 DT= 5.0 min
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Area (ha)= 0.43
Total Imp(%)= 90.00 Dir. Conn.(%)= 90.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IMPERVIOUS

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1.00

1.00

53.54

0.013
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (ha)=
(mm)=
(%)=
(m)=
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1.00
2.00
40.00
0.290
          | CALIB
| STANDHYD ( 20021)
|ID= 1 DT= 5.0 min |
                                                                                                                                                                                                         Area (ha)= 0.70
Total Imp(%)= 89.00 Dir. Conn.(%)= 89.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                        Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TIME hrss 3.083 3.1670 3.2500 3.5833 3.4177 3.5500 3.6500 3.650 3.6500 4.080 4.167 4.250 4.250 4.250 4.250 5.083 5.167 5.083 5.167 5.083 5.167 5.333 5.417
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2.000
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6.083
6.167
6.250
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6.500
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6.500
6.583
6.917
7.083
7.083
7.417
7.250
7.583
7.417
8.083
8.157
8.250
8.333
8.250
8.333
8.250
                                                                                     NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
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over (min)
Storage Coeff. (min)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         84.88 66.77
5.00 10.00
1.88 (ii) 5.30 (ii)
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Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= 10.00 0.16 5.00 0.32 *TOTALS* 0.098 (iii) 0.01 6.00 42.31 64.30 0.66 PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT = 0.09 6.00 63.30 64.30 0.98 6.00 61.20 64.30 0.95 ***** WARNING: STORAGE COEFF, IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $\text{CN}^{\pm}=89.0$ Ia = Dep. Storage (Above) (ii) TIME STEPP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. CALIB | STANDHYD (20032) |ID= 1 DT= 5.0 min Area (ha)= 0.47 Total Imp(%)= 87.00 Dir. Conn.(%)= 87.00 IMPERVIOUS 0.41 0.06 1.00 1.00 1.00 2.00 55.98 40.00 0.013 0.290 Surface Area Dep. Storage Average Slope Length Mannings n (ha)= (mm)= (%)= (m)= = NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. | TIME hrs 0.083 0.0667 0.250 0.333 0.0667 0.250 0.833 0.667 0.250 0.833 0.667 0.250 0.833 0.667 0.250 0.833 0.667 0.250 0.833 0.667 0.250 0.833 0.667 0.250 0.833 0.667 0.250 0.833 0.250 0.250 0.833 0.250 0 mm/hr | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1 Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)= 84.88 5.00 1.93 (ii) 5.00 0.31 66.77 10.00 5.78 (ii) 10.00 0.15 *TOTALS*
0.106 (iii)
6.00
60.56
64.30
0.94 PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT = 0.01 6.00 42.31 64.30 0.66 CALIB STANDHYD (20042) ID= 1 DT= 5.0 min Area (ha)= 0.36 Total Imp(%)= 85.00 Dir. Conn.(%)= 85.00 IMPERVIOUS 0.31 1.00 1.00 48.99 0.013 PERVIOUS (i) 0.05 1.00 2.00 40.00 0.290 Surface Area Dep. Storage Average Slope Length Mannings n (ha)= (mm)= (%)= (m)= = NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. TIME hrs 9.08 9.17 9.25 9.33 9.42 9.50 9.58 9.67 9.75 9.83 9.92 10.00 10.08

TIME hrss 0.083 0.167 0.500 0.833 0.667 1.000 0.833 0.667 1.000 0.833 0.667 1.000 0.750 0.833 0.667 1.000 0.750 0.250 0.833 0.667 0.750 0.833 0.667 0.750 0.833 0.667 0.750 0.833 0.667 0.750 0.833 0.667 0.750 0.833 0.750 0.833 0.750 0.833 0.750 0.833 0.750 0.833 0.750 0.750 0.833 0.750 0.750 0.833 0.750 0. RAIN | mm/hr | 61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.61 | 1.6 RAIN mm/hr 11.57 11.57 11.57 11.57 11.57 11.57 11.57 11.57 11.57 11.57 11.57 12.5 14 5.14 5.14 5.14 5.14 5.14 5.14 5.18 6.3 86 6 3.86 10.08 3.86 10.53 3.86 10.53 3.86 10.53 3.86 10.54 3.86 10.58 3.86 10.50

Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= 84.88 5.00 1.78 (ii) 5.00 0.32 66.77 10.00 5.89 (ii) 10.00 0.15 *TOTALS* 0.081 (iii) 6.00 60.14 64.30 0.94 PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (MM)=
TOTAL RAINFALL (MM)=
RUNOFF COEFFICIENT = 0.07 6.00 63.30 64.30 0.98 0.01 6.00 42.31 64.30 0.66

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^{\circ}=89.0$ Ia = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

IMPERVIOUS PERVIOUS (i)

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^{\circ}=89.0$ Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB | STANDHYD (20041) |ID= 1 DT= 5.0 min Area (ha)= 0.35 Total Imp(%)= 89.00 Dir. Conn.(%)= 89.00

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

| | | | D HYETOGR | | | |
|--------------------------|-----------|----------------|-----------|-------|----------|-------|
| TIME RAIN | | RAIN | TIME | RAIN | | RAIN |
| hrs mm/hr | | mm/hr | ' hrs | mm/hr | hrs | mm/hr |
| 0.083 1.61 | | 2.57 | 6.083 | 11.57 | 9.08 | 2.25 |
| 0.167 1.61 | | 2.57 | 6.167 | 11.57 | 9.17 | 2.25 |
| 0.250 1.63 | L i 3.250 | 2.57 | 6.250 | 11.57 | 9.25 | 2.25 |
| 0.333 1.61 | L i 3.333 | 2.57 | 6.333 | 11.57 | 9.33 | 2.25 |
| 0.417 1.61 | | 2.57 | 6.417 | 11.57 | 9.42 | 2.25 |
| 0.500 1.61 | L i 3.500 | 2.57 | 6.500 | 11.57 | 9.50 | 2.25 |
| 0.583 1.61 | | 2.57 | 6.583 | 5.14 | 9.58 | 2.25 |
| 0.667 1.61 | | 2.57 | 6.667 | 5.14 | 9.67 | 2.25 |
| 0.750 1.61 | | 2 57 | 6.750 | 5.14 | 9.75 | 2.25 |
| 0.833 1.61 | 3.833 | 2.57 | 6.833 | 5.14 | 9.83 | 2.25 |
| 0.917 1.61 | | 2.57 | 6.917 | 5.14 | 9.92 | 2.25 |
| 1.000 1.61 | | 2.57 | 7.000 | 5 14 | 10.00 | 2.25 |
| 1.083 1.61 | | 3.86 | 7.083 | 3 86 | 10.08 | 1.29 |
| 1.167 1.61 | 4.167 | 3.86 | 7.167 | 3.86 | 10.17 | 1.29 |
| 1.250 1.61 | | 3.86 | 7.250 | 3.86 | 10.25 | 1.29 |
| 1.333 1.61 | | 3.86 | 7.333 | 3.86 | 10.33 | 1.29 |
| 1.417 1.61 | | 3.86 3.86 | 7.417 | 3.86 | 10.42 | 1.29 |
| 1.500 1.61 | | 3.86 | 7.500 | 3.86 | 10.50 | 1.29 |
| 1.583 1.61 | 4.583 | 5.14 | 7.583 | 3.86 | 10.58 | 1.29 |
| 1.667 1.61 | 4.667 | 5.14 | 7.667 | 3.86 | 10.67 | 1.29 |
| 1.750 1.61 | | 5.14 | 7.750 | 3.86 | 10.75 | 1.29 |
| 1.833 1.61 | | 5.14 | 7.833 | 3.86 | 10.83 | 1.29 |
| 1.917 1.61 | | 5.14 | 7.917 | 3.00 | 10.83 | 1.29 |
| 2.000 1.61 | 5.000 | 5.14 | 8.000 | 3.86 | 11.00 | 1.29 |
| 2.000 1.01 | 5.083 | 7.72 | 8.083 | 2.25 | 11.08 | 1.29 |
| 2.167 1.93 | | 7.72 | 8.167 | 2.23 | 11.17 | 1.29 |
| 2.250 1.9 | 5.250 | 7.72 | 8.250 | 2.25 | 11.25 | 1.29 |
| 2.333 1.93 | | 7.72 | 8.333 | 2.23 | 11.33 | 1.29 |
| 2.333 1.93 2.417 1.93 | 5.417 | 7.72 | 8.417 | 2.25 | 11.42 | 1.29 |
| 2.500 1.9 | 5.500 | 7.72 | 8.500 | 2.25 | 11.50 | 1.29 |
| 2.583 1.93 | 5.583 | 30.86 | 8.583 | 2.25 | 11.58 | 1.29 |
| 2.363 1.93 2.667 1.93 | 5.667 | 30.86 | 8.667 | 2.25 | 11.56 | 1.29 |
| 2.750 1.93 | | | 8.750 | 2.23 | 11.07 | 1.29 |
| 2.750 1.93 2.833 1.93 | 5.833 | 30.86 84.88 | 8.833 | 2.25 | 11.75 | 1.29 |
| 2.833 1.93 2.917 1.93 | 5.917 | 84.88 | 8.917 | 2.23 | 11.03 | 1.29 |
| | 5.917 | | | 2.25 | | |
| 3.000 1.93 | 8 6.000 | 84.87 | 9.000 | 2.23 | 12.00 | 1.29 |
| Max.Eff.Inten.(mm/hr)= | 84.88 | | 66.77 | | | |
| over (min) | 5.00 | | 10.00 | | | |
| Storage Coeff. (min)= | 1.76 | (ii) | 5.33 (iii |) | | |
| Unit Hyd. Tpeak (min)= | 5.00 | (11) | 10.00 | , | | |
| Unit Hyd. peak (cms)= | 0.32 | | 0.16 | | | |
| onic nya. peak (clis)= | 0.32 | | 0.10 | *TOT | TALS# | |
| PEAK FLOW (cms)= | 0.07 | | 0.01 | | 080 (iii |) |
| TIME TO PEAK (hrs)= | 6.00 | | 6.00 | | 5.00 | • |
| RUNOFF VOLUME (mm)= | 63.30 | | 42.31 | | 0.99 | |
| TOTAL RAINFALL (mm)= | 64.30 | | 64.30 | | 1.30 | |
| RUNOFF COEFFICIENT = | 0.98 | | 0.66 | | 0.95 | |
| | | | | - | | |

WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^\circ=89.0$ Ia = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Surface Area Dep. Storage Average Slope Length Mannings n (ha)= (mm)= (%)= (m)= =

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

| | | TPA | NIS EODME | D HYETOGR | ADU | | |
|----------------|-------|----------------|--|----------------|--------------|----------------|-------|
| TIME | RAIN | TIME | RAIN | ' TIME | RAIN | TIME | RAIN |
| hrs | mm/hr | hrs | mm/hr | ' hrs | mm/hr | hrs | mm/hr |
| 0.083 | 1.61 | 3.083 | 2.57 | 6.083 | 11.57 | 9.08 | 2.25 |
| 0.167 | 1.61 | 3.167 | 2.57 | 6.167 | 11.57 | 9.17 | 2.25 |
| 0.250 | 1.61 | 3.250 | 2.57 | 6.250 | 11.57 | 9.25 | 2.25 |
| 0.333 | 1.61 | 3.333 | | 6.417 | 11.57 | 9.33 | 2.25 |
| 0.500 | 1.61 | 3.500 | 2.57 | 6.500 | 11.57 | 9.50 | 2.25 |
| 0.583 | 1.61 | 3.583 | 2.57 | 6.583 | 5.14 | 9.58 | 2.25 |
| 0.667 | 1.61 | 3.667 | 2.57 2.57 2.57 2.57 2.57 2.57 | 6.667 | 5.14 | 9.67 | 2.25 |
| 0.750 | 1.61 | 3.750 | 2.57 | 6.750 | 5.14 | 9.75 | 2.25 |
| 0.833 | 1.61 | 3.833 | 2.57 | 6.833 | 5.14 | 9.83 | 2.25 |
| 0.917 1.000 | 1.61 | 3.917 4.000 | 2.57 | 6.917 7.000 | 5.14 5.14 | 9.92 10.00 | 2.25 |
| 1.083 | 1.61 | 4.000 | 3.86 | 7.000 | 3.86 | 10.00 | 1.29 |
| 1.167 | 1.61 | 4.167 | 3.86 | 7.167 | 3.86 | 10.17 | 1.29 |
| 1.250 | 1.61 | 4.250 | 3.86 | 7.250 | 3.86 | 10.25 | 1.29 |
| 1.333 | 1.61 | 4.333 | 3.86 | 7.333 | 3.86 | 10.33 | 1.29 |
| 1.417 | 1.61 | 4.417 | 3.86 | 7.417 | 3.86 | 10.42 | 1.29 |
| 1.500 1.583 | 1.61 | 4.500 | 3.86 5.14 | 7.500 | 3.86 | 10.50 10.58 | 1.29 |
| 1.667 | 1.61 | 4.565 | 5.14 | 7.667 | 3.86 | 10.56 | 1.29 |
| 1.750 | 1.61 | 4.750 | 5 14 | 7.750 | 3.86 | 10.75 | 1.29 |
| 1.833 | 1.61 | 4.833 | 5.14 | 7.833 | 3.86 | 10.83 | 1.29 |
| 1.917 | 1.61 | 4.917 | 5.14 5.14 | 7.917 | 3.86 | 10.92 | 1.29 |
| 2.000 | 1.61 | 5.000 | 5.14 | 8.000 | 3.86 | 11.00 | 1.29 |
| 2.083 | 1.93 | 5.083 | 7.72 | 8.083 | 2.25 | 11.08 | 1.29 |
| 2.167 2.250 | 1.93 | 5.167 5.250 | 7.72 7.72 | 8.167 8.250 | 2.25 | 11.17 11.25 | 1.29 |
| 2.230 | 1.93 | 5.333 | 7.72 | 8.333 | 2 25 | 11.23 | 1.29 |
| 2.417 | 1.93 | 5.417 | 7.72 | 8.417 | 2.25 | 11.42 | 1.29 |
| 2.500 | 1.93 | 5.500 | 7.72 | 8.500 | 2.25 | 11.50 | 1.29 |
| 2.583 | 1.93 | 5.583 | 30.86 | 8.583 | 2.25 | 11.58 | 1.29 |
| 2.667 | 1.93 | 5.667 | 30.86 | 8.667 | 2.25 | 11.67 | 1.29 |
| 2.750 2.833 | 1.93 | 5.750 | 30.86 84.88 | 8.750 8.833 | 2.25 | 11.75 11.83 | 1.29 |
| 2.033 | 1.93 | 5.917 | 84.88 | 8.917 | 2.25 | 11.03 | 1.29 |
| 3.000 | 1.93 | 6.000 | 84.87 | 9.000 | 2.25 | 12.00 | 1.29 |
| 2.000 | | | | | | 00 | |
| .Inten.(mm/h | nr)= | 84.88 | | 66.77 | | | |
| over (mi | in) | 5.00 | | 10.00 | | | |

over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)= 5.00 1.67 (ii) 5.00 0.32 10.00 6.63 (ii) 10.00 0.14 *TOTALS* 0.063 (iii) 6.00 58.67 64.30 0.91 PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT = 0.05 6.00 63.30 64.30 0.98

**** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^{\circ}=89.0$ Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB STANDHYD (20062) ID= 1 DT= 5.0 min Area (ha)= 0.73Total Imp(%)= 80.00 Dir. Conn.(%)= 80.00

IMPERVIOUS 0.58 1.00 1.00 69.76 0.013 PERVIOUS (i) 0.15 1.00 2.00 40.00 0.290 (ha)= (mm)= (%)= (m)= = Surface Area Dep. Storage Average Slope Length Mannings n

| TIME hrs 0.083 0.167 0.253 0.657 0.593 0.667 0.783 0.667 0.783 0.681 1.037 1.1250 1.1250 1.133 1.167 1.250 1.183 1.167 1.250 2.083 2.167 2.250 2.283 2.167 2.250 2.833 2.667 2.250 2.833 2.667 2.500 2.883 2.667 2.500 2.883 2.667 2.500 2.883 | mm/hrid 3 3 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | .083 2.57 .167 2.50 2.57 .250 2.57 .250 2.57 .667 2.57 .833 2.57 .833 2.57 .850 2.57 .801 2.57 .801 2.57 .802 2.57 .803 2.57 .803 2.57 .803 2.57 .803 2.57 .801 2.57 .801 3.86 .801 3.86 | Hrs. 6.085. 6.05. 6.257 | APH | TIME hrs 9.08 9.17 9.20 9.17 9.25 9.08 9.17 9.25 9.50 9.50 9.67 9.50 9.67 10.00 10.08 10.05 10.0 | RAIN 7.2.25 | | |
|--|--|---|---|--|--|--|--|--|
| over (Storage Coeff. (Unit Hyd. Tpeak (Unit Hyd. peak (PEAK FLOW | (cms)= (hrs)= (hrs)= (mm)= (mm)= (T = | 5.00 2.20 (ii) 5.00 0.30 0.14 6.00 63.30 64.30 0.98 | 10.00 6.93 (iii) 10.00 0.14 0.02 6.00 42.31 64.30 0.66 | *TOT 0. 6 59 64 0 | ALS* 160 (iii) .00 .10 .30 .92 | | | |
| (111) PEAK FLOW D | 0.0 Ia = (DT) SHOULD ORAGE COEFF | Dep. Storage BE SMALLER OF ICIENT. | (Above) R EQUAL | | | | | |
| Surface Area Dep. Storage Average Slope Length Mannings n | (ha)= (mm)= (%)= (m)= = | 0.55 1.00 1.00 65.83 0.013 | Dir. Conn ERVIOUS (i 0.10 1.00 2.00 40.00 0.290 |) | | | | |
| NOTE: RAINFA TIME hrs 0.083 0.167 0.250 0.333 | RAIN | TRANSFORM | | 4 DU | | RAIN mm/hr 2.25 2.25 2.25 2.25 | | |
| 1.083 1.167 1.250 1.333 1.417 1.500 1.833 1.417 2.000 2.083 2.417 2.000 2.583 2.2417 2.500 2.583 2.2417 2.500 2.583 2.2417 2.500 2.583 | 1.61 4 1.61 4 1.61 4 1.61 4 1.61 4 1.61 4 1.61 5 1.93 5 | .250 3.86 417 3.86 5.500 3.86 5.583 5.14 7.750 5.14 7.750 5.14 7.750 5.14 7.750 7.72 2.30 7.72 2.30 7.72 2.30 7.72 2.30 7.72 2.30 7.72 2.30 7.72 2.30 7.72 3.83 84.88 8.83 84.88 8.917 84.88 | 7.417 7.500 7.583 7.667 7.750 7.833 7.917 8.000 8.083 8.167 8.250 8.333 8.417 8.500 8.583 8.667 8.750 8.833 8.833 8.833 8.937 9.000 | 3.86 3.86 3.86 3.86 3.86 3.86 3.86 3.86 | 10.92 11.00 11.08 11.17 11.25 11.33 11.42 11.50 11.58 | 1.29 1.29 1.29 1.29 1.29 1.29 1.29 1.29 | | |
| TIME TO PEAK (RUNOFF VOLUME | (min) (min)= (min)= (cms)= (cms)= (hrs)= (mm)= | 2.11 (ii) 5.00 0.31 0.13 6.00 63.30 | 66.77 10.00 6.36 (iii 10.00 0.15 0.02 6.00 42.31 | *тот 0. 6 | ALS* 143 (iii) .00 .94 | | | |
| TOTAL RAINFALL RUNOFF COEFFICIEN ***** WARNING: STORAGE (i) CN PROCEDUR CN° = 85 (ii) TIME STEP (THAN THE ST (iii) PEAK FLOW E | COEFF. IS RE SELECTED O IA = (DT) SHOULD TORAGE COEFF | 0.98 SMALLER THAN FOR PERVIOUS Dep. Storage BE SMALLER OF ICIENT. | LOSSES: (Above) R EQUAL | - | .93 | | | |
| Surface Area | (na)= | ERVIOUS PE 0.49 | Dir. Conn | | 5.00 | | | |
| Dep. Storage Average Slope Length Mannings n NOTE: RAINFA | (%)= (m)= = ALL WAS TRAN | 1.00 62.18 0.013 SFORMED TO | 2.00 40.00 0.290 5.0 MIN. | | Р. | | | |
| TIME | 1.61 3 1.61 3 1.61 3 1.61 3 1.61 3 1.61 3 1.61 3 1.61 3 1.61 4 1.61 4 1.61 4 1.61 4 1.61 4 | hrs mm/hr 2/57 2.57 2.50 2.57 2.59 2.57 2.59 2.57 2.59 2.57 2.57 2.50 2.50 2.50 2.50 2.50 2.50 2.50 2.50 | 6.083 6.167 6.250 | APH | 9. 25 9. 33 9. 42 9. 50 9. 58 9. 67 9. 75 9. 83 9. 92 10. 00 10. 08 10. 17 10. 25 10. 33 | RAIN mm/hr 2.25 2.25 2.25 2.25 2.25 2.25 2.25 2.2 | | |
| | | | | | | | | |

| Max.Eff.Int Storage Cod | 0.417 0.500 0.500 0.667 0.833 0.917 1.000 1.083 1.167 1.2583 1.417 1.2583 1.417 1.7500 1.583 1.417 1.7500 1.7 | 1.61 1.61 1.61 1.61 1.61 1.61 1.61 1.61 | 5.000 5.083 5.167 5.250 5.333 5.417 5.500 5.583 5.667 5.750 5.833 5.917 6.000 | 2.557 557 557 557 557 557 557 557 557 557 | 6.417 6.500 6.580 6.667 6.667 6.667 6.733 7.083 7.167 7.083 7.125 7.250 7.253 7.253 7.253 7.253 7.353 7.35 | 11.57 11.57 11.57 11.57 11.4 15.114 15.114 15.114 15.114 15.114 15.114 15.114 15.114 16.114 17.114 1 | 9.58 9.67 9.75 9.83 9.92 10.008 10.17 10.33 10.42 10.50 10.50 10.67 10.83 10.67 11.08 11.17 11.17 11.33 11.42 11.50 11.67 11.33 11.67 11.33 11.67 11.83 11.67 | 2.25 2.25 2.25 2.25 2.25 2.25 2.25 2.25 |
|---|---|--|--|--|---|---|---|--|
| Unit Hyd. I Unit Hyd. g PEAK FLOW TIME TO PEA RUNOFF VOLL TOTAL RAINF RUNOFF COEF | rpeak (m beak (c AK (h JME (FALL (FFICIENT | ms)= ms)= rs)= mm)= mm)= | 5.00 2.12 5.00 0.31 0.13 6.00 63.30 64.30 0.98 | | 6.24 (iii) 10.00 0.15 0.02 6.00 42.31 64.30 0.66 | *TOT 0. 60 64 0 | TALS* 146 (iii) 5.00 0.15 1.30 | 1 |
| ***** WARNING: S (i) CN PF CN* (ii) TIME THAN (iii) PEAK | OCEDURE | CEL ECT | -D | D) (TOUS | . 0005 | | | |
| CALIB STANDHYD (200 ID= 1 DT= 5.0 m | 072) nin | | (ha)= np(%)= 8 | | Dir. Conn | | 34.00 | |
| Surface Are Dep. Storag Average Slo Length Mannings n | ea (ge (ope | ha)= mm)= (%)= (m)= = | IMPERVIOU 0.54 1.00 1.00 65.32 0.013 RANSFORME | | RVIOUS (1 0.10 1.00 2.00 40.00 0.290 5.0 MIN. | | P. | |
| | TIME hrs 0.083 0.167 0.250 0.333 0.417 0.508 0.583 0.667 0.750 0.833 0.917 1.000 | RAIN mm/hr 1.61 1.61 1.61 1.61 1.61 1.61 1.61 1.6 | TIME hrs 3.083 3.167 3.250 3.333 3.417 3.583 3.583 3.750 3.750 3.833 3.917 4.000 | 2.57 | D HYETOGR. TIME | RAIN mm/hr 11.57 11.57 11.57 11.57 11.57 11.57 5.14 5.14 5.14 5.14 | 9.08 9.17 9.25 9.33 9.42 9.50 9.58 9.67 9.75 | RAIN mm/hr 2.25 2.25 2.25 2.25 2.25 2.25 2.25 2.2 |
| | 1.750 1.833 1.917 2.000 2.083 2.167 2.250 2.333 2.417 2.508 2.583 2.667 2.750 2.750 2.833 2.917 3.000 | 1.93 1.93 1.93 1.93 1.93 | 4.750 4.833 4.917 5.000 5.083 5.167 5.250 5.333 5.417 5.583 5.667 5.750 5.833 5.667 6.000 | 5.14 5.14 7.72 7.72 7.72 7.72 7.72 7.72 30.86 30.86 84.88 84.88 | 8.583 8.667 8.750 8.833 8.917 9.000 | 3.86 3.86 3.86 3.86 2.25 2. | 10.92 11.00 11.08 11.17 11.25 11.33 11.42 | 1.29 1.29 1.29 1.29 1.29 1.29 1.29 1.29 |
| Max.Eff.Int Storage Coe Unit Hyd. 1 Unit Hyd. p | en.(mm/ over (m eff. (m Tpeak (m | hr)= in) in)= in)= | 84.88 5.00 2.05 5.00 | (ii) | 66.77 10.00 6.17 (ii) |) | | |
| PEAK FLOW TIME TO PEA RUNOFF VOLU TOTAL RAINE RUNOFF COEF | (c AK (h JME (FALL (FFICIENT | ms)= rs)= mm)= mm)= = | 0.12 6.00 63.30 64.30 0.98 | | 0.01 6.00 42.31 64.30 0.66 | 0. 60 64 0 | ALS* 130 (iii) i.00 0.15 i.30 0.94 | |
| | CEDURE | SELECTE | ED EOR PE | RVTOUS | LOSSES. | | | |
| CALIB STANDHYD (200 ID= 1 DT= 5.0 m |)92) nin | Area Total Ir | (ha)= np(%)= 8 | 0.63 1.00 | Dir. Conn | | 1.00 | |
| Surface Are Dep. Storac Average Slo Length Mannings n NOTE: | | | | | RVIOUS (1) 0.12 1.00 2.00 40.00 0.290 5.0 MIN. | | P. | |
| | TIME 0.083 0.167 0.250 0.333 0.417 0.500 0.750 0.757 0.757 1.000 1.083 1.167 1.270 1.333 1.167 1.333 1.417 1.583 1.417 1.583 1.417 1.758 1 | 1.61 1.61 1.61 1.61 1.61 1.61 1.61 1.61 | TRA 3.083 3.083 3.1637 3.1250 3.250 3.583 3.417 3.500 3.583 3.917 4.250 4.083 4.167 4.250 4.1833 4.417 4.250 4.583 4.917 4.250 5.083 5.008 | 3.86 3.86 3.86 3.86 5.14 5.14 5.14 5.14 5.14 | D HYETOCR. 1 TIME 1 6.083 6.167 6.250 6.500 6.530 6.500 6.580 6.500 6.583 7.167 7.000 7.083 7.167 7.250 7.333 7.117 7.583 7.7.583 7.7.583 7.7.583 7.7.583 7.7.583 7.917 8.8.000 8.083 8.163 8.253 | 3.86 3.86 3.86 3.86 3.86 | TIME hrs 9.08 9.17 9.25 9.33 9.42 9.50 9.67 9.67 9.83 9.83 9.40 10.08 10.15 10.33 10.50 10.58 10.58 10.58 10.13 11.33 | RAIN mm/hr 2.25 2.25 2.25 2.25 2.25 2.25 2.25 2.2 |

| 2 2 2 2 2 2 2 | .583 1 .667 1 .750 1 | L.93 5.1 L.93 5.1 L.93 5.1 L.93 5.1 L.93 5.1 L.93 6.0 | 583 667 750 833 817 8000 | 30.86 30.86 30.86 34.88 34.88 34.87 | 8.417 8.500 8.583 8.667 8.750 8.833 8.917 9.000 | | 11.42 11.50 11.58 11.67 11.75 11.83 11.92 12.00 | 1.29 1.29 1.29 1.29 1.29 1.29 1.29 1.29 |
|--|--|---|---|--|---|---|---|--|
| Max.Eff.Inter or Storage Coef Unit Hyd. Tpe Unit Hyd. pe | n.(mm/hr) ver (min) f. (min) eak (min) ak (cms) |)= 8-)=)=)= | 4.88 5.00 2.10 (1 5.00 0.31 | ii) 1 | 66.77 10.00 6.72 (ii) 10.00 0.14 | | | |
| PEAK FLOW TIME TO PEAK RUNOFF VOLUM TOTAL RAINFA RUNOFF COEFF | (cms) (hrs) E (mm) LL (mm) |)= ()= ()= 6: | 0 12 | 4 | 0.02 6.00 12.31 64.30 0.66 | *1017 0.3 6 59 64 | L39 (iii) .00 .31 | |
| ***** WARNING: ST | | | | | | Ů | . 32 | |
| (i) CN PRO CN* : (ii) TIME : THAN TI (iii) PEAK F | CEDURE SE = 89.0 TEP (DT) HE STORAC LOW DOES | ELECTED FO IA = DO SHOULD BO GE COEFFION NOT INCLO | OR PERV ep. Sto E SMALI CIENT. UDE BAS | /IOUS L brage LER OR SEFLOW | OSSES: (Above) EQUAL IF ANY. | | | |
| CALIB STANDHYD (2009) ID= 1 DT= 5.0 min | 1) Are n Tot | THEF | D) (TOUC | | Dir. Conn. | (%)= 7 | 7.00 | |
| Surface Area Dep. Storage Average Slop Length Mannings n | e (%) |)= ()=)= 5 | RVIOUS 0.31 1.00 1.00 1.64 .013 | 4 | RVIOUS (i) 0.09 1.00 2.00 10.00 0.290 | | | |
| | | | | | .0 MIN. T | | | |
| | TIME F | RAIN T | - TRANS | FORMED RAIN | HYETOGRA | PH RAIN | TIME | RAIN |
| 0 0 0 0 0 | .083 | 7/hr 1.61 3.1 | hrs r 083 167 250 333 417 500 583 667 750 833 | nm/hr 2.57 2 | HYETOGRA TIME hrs 6.083 6.167 6.250 6.333 6.417 6.500 6.583 6.667 6.750 6.833 6.917 7.000 | RAIN mm/hr 11.57 11.57 11.57 11.57 11.57 11.57 11.57 11.57 5.14 5.14 | hrs 9.08 9.17 9.25 9.33 9.42 9.50 9.58 9.67 9.75 9.83 9.92 | mm/hr 2.25 2.25 2.25 2.25 2.25 2.25 2.25 2.2 |
| 1 1 1 1 1 1 1 | .000 .083 .167 .250 .333 .417 .500 .583 .667 | L.61 4.0 L.61 4.1 L.61 4.1 L.61 4.1 L.61 4.1 L.61 4.1 L.61 4.1 L.61 4.1 L.61 4.1 | 083 167 250 333 | 3.86 | 7.000 7.083 7.167 7.250 7.333 7.417 7.500 7.583 7.667 7.750 7.833 7.917 | 3.86 3.86 3.86 3.86 3.86 3.86 3.86 | 10.08 10.17 10.25 10.33 10.42 | 2.25 1.29 1.29 1.29 1.29 1.29 1.29 1.29 1.29 |
| 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 | .833 .917 .000 .083 .167 .250 .333 .417 .500 | L.93 5.1 L.93 5.1 L.93 5.1 L.93 5.1 L.93 5.1 L.93 5.1 | 000 083 167 250 333 417 500 583 | 5.14 5.14 5.14 5.14 7.72 7.72 7.72 7.72 7.72 7.72 7.72 7.7 | 7.833 7.917 8.000 8.083 8.167 8.250 8.333 8.417 8.500 8.583 8.667 | 3.86 3.86 | 10.83 10.92 11.00 11.08 11.17 | 1.29 1.29 1.29 1.29 1.29 1.29 1.29 1.29 |
| 2 2 2 | .750 1 .833 1 .917 1 | L.93 5.1 L.93 5.1 L.93 5.1 | 750 : 833 : 917 : | 30.86 34.88 34.88 34.87 | 8.750 | 2.25 2.25 2.25 2.25 2.25 | 11.75 11.83 11.92 12.00 | 1.29 1.29 1.29 1.29 |
| TIME TO PEAK RUNOFF VOLUM TOTAL RAINFA RUNOFF COEFF: | |)= 6:)= 6: | 6.00 3.30 4.30 0.98 | 4 | 6.08 12.31 64.30 0.66 | 56 64 | .00 .99 .30 .89 | |
| ***** WARNING: STO (i) CN PROF CN* : (ii) TIME S' THAN TI (iii) PEAK FI | CEDURE SE = 89.0 TEP (DT) HE STORAG | IA = DO SHOULD BO SE COEFFICE | OR PERV ep. Sto E SMALI CIENT. | /IOUS L brage _ER OR | OSSES: (Above) EQUAL | | | |
| CALIB STANDHYD (20081 | | | | | | | | |
| STANDHYD (20081) | 1) Are n Tot | | | | oir. Conn. | (%)= 84 | 1.00 | |
| Surface Area Dep. Storage Average Slop Length Mannings n | e (mm) e (%) (m) |)=)=)=)= 2 | RVIOUS 0.06 1.00 1.00 1.60 .013 | 4 | RVIOUS (i) 0.01 1.00 2.00 0.00 0.290 | | | |
| | AINFALL V | VAS TRANS | FORMED | то 5 | 5.0 MIN. T | IME STE | ۰. | |
| | | RAIN T. n/hr 1 1.61 3.1 | - TRANS IME hrs r | FORMED RAIN nm/hr 2.57 2.57 | HYETOGRA TIME hrs 6.083 6.167 | PH RAIN mm/hr 11.57 11.57 | TIME hrs 9.08 | RAIN mm/hr 2.25 2.25 |
| 0 0 0 | .250 1 .333 1 .417 1 .500 1 | L.61 3 L.61 3 L.61 3 | 250 | 2.57 | 6.333 6.417 6.500 | 11.57 | 9.33 9.42 9.50 | 2.25 2.25 2.25 2.25 2.25 2.25 |
| 0 0 0 1 | .667 .750 .833 .917 .000 | 1.61 3.1 1.61 3.1 1.61 3.1 | 750 833 917 | 2.57 2.57 2.57 2.57 2.57 3.86 | 6.750 6.833 | 5.14 5.14 5.14 5.14 5.14 5.14 5.14 3.86 3.86 3.86 3.86 | 9.67 9.75 9.83 9.92 10.00 10.08 | 2.25 2.25 2.25 2.25 2.25 1.29 |
| 1 1 1 1 | .250 1 .333 1 .417 1 | L.61 4.1 L.61 4.1 L.61 4.1 L.61 4.1 | 250 333 417 500 583 | 5.14 | 7.500 7.583 | 3 86 | 10.50 | 1.29 1.29 1.29 1.29 1.29 1.29 |
| 1 1 1 1 2 | .667 1 .750 1 .833 1 .917 1 | L.61 4.0 L.61 4.0 L.61 4.0 L.61 4.0 L.61 5.0 | 667 750 833 | 5.14 5.14 5.14 5.14 | 7.667 7.750 7.833 7.917 8.000 8.083 | 3.86 3.86 3.86 | 10.67 10.75 10.83 10.92 | 1.29 1.29 1.29 1.29 1.29 1.29 |
| 2 2 | .167 1 .250 1 | L.93 5.: | 167 | 7.72 7.72 7.72 7.72 7.72 | 8.167 8.250 8.333 | 2.25 2.25 2.25 2.25 | 11.08 11.17 11.25 11.33 | 1.29 1.29 1.29 1.29 |

| | TRANSFORM | ED HYETOGRA | PH | | |
|----------------------------|-----------------|-------------|---------|-----------|-------|
| TIME RAIN | TIME RAIN | I' TIME | RAIN | TIME | RAIN |
| hrs mm/hr | i hrs mm/hr | i' hrs | mm/hr | i hrs | mm/hr |
| 0.083 1.61 | 3.083 2.57 | 6.083 | 11.57 I | 9.08 | 2.25 |
| 0.167 1.61 | 3.167 2.57 | 6.167 | 11.57 | 9.17 | 2.25 |
| 0.250 1.61 | 3.250 2.57 | 6.250 | 11.57 | 9.25 | 2.25 |
| 0.333 1.61 | 3.333 2.57 | 6.333 | 11.57 | 9.33 | 2.25 |
| 0.417 1.61 | 3.417 2.57 | | 11.57 | 9.42 | 2.25 |
| 0.500 1.61 | 3.500 2.57 | 6.500 | 11.57 | 9.50 | 2.25 |
| 0.583 1.61 | 3.583 2.57 | 6.583 | 5.14 | 9.58 | 2.25 |
| 0.667 1.61 | 3.667 2.57 | 6.667 | 5.14 | 9.67 | 2.25 |
| 0.750 1.61 | 3.750 2.57 | 6.750 | 5.14 | 9.75 | 2.25 |
| 0.833 1.61 | 3.833 2.57 | 6.833 | 5.14 | 9.83 | 2.25 |
| 0.917 1.61 | 3.917 2.57 | | 5.14 | 9.92 | 2.25 |
| 1.000 1.61 | 4.000 2.57 | | 5.14 | 10.00 | 2.25 |
| 1.083 1.61 | 4.083 3.86 | 7.083 | 3.86 | 10.08 | 1.29 |
| 1.167 1.61 | | | 3.86 | 10.17 | 1.29 |
| 1.250 1.61 | 4.250 3.86 | 7.250 | 3.86 | 10.25 | 1.29 |
| 1.333 1.61 | 4.333 3.86 | 7.333 | 3.86 | 10.33 | 1.29 |
| 1.417 1.61 | | 7.417 | 3.86 i | 10.42 | 1.29 |
| 1.500 1.61 | 4.500 3.86 | | 3.86 i | 10.50 | 1.29 |
| 1.583 1.61 | 4.583 5.14 | 7.583 | 3.86 | 10.58 | 1.29 |
| 1.667 1.61 | 1 4.667 5.14 | 7.667 | 3.86 | 10.67 | 1.29 |
| 1.750 1.61 | 4.750 5.14 | 7.750 | 3.86 | 10.75 | 1.29 |
| 1.833 1.61 | 1 4.833 5.14 | 7.833 | 3.86 i | 10.83 | 1.29 |
| 1.917 1.61 | 4.917 5.14 | 7.917 | 3.86 | 10.92 | 1.29 |
| 2.000 1.61 | 5.000 5.14 | 8.000 | 3.86 | 11.00 | 1.29 |
| 2.083 1.93 | 5.083 7.72 | 8.083 | 2.25 | 11.08 | 1.29 |
| 2.167 1.93 | 5.167 7.72 | 8.167 | 2.25 | 11.17 | 1.29 |
| 2.250 1.93 2.333 1.93 | 5.250 7.72 | 8.250 | 2.25 | 11.25 | 1.29 |
| 2.333 1.93 | 5.333 7.72 | | 2.25 | 11.33 | 1.29 |
| 2.417 1.93 | 5.417 7.72 | 8.417 | 2.25 | 11.42 | 1.29 |
| 2.500 1.93 | 5.500 7.72 | 8.500 | 2.25 | 11.50 | 1.29 |
| 2.583 1.93 | 5.583 30.86 | | 2.25 | 11.58 | 1.29 |
| 2.667 1.93 | 5.667 30.86 | | 2.25 | 11.67 | 1.29 |
| 2.750 1.93 | 5.750 30.86 | | 2.25 | 11.75 | 1.29 |
| 2.833 1.93 | 5.833 84.88 | | 2.25 | 11.83 | 1.29 |
| 2.917 1.93 | 5.917 84.88 | | 2.25 | 11.92 | 1.29 |
| 3.000 1.93 | 6.000 84.87 | 9.000 | 2.25 | 12.00 | 1.29 |
| Max.Eff.Inten.(mm/hr)= | 84.88 | 66.77 | | | |
| over (min) | 5.00 | 10.00 | | | |
| Storage Coeff. (min)= | 1.09 (ii) | 5.33 (ii) | | | |
| Unit Hvd. Tpeak (min)= | 5.00 | 10.00 | | | |
| Unit Hyd. peak (mm)= | 0.34 | 0.16 | | | |
| onic nyu. peak (cms)= | 0.34 | 0.10 | *TOT | ΔI S* | |
| PEAK FLOW (cms)= | 0.01 | 0.00 | | 016 (iii) | |
| TIME TO PEAK (hrs)= | 6.00 | 6.00 | 6 | .00 | |
| RUNOFF VOLUME (mm)= | 63.30 | 42.31 | | .92 | |
| TOTAL RAINFALL (mm)= | 64.30 | 64.30 | | .30 | |
| RUNOFF COEFFICIENT = | 0.98 | 0.66 | | .93 | |
| | | | - | | |
| ** WARNING: STORAGE COEFF. | IS SMALLER THAN | TIME STEP! | | | |

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

| MAX.EFf.Inten.(mm/hr) | | | | | | | | |
|--|--|--|--|---|--|---|--|--|
| PEAK FLOW (CMS)= 0.07 0.01 0.083 (111) TIME TO PEAK (hrs)= 6.00 6.08 6.00 6.08 10.083 (111) TIME TO PEAK (hrs)= 6.00 6.08 6.00 6.08 6.00 TOTAL ANDREAD (MM)= 64.30 64.31 58.46 TOTAL ANDREAD (MM)= 64.30 64.31 TOTAL ANDREAD (MM)= 64.30 64.31 TOTAL ANDREAD (MM)= 64.30 64.31 TOTAL ANDREAD (MM)= 64.30 64.30 TOTAL ANDREAD (MM)= 64.30 | Max.Eff.Inten. ove Storage Coeff. Unit Hyd. Tpea Unit Hyd. peak | (mm/hr)= r (min) (min)= k (min)= (cms)= | 5.00 | (ii) | 15.00 10.90 (ii 15.00 | | | |
| (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: | PEAK FLOW TIME TO PEAK RUNOFF VOLUME TOTAL RAINFALL RUNOFF COEFFIC | (cms)= (hrs)= (mm)= (mm)= IENT = | 6.00 63.30 64.30 | | 6.08 42.31 64.30 | 58 64 | 5.00 3.46 4.30 | |
| (11) THE STEP (DT) SHOULD BE SMALLER OR EQUAL (111) PEAR FLOW DOES NOT INCLUDE BASEFLOW IF ANY. CALIB STANDHYD (200812) Area (ha)= 0.38 Area (ha)= 0.38 Area (ha)= 0.27 Oli | ***** WARNING: STOR | AGE COEFF. | FD FOR DE | DV/TOUC | | ! | | |
| Surface Area (ha) = 0.27 | CN* = (ii) TIME STE THAN THE (iii) PEAK FLO | 89.0 Ia P (DT) SHOU STORAGE CO W DOES NOT | = Dep. St LD BE SMAI EFFICIENT INCLUDE B | torage LLER OR ASEFLOW | (Above) EQUAL IF ANY. | | | |
| Surface Area (ha) = 0.27 | CALIB STANDHYD (200812) ID= 1 DT= 5.0 min | - Area Total I | (ha)= (mp(%)= 70 | 0.38 | | | 70.00 | |
| NOTE: RAINFALL WAS TRANSFORMED TO | Surface Area Dep. Storage Average Slope | (ha)= (mm)= (%)= (m)= | 0.27 1.00 1.00 50.33 | | 0.11 |) | | |
| 1.333 1.61 4.333 3.86 7.333 3.86 10.33 1.29 1.417 1.61 4.417 3.86 7.417 3.86 10.42 1.29 1.500 1.61 4.500 3.86 7.417 3.86 10.58 1.29 1.501 1.61 4.502 3.86 7.417 3.86 10.58 1.29 1.502 1.61 4.503 3.86 7.500 3.86 10.58 1.29 1.667 1.61 4.657 5.14 7.633 3.86 10.58 1.29 1.667 1.61 4.657 5.14 7.633 3.86 10.57 1.29 1.67 1.68 1.68 1.68 1.68 1.69 1.29 1.83 1.61 4.833 5.14 7.633 3.86 10.63 1.29 1.917 1.61 4.917 5.14 7.917 3.86 10.92 1.29 2.083 1.93 5.000 5.14 7.917 3.86 10.92 1.29 2.167 1.93 5.167 7.72 8.083 2.25 11.08 1.29 2.167 1.93 5.167 7.72 8.032 2.25 11.08 1.29 2.133 1.93 5.333 7.77 8.233 2.25 11.23 1.29 2.1417 1.93 5.417 7.72 8.417 2.25 11.42 1.29 2.500 1.93 5.500 7.72 8.930 2.25 11.23 1.29 2.531 1.93 5.533 3.68 8.583 2.25 11.58 1.29 2.532 1.93 5.533 3.68 8.583 2.25 11.58 1.29 2.533 1.93 5.333 7.73 8.930 2.25 11.50 1.29 2.531 1.93 5.733 3.86 8.86 2.25 11.57 1.29 2.531 1.93 5.733 3.86 8.86 2.25 11.57 1.29 2.917 1.93 5.917 84.88 8.917 2.25 11.67 1.29 2.917 1.93 5.917 84.88 8.917 2.25 11.92 1.29 3.000 1.93 6.000 84.87 9.000 2.25 11.92 1.29 Max.Eff.Inten.(mm/hr) = 84.88 66.77 Storage Coeffer (min) = 5.00 5.00 5.00 Unit Hyd. rpeak (cms) = 0.32 0.09 PEAK FLOW (cms) = 0.06 0.01 0.076 (iii) ARD HYD (0110) 1.00 7.016 6.00 59.92 1.01 1.00 7.016 6.00 59.92 1.02 2.000 1.00 0.00 0.00 0.00 0.00 TOTALS* 1.00 0.00 0.00 0.00 0.00 0.00 AREA OPEAK THOW DOBS MOT INCLUDE BASEFLOWS IF ANY. | | | RANSFORME | о то | 5.0 MIN. | | EP. | |
| Unit Hyd. peak (cms) = 0.32 0.09 PEAK FLOW (cms) = 0.06 0.01 0.076 (iii) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STEPACH THAN THAN THAN THAN THAN THAN THAN THA | 0.0 0.1 0.1 0.3 0.4 0.5 0.5 0.5 0.6 0.8 0.8 0.9 1.9 1.0 1.1 1.3 1.3 1.5 1.5 1.5 2.1 2.2 2.3 2.4 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.5 | 333 1.61 1.61 1.61 1.61 1.63 1.64 1.63 1.64 1.63 1.65 1.65 1.65 1.65 1.65 1.65 1.65 1.65 | 4.333 4.4133 4.450 4.580 4.580 4.667 4.750 4.750 5.000 5.083 5.167 5.250 5.533 5.410 5.5687 5.5687 5.750 6.0000 6.0000 6.00 | 3.86 3.86 3.86 3.14 5.14 5.14 5.14 7.72 7.72 7.72 7.72 7.72 7.72 7.72 7.7 | 7.333 7.417 7.500 7.583 7.667 7.750 7.833 7.917 8.000 8.083 8.167 8.250 8.333 8.417 8.500 8.583 8.667 8.750 8.883 8.833 8.750 8.833 8.937 9.000 | 3.86 3.86 3.86 3.86 3.86 3.86 2.25 2.25 2.25 2.25 2.25 2.25 2.25 2.2 | 10.00 10.08 10.17 10.25 10.33 10.42 10.50 10.50 10.50 10.67 10.75 10.83 10.92 11.08 11.08 11.08 11.08 11.08 11.08 11.08 | mm/hr 2.25 2.25 2.25 2.25 2.25 2.25 2.25 2.2 |
| (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. ADD HYD (0110) 1 + 2 = 3 | | | 0.32 | | 0.09 | | TALS* .076 (iii) | |
| IDI = 1 (200811): | | 89.0 Ia P (DT) SHOU STORAGE CO W DOES NOT | = Dep. Si LD BE SMAI EFFFICIENT INCLUDE BA | | | | | |
| ID = 3 (0110): 0.45 0.091 6.00 57.45 NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY. CALIB STANDHYD (200822) Area (ha) = 0.39 CALIB CAL | 1 + 2 = 3 ID1= 1 (200 + ID2= 2 (200 | A - (811): 0 812): 0 | REA QPI ha) (cr .07 0.03 | EAK ms) 16 76 | TPEAK (hrs) 6.00 5 6.00 5 | R.V. (mm) 9.92 6.99 | | |
| CALIB CAURA CAUR | ID = 3 (0 | 110): 0 | .45 0.09 | 91 | 6.00 5 | | | |
| SIANUMYU (ZUUSZZ) | | | | | O II ANT. | | | |
| Surface Area (ha)= 0.23 0.16 | STANDHYD (200822) ID= 1 DT= 5.0 min | Area Total I | (ha)= (mp(%)= 59 IMPERVIOUS | 0.39 9.00 S PE | Dir. Conn RVIOUS (i | . (%)= 5 | 59.00 | |

| (ii) TIME S | = 89.0 STEP (DT) SH THE STORAGE LOW DOES NO | OULD BE COEFFIC | SMALLER O | R EQUAL | | | |
|--|---|------------------------------|----------------------------------|--------------------------------|--------------------------------|-------|---|
| ADD HYD (011 1 + 2 = 3 ID1= 1 (2 + ID2= 2 (2 ID1= 3 (1) | 0) | AREA (ha) 0.07 0.38 | QPEAK (cms) 0.016 0.076 | TPEAK (hrs) 6.00 6.00 | R.V. (mm) 59.92 56.99 | | |
| NOTE: PEAK | 22) Area Total | (ha) Imp(%) | = 0.39 = 59.00 | Dir. Co | nn.(%)= | 59.00 | |
| Surface Area Dep. Storage Average Slop Length Mannings n | (ha)= (mm)= (e) (%)= (m)= = | | | | | EP | |
| | TIME RAI hrs mm/b 0.083 1.6 0.167 1.6 0.250 1.6 0.333 1.6 0.417 1.6 | | TRANSFORM | ED_HYETO | GRAPH | | RAIN mm/hr 2.25 2.25 2.25 2.25 2.25 2.25 |

| Max.Eff.Inten.(mm/hr)= 84.88 66.77 | TIME hrs 0.087 0.167 0.250 0.333 0.417 0.503 0.667 0.653 0.675 0.833 0.917 1.000 1.000 1.1007 1.1503 1.175 1.250 1.333 1.917 2.000 2.003 2.167 2.503 2.417 2.503 2.417 2.503 2.417 2.503 2.417 2.503 2.417 2.503 2.417 2.503 | 1.61 1.61 1.61 1.61 1.61 1.61 1.61 1.61 | 3.167 3.250 3.333 3.417 3.500 3.583 3.657 3.657 4.003 4.003 4.103 4.417 4.250 4.503 4.417 4.500 4.583 4.417 4.500 4.583 4.667 4.750 5.167 | 2.577 2.577 2.577 2.577 2.577 2.577 2.577 2.577 3.886 3.886 3.886 3.144 7.77.72 7.77.72 30.866 30.868 30.888 | 7.167 7.250 7.333 7.417 7.500 7.583 7.7667 7.750 7.833 7.917 8.000 8.167 8.250 8.250 8.333 8.417 8.5083 8.417 8.5083 8.8750 8.833 8.8750 8.833 8.917 | RAIN | 9.08 9.17 9.27 9.39 9.50 9.59 9.59 9.67 9.75 9.83 10.42 10.17 10.25 10.10 10.33 10.45 10.45 10.88 10.67 10.67 10.83 11.42 11.50 11.55 11.55 11.56 11.57 11.57 11.58 | RAIN m/h 2.25 2.22 2.25 2.22 2.25 2.22 2.25 2.25 2.25 2.25 2.25 2.25 2.26 2.27 2.29 2.20 |
|---|--|--|---|--|---|----------------|---|---|
| *TOTALS* PEAK FLOW (cms)= 0.05 0.02 0.072 (iii) | over (r Storage Coeff. (r Unit Hyd. Tpeak (r | nin) nin)= nin)= | 5.00 1.82 5.00 | (ii) | 15.00 10.89 (ii) 15.00 | | | |
| TIME TO PEAK (hrs) = 6.00 6.08 6.00 1.01 RUNDFF VOLUME (mm) = 63.30 42.31 54.68 TOTAL RAINFALL (mm) = 64.30 64.30 64.30 RUNDFF COEFFICIENT = 0.98 0.66 0.85 | TIME TO PEAK () RUNOFF VOLUME TOTAL RAINFALL | nrs)= (mm)= (mm)= | 63.30 64.30 | ; | 42.31 64.30 | 0. 64 64 | 072 (iii) 5.00 1.68 1.30 | |

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $\text{CN}^{\circ} = 89.0$. If a bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB | STANDHYD (200821) |ID= 1 DT= 5.0 min Area (ha)= 0.07 Total Imp(%)= 83.00 Dir. Conn.(%)= 83.00

Surface Area Dep. Storage Average Slope Length Mannings n

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

| | | | | HYETOGR | | | |
|--------------|---------------|----------------|--------------------------------------|------------------|----------------|----------------|--------------------------------------|
| TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN |
| hrs 0.083 | mm/hr 1.61 | hrs | mm/hr 2.57 | ' hrs 6.083 | mm/hr 11.57 | hrs | mm/hr 2.25 |
| 0.083 | 1.61 | 3.083 | 2.57 | 6.167 | 11.57 | 9.08 | 2.25 |
| 0.167 | 1.61 | 3.250 | 2.57 | 6.250 | 11.57 | 9.17 | 2.25 |
| 0.230 | 1.61 | 3.333 | 2.37 | 6.333 | 11.57 | 9.23 | 2.23 |
| 0.417 | 1.61 | 3.417 | 5.57 | 6.417 | 11.57 | 9.42 | 5.25 |
| 0.500 | 1.61 | 3.500 | 2.57 2.57 2.57 2.57 2.57 | 6.500 | 11.57 | 9.50 | 2.25 2.25 2.25 2.25 2.25 |
| 0.583 | 1.61 | 3.583 | 2.57 | 6.583 | 5.14 | 9.58 | 2.25 |
| 0.667 | 1.61 | 3.667 | 2.57 | 6.667 | 5.14 | 9.67 | 2.25 |
| 0.750 | 1.61 | 3.750 | 2.57 | 6.750 | 5.14 | 9.75 | 2.25 |
| 0.833 | 1.61 | 3.833 | 2.57 2.57 2.57 | 6.833 | 5.14 | 9.83 | 2.25 |
| 0.917 | 1.61 | 3.917 | 2.57 | 6.917 | 5.14 | 9.92 | 2.25 |
| 1.000 | 1.61 | 4.000 | 2.57 | 7.000 | 5.14 | 10.00 | 2.25 |
| 1.083 | 1.61 | 4.083 | 3.86 | 7.083 | 3.86 | 10.08 | 1.29 |
| 1.250 | 1.61 | 4.167 | 3.86 | 7.167 | 3.86 | 10.17 10.25 | 1.29 |
| 1.333 | 1.61 | 4.230 | 3.86 | 7.230 | 3.86 | 10.23 | 1.29 |
| 1.417 | 1.61 | 4.417 | 3.86 | 7.417 | 3.86 | 10.42 | 1.29 |
| 1.500 | 1.61 | 4.500 | 3.86 | 7.500 | 3.86 | 10.50 | 1.29 |
| 1.583 | 1.61 | 4.583 | 5.14 | 7.583 | 3.86 | 10.58 | 1.29 |
| 1.667 | 1.61 | 4.667 | 5.14 | 7.667 | 3.86 | 10.67 | 1.29 |
| 1.750 | 1.61 | 4.750 | 5.14 | 7.750 | 3.86 | 10.75 | 1.29 |
| 1.833 | 1.61 | 4.833 | 5.14 | 7.833 | 3.86 | 10.83 | 1.29 |
| 1.917 | 1.61 | 4.917 | 5.14 5.14 7.72 | 7.917 | 3.86 3.86 | 10.92 | 1.29 |
| 2.000 | 1.61 | 5.000 | 5.14 | 8.000 | 3.86 | 11.00 | 1.29 |
| 2.083 | 1.93 | 5.083 | 7.72 | 8.083 | 2.25 | 11.08 | 1.29 |
| 2.167 | 1.93 1.93 | 5.167 5.250 | 7.72 7.72 | 8.167 8.250 | 2.25 | 11.17 11.25 | 1.29 |
| 2.230 | 1.93 | 5.333 | 7.72 | 8.333 | 2.23 | 11.23 | 1.29 |
| 2.417 | 1.93 | 5.417 | 7.72 | 8.417 | 2.25 | 11.42 | 1.29 |
| 2.500 | 1.93 | 5.500 | 7.72 | 8.500 | 2.25 | 11.50 | 1.29 |
| 2.583 | 1.93 | 5.583 | 30.86 | 8.583 | 2.25 | 11.58 | 1.29 |
| 2.667 | 1.93 | 5.667 | 30.86 | 8.667 | 2.25 | 11.67 | 1.29 |
| 2.750 | 1.93 | 5.750 | 30.86 | 8.750 | 2.25 | 11.75 | 1.29 |
| 2.833 | 1.93 | 5.833 | 84.88 | 8.833 | 2.25 | 11.83 | 1.29 |
| 2.917 | 1.93 | 5.917 | 84.88 | 8.917 | 2.25 | 11.92 | 1.29 |
| 3.000 | 1.93 | 6.000 | 84.87 | 9.000 | 2.25 | 12.00 | 1.29 |

Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= 66.77 10.00 5.46 (ii) 10.00 0.16 *TOTALS* 0.016 (iii) 0.01 6.00 63.30 64.30 0.98 PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT = 0.00 6.00 42.31 64.30 0.66

* WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^{\circ}=89.0$ Ia = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

 $\begin{array}{cccc} \text{CN$^{+}$} &=& 89.0 & \text{Ia} = \text{Dep. Storage} & \text{(Above)} \\ \text{(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL} \\ \text{THAN THE STORAGE COEFFICIENT.} \\ \text{(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.} \\ \end{array}$

-----| CALIB | STANDHYD (20101) |ID= 1 DT= 5.0 min | Area (ha)= 0.25 Total Imp(%)= 82.00 Dir. Conn.(%)= 82.00 PERVIOUS (i) Surface Area Dep. Storage

IMPERVIOUS 0.20 1.00 1.00 40.82 0.013 Dep. Storage Average Slope Length Mannings n

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

| | | | | HYETOGR | | - | |
|----------------|--------------|-------|----------------------|----------------|----------------|----------------|-------|
| TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN |
| hrs | mm/hr | hrs | mm/hr | ' hrs | mm/hr | hrs | mm/hr |
| 0.083 | 1.61 | 3.083 | 2.57 | 6.083 | 11.57 | 9.08 9.17 | 2.25 |
| 0.167 0.250 | 1.61 | 3.167 | 2.57 | 6.167 6.250 | 11.57 | 9.17 | 2.25 |
| 0.230 | 1.61 | 3.333 | 2.37 | 6.333 | 11.57 | 9.23 | 2.25 |
| 0.333 | 1.61 | 3.417 | 2.57 2.57 2.57 | 6.417 | 11.57 | 9.33 | 2.25 |
| 0.500 | 1.61 | 3.500 | 2 57 | 6.500 | 11.57 | 9.50 | 2.25 |
| 0.583 | 1.61 | 3.583 | 2.57 | 6.583 | 5.14 | 9.58 | 2.25 |
| 0.667 | 1.61 | 3.667 | 2.57 2.57 2.57 | 6.667 | 5.14 | 9.67 | 2.25 |
| 0.750 | 1.61 | 3.750 | 2.57 | 6.750 | 5.14 | 9.75 | 2.25 |
| 0.833 | 1.61 | 3.833 | 2.57 | 6.833 | 5.14 | 9.83 | 2.25 |
| 0.917 | 1.61 | 3.917 | 2.57 | 6.917 | 5.14 | 9.92 | 2.25 |
| 1.000 | 1.61 | 4.000 | 3.86 | 7.000 | 5.14 3.86 | 10.00 | 2.25 |
| 1.003 | 1.61 | 4.063 | 3.86 | 7.167 | 3.86 | 10.08 | 1.29 |
| 1.167 1.250 | 1.61 | 4.250 | 3.86 | 7.250 | 3.86 | 10.25 | 1.29 |
| 1.333 | 1.61 | 4.333 | 3.86 | 7.333 | 3.86 | 10.33 | 1.29 |
| 1.417 | 1.61 | 4.417 | 3.86 | 7.417 | 3.86 | 10.42 | 1.29 |
| 1.500 1.583 | 1.61 | 4.500 | 3.86 5.14 5.14 | 7.500 | 3.86 | 10.50 | 1.29 |
| 1.583 | 1.61 | 4.583 | 5.14 | 7.583 | 3.86 | 10.58 | 1.29 |
| 1.667 | 1.61 | 4.667 | 5.14 | 7.667 | 3.86 | 10.67 | 1.29 |
| 1.750 1.833 | 1.61 1.61 | 4.750 | 5.14 | 7.750 | 3.86 | 10.75 10.83 | 1.29 |
| 1.917 | 1.61 | 4.833 | 5.14 | 7.917 | 3.86 | 10.83 | 1.29 |
| 2.000 | 1.61 | 5.000 | 5 14 | 8.000 | 3.86 | 11.00 | 1.29 |
| 2.083 | 1.93 | 5.083 | 5.14 5.14 7.72 | 8.083 | 2.25 | 11.08 | 1.29 |
| 2.167 | 1.93 | 5.167 | 7.72 | 8.167 | 2.25 | 11.17 | 1.29 |
| 2.167 2.250 | 1.93 | 5.250 | 7.72 | 8.250 | 2.25 | 11.25 | 1.29 |
| 2.333 | 1.93 | 5.333 | 7.72 | 8.333 | 2.25 | 11.33 | 1.29 |
| 2.417 | 1.93 | 5.417 | 7.72 | 8.417 | 2.25 | 11.42 | 1.29 |
| 2.500 2.583 | 1.93 1.93 | 5.500 | 7.72 30.86 | 8.500 8.583 | 2.25 | 11.50 11.58 | 1.29 |
| 2.583 | 1.93 | 5.667 | 30.86 | 8.667 | 2.25 | 11.58 | 1.29 |
| 2.750 | 1 93 | 5.750 | 30.86 | 8.750 | 2 25 | 11.75 | 1.29 |
| 2.833 | 1.93 | 5.833 | 84.88 | 8.833 | 2.25 | 11.83 | 1.29 |
| 2.917 | 1.93 | 5.917 | 84.88 | 8.917 | 2.25 | 11.92 | 1.29 |
| 3.000 | 1.93 | 6.000 | 84.87 | 9.000 | 2.25 | 12.00 | 1.29 |
| | | | | | | | |

Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= 84.88 5.00 1.59 (ii) 5.00 0.33 66.77 10.00 6.09 (ii) 10.00 0.15 *TOTALS* 0.056 (iii) PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT = 0.05 6.00 63.30 64.30 0.98 0.01 6.00 42.31 64.30 0.66

* WARNING: STORAGE COEFF, IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^{\circ}=89.0$ Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0111) ID1= 1 (200821): + ID2= 2 (200822): ID = 3 (0111): 6.00

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| CALIB | | STANDHYD (20102) | |ID= 1 DT= 5.0 min | Area (ha)= 0.47 Total Imp(%)= 74.00 Dir. Conn.(%)= 74.00 IMPERVIOUS 0.35 1.00 1.00 55.98 0.013 PERVIOUS (i) Surface Area Dep. Storage Average Slope Length Mannings n 0.12 1.00 2.00 40.00 0.290

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

| TIME RAIN TIME R | | | | |
|--|--------------------------|--------------|------------|-------------------|
| 1.61 1.61 3.63 2.57 6.083 1.57 9.08 2.25 | | | | |
| 0.083 1.61 3.083 2.57 6.083 11.57 9.08 2.25 0.167 1.61 3.167 2.57 6.167 11.57 9.17 2.25 0.250 1.61 3.250 2.57 6.167 11.57 9.17 2.25 0.333 1.61 3.250 2.57 6.250 11.57 9.17 2.25 0.333 1.61 3.350 2.57 6.400 11.57 9.35 2.25 0.407 1.61 3.500 2.57 6.400 11.57 9.35 2.25 0.667 1.61 3.500 2.57 6.400 11.57 9.50 2.25 0.667 1.61 3.500 2.57 6.400 11.57 9.50 2.25 0.667 1.61 3.667 2.57 6.400 11.57 9.50 2.25 0.683 1.61 3.833 2.57 6.583 5.14 9.58 2.25 0.833 1.61 3.833 2.57 6.667 5.14 9.67 2.25 0.833 1.61 3.833 2.57 6.687 5.14 9.67 2.25 0.833 1.61 3.833 2.57 6.830 5.14 9.88 2.25 0.917 1.61 4.000 3.57 6.750 5.14 9.75 2.25 0.833 1.61 3.833 2.57 6.830 5.14 9.88 2.25 0.917 1.61 4.000 3.57 7.00 8.38 5.14 9.88 2.25 0.917 1.61 4.000 3.86 7.700 5.86 10.00 2.25 0.100 1.61 4.750 3.86 7.250 3.86 10.00 2.25 0.100 1.61 4.250 3.86 7.250 3.86 10.25 1.29 0.1250 1.61 4.417 3.86 7.417 3.86 10.25 1.29 1.250 1.61 4.417 3.86 7.417 3.86 10.42 1.29 1.500 1.61 4.833 3.86 7.750 3.86 10.59 1.29 1.417 1.61 4.417 3.86 7.47 3.86 10.42 1.29 1.501 1.61 4.833 5.14 7.780 3.86 10.59 1.29 1.433 1.61 4.833 5.14 7.780 3.86 10.59 1.29 1.833 1.61 4.833 5.14 7.780 3.86 10.08 1.29 1.503 1.61 4.833 5.14 7.780 3.86 10.08 1.29 1.503 1.61 4.833 5.14 7.780 3.86 10.09 1.29 1.833 1.61 4.833 5.14 7.780 3.86 10.09 1.29 1.833 1.61 4.833 5.14 7.780 3.86 10.09 1.29 1.833 1.61 4.833 5.14 7.780 3.86 10.09 1.29 1.833 1.61 4.833 5.14 7.780 3.86 10.09 1.29 2.000 1.61 5.000 5.14 8.000 3.86 10.09 1.29 2.000 1.61 5.000 5.14 8.000 3.86 10.00 1.29 2.081 1.93 5.160 7.72 8.163 3.25 11.10 1.29 2.2581 1.93 5.540 7.72 8.417 2.25 11.61 1.20 1.29 2.583 1.93 5.583 7.72 8.400 3.35 11.00 1.29 2.583 1.93 5.583 7.72 8.400 3.35 11.32 1.29 2.583 1.93 5.583 7.72 8.400 3.35 1.25 11.58 1.29 2.583 1.93 5.583 8.84 8.88 8.833 2.25 11.18 1.29 2.583 1.93 5.583 8.84 8.88 8.833 2.25 11.18 1.29 2.583 1.93 5.583 8.84 8.88 8.833 2.25 11.18 1.29 2.583 1.93 5.583 8.84 8.88 8.833 2.25 11.18 1.29 2.583 1.93 5.583 8.84 8.88 8.833 2.25 11.18 1.29 2.584 3.93 6.000 84.87 9.000 2.25 11.50 1.29 | | | I ITME V | |
| 0.1667 1.611 3.1670 2.577 6.167 11.577 9.257 2.255 0.333 1.61 3.333 2.577 6.350 3.11.577 9.255 2.255 0.333 1.61 3.333 2.577 6.333 11.577 9.255 2.255 0.333 1.61 3.333 2.577 6.340 3.11.577 9.255 2.255 0.333 1.61 3.333 2.577 6.340 3.11.577 9.250 2.255 0.583 1.61 3.580 2.577 6.580 1.579 9.50 2.255 0.580 1.61 3.580 2.577 6.580 1.579 9.58 2.255 0.580 1.61 3.580 2.577 6.580 1.579 9.58 2.255 0.750 1.61 3.570 2.577 6.750 5.14 9.67 2.255 0.750 1.61 3.750 2.577 6.750 5.14 9.67 2.255 0.750 1.61 3.750 2.577 6.750 5.14 9.67 2.255 0.750 1.61 3.750 2.577 6.750 5.14 9.67 2.255 0.750 1.61 3.750 2.577 6.750 5.14 9.67 2.255 0.750 1.61 3.750 2.577 6.750 5.14 9.67 2.255 0.750 1.61 3.750 2.577 6.750 5.14 9.67 2.255 0.750 1.61 3.750 2.577 6.750 5.14 9.67 2.255 0.750 1.61 3.750 2.577 6.750 5.14 9.67 2.255 0.750 1.61 3.750 2.577 6.750 5.14 9.67 2.255 0.750 1.61 3.750 2.577 6.750 5.14 9.67 2.255 0.750 1.61 3.750 2.577 6.750 5.14 9.67 2.255 0.750 1.61 4.250 3.86 7.167 3.86 10.00 0.750 1.250 1.161 4.250 3.86 7.167 3.86 10.03 1.250 1.250 1.61 4.250 3.86 7.167 3.86 10.03 1.250 1.250 1.250 1.61 4.250 3.86 7.750 3.86 10.05 1.250 1.250 1.250 1.250 1.61 4.250 3.86 7.750 3.86 10.05 1.250 | | | | /hr hrs mm/hr |
| 0.333 1.61 3.333 2.57 6.333 11.57 9.33 2.25 0.417 1.61 3.410 2.57 6.410 11.77 9.42 2.25 0.580 1.61 3.583 2.57 6.583 1.77 9.42 2.25 0.6667 1.61 3.667 2.57 6.583 1.14 9.67 2.25 0.750 1.61 3.750 2.57 6.750 5.14 9.75 2.25 0.750 1.61 3.750 2.57 6.750 5.14 9.67 2.25 0.750 1.61 3.750 2.57 6.750 5.14 9.67 2.25 0.750 1.61 3.750 2.57 6.750 5.14 9.67 2.25 0.917 1.61 3.750 2.57 6.750 5.14 9.87 2.25 0.917 1.61 3.917 2.57 6.910 5.14 9.82 2.25 1.083 1.61 4.083 3.56 7.7083 3.86 10.02 1.29 1.1667 1.61 4.167 3.86 7.167 3.86 10.02 1.29 1.167 1.61 4.167 3.86 7.167 3.86 10.02 1.29 1.168 1.61 4.167 3.86 7.150 3.86 10.02 1.29 1.169 1.161 4.167 3.86 7.167 3.86 10.03 1.29 1.161 1.61 4.167 3.86 7.167 3.86 10.03 1.29 1.161 1.61 4.163 3.86 7.167 3.86 10.03 1.29 1.161 1.61 4.833 3.86 7.750 3.86 10.25 1.29 1.1833 1.61 4.583 5.14 7.583 3.86 10.25 1.29 1.1833 1.61 4.833 5.14 7.760 3.86 10.25 1.29 1.1833 1.61 4.833 5.14 7.760 3.86 10.25 1.29 1.750 1.61 4.270 5.14 7.780 3.86 10.25 1.29 1.750 1.61 4.583 5.14 7.783 3.86 10.25 1.29 1.750 1.61 4.583 5.14 7.783 3.86 10.25 1.29 1.750 1.61 4.750 5.14 7.783 3.86 10.25 1.29 1.750 1.61 4.750 5.14 7.783 3.86 10.25 1.29 1.750 1.61 4.750 5.14 7.783 3.86 10.25 1.29 1.750 1.61 4.93 5.77 2.8 8.08 2.25 11.08 1.29 1.93 5.167 7.72 8.868 2.25 11.03 1.29 2.167 1.93 5.167 7.72 8.868 3.25 11.03 1.29 2.167 1.93 5.167 7.72 8.868 3.25 11.03 1.29 2.250 1.93 5.250 7.72 8.868 2.25 11.15 3.129 2.251 1.93 5.83 3.84 8.8 8.83 2.25 11.15 3.129 2.252 1.93 5.533 7.772 8.833 2.25 11.15 3.129 2.253 1.93 5.533 7.772 8.833 2.25 11.15 3.129 2.253 1.93 5.533 8.83 8.83 2.25 11.15 3.129 2.254 1.93 5.553 30.86 8.868 2.25 11.15 3.129 2.255 1.93 5.553 30.86 8.868 2.25 11.15 3.129 2.256 1.93 5.568 30.86 8.868 2.25 11.15 3.129 2.258 3.193 5.533 8.84 8.88 8.833 2.25 11.15 3.129 2.259 1.93 5.533 8.84 8.88 8.833 2.25 11.15 3.129 2.250 1.93 5.533 8.84 8.88 8.833 2.25 11.15 3.129 2.258 3.193 5.533 8.84 8.88 8.833 2.25 11.15 3.129 2.259 1.293 5.250 7.72 8.868 8.833 2.25 11.15 3.129 2.259 3.331 9.33 5.533 84.88 8.88 8.833 2.25 11.15 3.129 2.250 3.33 | | 3.083 2.57 | | 57 9.08 2.25 |
| 0.333 1.61 3.333 2.57 6.333 11.57 9.33 2.25 0.417 1.61 3.410 2.57 6.410 11.77 9.42 2.25 0.580 1.61 3.583 2.57 6.583 1.77 9.42 2.25 0.6667 1.61 3.667 2.57 6.583 1.14 9.67 2.25 0.750 1.61 3.750 2.57 6.750 5.14 9.75 2.25 0.750 1.61 3.750 2.57 6.750 5.14 9.67 2.25 0.750 1.61 3.750 2.57 6.750 5.14 9.67 2.25 0.750 1.61 3.750 2.57 6.750 5.14 9.67 2.25 0.917 1.61 3.750 2.57 6.750 5.14 9.87 2.25 0.917 1.61 3.917 2.57 6.910 5.14 9.82 2.25 1.083 1.61 4.083 3.56 7.7083 3.86 10.02 1.29 1.1667 1.61 4.167 3.86 7.167 3.86 10.02 1.29 1.167 1.61 4.167 3.86 7.167 3.86 10.02 1.29 1.168 1.61 4.167 3.86 7.150 3.86 10.02 1.29 1.169 1.161 4.167 3.86 7.167 3.86 10.03 1.29 1.161 1.61 4.167 3.86 7.167 3.86 10.03 1.29 1.161 1.61 4.163 3.86 7.167 3.86 10.03 1.29 1.161 1.61 4.833 3.86 7.750 3.86 10.25 1.29 1.1833 1.61 4.583 5.14 7.583 3.86 10.25 1.29 1.1833 1.61 4.833 5.14 7.760 3.86 10.25 1.29 1.1833 1.61 4.833 5.14 7.760 3.86 10.25 1.29 1.750 1.61 4.270 5.14 7.780 3.86 10.25 1.29 1.750 1.61 4.583 5.14 7.783 3.86 10.25 1.29 1.750 1.61 4.583 5.14 7.783 3.86 10.25 1.29 1.750 1.61 4.750 5.14 7.783 3.86 10.25 1.29 1.750 1.61 4.750 5.14 7.783 3.86 10.25 1.29 1.750 1.61 4.750 5.14 7.783 3.86 10.25 1.29 1.750 1.61 4.93 5.77 2.8 8.08 2.25 11.08 1.29 1.93 5.167 7.72 8.868 2.25 11.03 1.29 2.167 1.93 5.167 7.72 8.868 3.25 11.03 1.29 2.167 1.93 5.167 7.72 8.868 3.25 11.03 1.29 2.250 1.93 5.250 7.72 8.868 2.25 11.15 3.129 2.251 1.93 5.83 3.84 8.8 8.83 2.25 11.15 3.129 2.252 1.93 5.533 7.772 8.833 2.25 11.15 3.129 2.253 1.93 5.533 7.772 8.833 2.25 11.15 3.129 2.253 1.93 5.533 8.83 8.83 2.25 11.15 3.129 2.254 1.93 5.553 30.86 8.868 2.25 11.15 3.129 2.255 1.93 5.553 30.86 8.868 2.25 11.15 3.129 2.256 1.93 5.568 30.86 8.868 2.25 11.15 3.129 2.258 3.193 5.533 8.84 8.88 8.833 2.25 11.15 3.129 2.259 1.93 5.533 8.84 8.88 8.833 2.25 11.15 3.129 2.250 1.93 5.533 8.84 8.88 8.833 2.25 11.15 3.129 2.258 3.193 5.533 8.84 8.88 8.833 2.25 11.15 3.129 2.259 1.293 5.250 7.72 8.868 8.833 2.25 11.15 3.129 2.259 3.331 9.33 5.533 84.88 8.88 8.833 2.25 11.15 3.129 2.250 3.33 | 0.167 1.61 | 3.167 2.57 | 6.167 11. | 57 9.17 2.25 |
| 0.417 1.61 3.417 2.57 6.417 11.57 9.42 2.25 0.583 1.61 3.583 2.57 6.500 11.57 9.50 2.25 0.583 1.61 3.583 2.57 6.500 11.57 9.50 2.25 0.583 1.61 3.583 2.57 6.500 11.57 9.50 2.25 0.583 1.61 3.583 2.57 6.500 11.57 9.50 2.25 0.583 1.61 3.583 2.57 6.500 3.51 4.9 9.50 2.25 0.583 1.61 3.500 2.57 6.500 3.51 4.9 9.50 2.25 0.51 0.500 1.61 3.833 2.57 6.833 3.14 9.83 2.25 1.000 1.61 4.000 2.57 7.000 5.14 10.00 2.25 1.000 1.61 4.000 3.86 7.083 3.66 10.08 1.29 1.161 1.20 1.61 4.160 3.86 7.167 3.86 10.08 1.29 1.161 1.20 1.61 4.160 3.86 7.167 3.86 10.08 1.29 1.161 1.20 1.61 4.160 3.86 7.167 3.86 10.08 1.29 1.20 1.20 1.61 4.160 3.86 7.167 3.86 10.03 1.29 1.20 1.20 1.61 4.417 3.86 10.38 10.35 1.29 1.20 1.20 1.61 4.417 3.86 10.38 10.35 1.29 1.20 1.61 4.500 3.86 7.417 3.86 10.57 1.20 1.583 1.61 4.583 5.14 7.503 3.86 10.58 1.29 1.583 1.61 4.583 5.14 7.503 3.86 10.58 1.29 1.583 1.61 4.583 5.14 7.503 3.86 10.58 1.29 1.583 1.61 4.533 7.17 7.503 3.86 10.58 1.29 1.583 1.61 4.533 7.17 7.503 3.86 10.58 1.29 1.583 1.61 4.583 7.17 7.503 3.86 10.58 1.29 1.20 1.20 1.20 1.20 1.20 1.20 1.20 1.20 | | 3.250 2.57 | | 57 9.25 2.25 |
| 0.583 1.61 3.583 2.57 6.583 5.14 9.58 2.25 0.667 1.61 3.660 2.57 6.667 5.14 9.67 2.25 0.730 1.61 3.633 2.57 6.667 5.14 9.67 2.25 0.730 1.61 3.833 2.57 6.833 5.14 9.63 2.25 0.917 1.61 3.817 2.57 6.833 5.14 9.83 2.25 1.000 1.61 4.000 2.57 7.7000 5.14 10.00 2.25 1.0081 1.61 4.003 3.86 7.083 3.86 10.08 1.29 1.166 1.61 4.167 3.86 7.167 3.86 10.01 1.29 1.1250 1.61 4.167 3.86 7.167 3.86 10.17 1.29 1.250 1.61 4.417 3.86 7.167 3.86 10.17 1.29 1.331 1.61 4.417 3.86 7.431 3.86 10.32 1.29 1.583 1.61 4.417 3.86 7.431 3.86 10.42 1.29 1.583 1.61 4.583 5.14 7.583 3.86 10.58 1.29 1.583 1.61 4.583 5.14 7.583 3.86 10.58 1.29 1.583 1.61 4.593 5.14 7.583 3.86 10.75 1.29 1.583 1.61 4.593 5.14 7.583 3.86 10.59 1.29 1.583 1.61 4.593 5.14 7.767 3.86 10.75 1.29 1.667 1.61 4.667 5.14 7.767 3.86 10.75 1.29 1.667 1.61 4.500 5.14 8.00 3.86 10.00 3.86 10.05 1.29 1.200 1.61 5.000 5.14 8.00 3.86 10.05 1.29 1.200 1.61 5.000 5.14 8.00 3.86 10.05 1.29 2.083 1.93 5.83 7.72 8.167 2.25 11.00 1.29 2.167 1.93 5.167 7.72 8.167 2.25 11.17 1.29 2.253 1.93 5.250 7.72 8.167 2.25 11.10 1.29 2.253 1.93 5.250 7.72 8.167 2.25 11.10 1.29 2.583 1.93 5.83 30.86 8.853 2.25 11.10 1.29 2.583 1.93 5.83 30.86 8.86 8.83 2.25 11.15 1.29 2.583 1.93 5.833 84.88 8.833 2.25 11.59 1.29 2.583 1.93 5.833 84.88 8.833 2.25 11.59 1.29 2.583 1.93 5.833 84.88 8.833 2.25 11.59 1.29 2.2667 1.93 5.570 30.86 8.863 2.25 11.15 1.29 2.283 1.93 5.833 84.88 8.833 2.25 11.15 1.29 2.283 1.93 5.833 84.88 8.833 2.25 11.15 1.29 2.255 1.93 5.570 30.86 8.860 2.25 11.10 2.25 2.25 2.25 2.25 2.25 2.25 2.25 2.2 | | 3.333 2.57 | | 57 9.33 2.25 |
| 0.583 1.61 3.583 2.57 6.583 5.14 9.58 2.25 0.667 1.61 3.660 2.57 6.667 5.14 9.67 2.25 0.730 1.61 3.633 2.57 6.667 5.14 9.67 2.25 0.730 1.61 3.833 2.57 6.833 5.14 9.63 2.25 0.917 1.61 3.817 2.57 6.833 5.14 9.83 2.25 1.000 1.61 4.000 2.57 7.7000 5.14 10.00 2.25 1.0081 1.61 4.003 3.86 7.083 3.86 10.08 1.29 1.166 1.61 4.167 3.86 7.167 3.86 10.01 1.29 1.1250 1.61 4.167 3.86 7.167 3.86 10.17 1.29 1.250 1.61 4.417 3.86 7.167 3.86 10.17 1.29 1.331 1.61 4.417 3.86 7.431 3.86 10.32 1.29 1.583 1.61 4.417 3.86 7.431 3.86 10.42 1.29 1.583 1.61 4.583 5.14 7.583 3.86 10.58 1.29 1.583 1.61 4.583 5.14 7.583 3.86 10.58 1.29 1.583 1.61 4.593 5.14 7.583 3.86 10.75 1.29 1.583 1.61 4.593 5.14 7.583 3.86 10.59 1.29 1.583 1.61 4.593 5.14 7.767 3.86 10.75 1.29 1.667 1.61 4.667 5.14 7.767 3.86 10.75 1.29 1.667 1.61 4.500 5.14 8.00 3.86 10.00 3.86 10.05 1.29 1.200 1.61 5.000 5.14 8.00 3.86 10.05 1.29 1.200 1.61 5.000 5.14 8.00 3.86 10.05 1.29 2.083 1.93 5.83 7.72 8.167 2.25 11.00 1.29 2.167 1.93 5.167 7.72 8.167 2.25 11.17 1.29 2.253 1.93 5.250 7.72 8.167 2.25 11.10 1.29 2.253 1.93 5.250 7.72 8.167 2.25 11.10 1.29 2.583 1.93 5.83 30.86 8.853 2.25 11.10 1.29 2.583 1.93 5.83 30.86 8.86 8.83 2.25 11.15 1.29 2.583 1.93 5.833 84.88 8.833 2.25 11.59 1.29 2.583 1.93 5.833 84.88 8.833 2.25 11.59 1.29 2.583 1.93 5.833 84.88 8.833 2.25 11.59 1.29 2.2667 1.93 5.570 30.86 8.863 2.25 11.15 1.29 2.283 1.93 5.833 84.88 8.833 2.25 11.15 1.29 2.283 1.93 5.833 84.88 8.833 2.25 11.15 1.29 2.255 1.93 5.570 30.86 8.860 2.25 11.10 2.25 2.25 2.25 2.25 2.25 2.25 2.25 2.2 | 0.41/ 1.61 | 3.41/ 2.5/ | 6.41/ 11. | 57 9.42 2.25 |
| 0.750 1.61 3.750 2.57 6.750 5.14 9.87 2.25 0.833 1.61 3.750 2.57 6.833 2.57 4.4 9.83 2.25 0.907 1.61 3.837 2.57 6.833 2.57 6.832 2.25 1.083 1.61 4.000 2.57 6.833 2.65 1.4 9.83 2.25 1.083 1.61 4.000 2.57 6.832 2.5 1.4 9.83 2.25 1.167 1.61 4.000 2.57 6.832 2.5 1.4 9.83 2.25 1.167 1.61 4.167 3.86 7.167 3.86 10.00 1.29 1.250 1.61 4.250 3.86 7.167 3.86 10.17 1.29 1.250 1.61 4.250 3.86 7.150 3.86 10.25 1.29 1.333 1.61 4.337 3.86 7.725 3.86 10.33 1.29 1.407 1.61 4.50 3.86 7.750 3.86 10.58 10.29 1.583 1.61 4.833 5.14 7.583 3.86 10.58 10.29 1.583 1.61 4.583 5.14 7.583 3.86 10.58 1.29 1.583 1.61 4.583 5.14 7.7667 3.86 10.58 1.29 1.750 1.61 4.50 5.14 7.750 3.86 10.57 1.29 1.750 1.61 4.750 5.14 7.783 3.86 10.58 1.29 1.833 1.61 4.833 5.14 7.783 3.86 10.58 1.29 1.2083 1.93 5.83 5.14 7.783 3.85 10.59 1.29 1.2083 1.93 5.83 5.14 7.783 3.85 10.59 1.29 2.167 1.93 5.167 7.72 8.167 2.25 11.00 1.29 2.167 1.93 5.167 7.72 8.167 2.25 11.00 1.29 2.250 1.93 5.250 7.72 8.167 2.25 11.17 1.29 2.233 1.93 5.337 7.72 8.167 2.25 11.13 1.29 2.2407 1.93 5.530 7.72 8.833 2.25 11.03 1.29 2.250 1.93 5.83 30.86 8.858 2.25 11.00 1.29 2.253 1.93 5.83 30.86 8.858 2.25 11.00 1.29 2.253 1.93 5.83 30.86 8.860 2.25 11.58 1.29 2.253 1.93 5.83 38 84.88 8.88 2.25 11.17 1.29 2.253 1.93 5.83 38 84.88 8.88 2.25 11.18 31.29 2.253 1.93 5.83 38 84.88 8.883 2.25 11.18 31.29 2.254 1.93 5.550 7.72 8.800 2.25 11.15 1.29 2.253 1.93 5.533 84.88 8.833 2.25 11.15 1.29 2.253 1.93 5.533 84.88 8.833 2.25 11.15 1.29 2.253 1.93 5.513 84.88 8.833 2.25 11.15 1.29 2.253 1.93 5.513 84.88 8.833 2.25 11.15 1.29 2.253 1.93 5.513 84.88 8.833 2.25 11.15 1.29 2.253 1.93 5.513 84.88 8.833 2.25 11.15 1.29 2.253 1.93 5.513 84.88 8.833 2.25 11.15 1.29 | 0.500 1.61 | 3.500 2.57 | | 5/ 9.50 2.25 |
| 0.750 1.61 3.750 2.57 6.750 5.14 9.87 2.25 0.833 1.61 3.750 2.57 6.833 2.57 4.4 9.83 2.25 0.907 1.61 3.837 2.57 6.833 2.57 6.832 2.25 1.083 1.61 4.000 2.57 6.833 2.65 1.4 9.83 2.25 1.083 1.61 4.000 2.57 6.832 2.5 1.4 9.83 2.25 1.167 1.61 4.000 2.57 6.832 2.5 1.4 9.83 2.25 1.167 1.61 4.167 3.86 7.167 3.86 10.00 1.29 1.250 1.61 4.250 3.86 7.167 3.86 10.17 1.29 1.250 1.61 4.250 3.86 7.150 3.86 10.25 1.29 1.333 1.61 4.337 3.86 7.725 3.86 10.33 1.29 1.407 1.61 4.50 3.86 7.750 3.86 10.58 10.29 1.583 1.61 4.833 5.14 7.583 3.86 10.58 10.29 1.583 1.61 4.583 5.14 7.583 3.86 10.58 1.29 1.583 1.61 4.583 5.14 7.7667 3.86 10.58 1.29 1.750 1.61 4.50 5.14 7.750 3.86 10.57 1.29 1.750 1.61 4.750 5.14 7.783 3.86 10.58 1.29 1.833 1.61 4.833 5.14 7.783 3.86 10.58 1.29 1.2083 1.93 5.83 5.14 7.783 3.85 10.59 1.29 1.2083 1.93 5.83 5.14 7.783 3.85 10.59 1.29 2.167 1.93 5.167 7.72 8.167 2.25 11.00 1.29 2.167 1.93 5.167 7.72 8.167 2.25 11.00 1.29 2.250 1.93 5.250 7.72 8.167 2.25 11.17 1.29 2.233 1.93 5.337 7.72 8.167 2.25 11.13 1.29 2.2407 1.93 5.530 7.72 8.833 2.25 11.03 1.29 2.250 1.93 5.83 30.86 8.858 2.25 11.00 1.29 2.253 1.93 5.83 30.86 8.858 2.25 11.00 1.29 2.253 1.93 5.83 30.86 8.860 2.25 11.58 1.29 2.253 1.93 5.83 38 84.88 8.88 2.25 11.17 1.29 2.253 1.93 5.83 38 84.88 8.88 2.25 11.18 31.29 2.253 1.93 5.83 38 84.88 8.883 2.25 11.18 31.29 2.254 1.93 5.550 7.72 8.800 2.25 11.15 1.29 2.253 1.93 5.533 84.88 8.833 2.25 11.15 1.29 2.253 1.93 5.533 84.88 8.833 2.25 11.15 1.29 2.253 1.93 5.513 84.88 8.833 2.25 11.15 1.29 2.253 1.93 5.513 84.88 8.833 2.25 11.15 1.29 2.253 1.93 5.513 84.88 8.833 2.25 11.15 1.29 2.253 1.93 5.513 84.88 8.833 2.25 11.15 1.29 2.253 1.93 5.513 84.88 8.833 2.25 11.15 1.29 | | 3.303 2.37 | 6.363 3. | 14 9.30 2.23 |
| 0.917 1.611 3.917 2.57 6.917 5.14 9.92 2.25 1.083 1.631 4.083 3.86 7.7000 5.14 10.00 2.25 1.083 1.61 4.083 3.86 7.7000 5.14 10.00 2.25 1.167 1.61 4.083 3.86 7.760 3.86 10.17 1.29 1.201 1.61 4.150 3.86 7.150 3.86 10.17 1.29 1.201 1.61 4.313 3.86 7.313 3.86 10.33 1.29 1.201 1.61 4.314 3.86 7.313 3.86 10.33 1.29 1.583 1.61 4.583 5.14 7.583 3.86 10.50 1.29 1.583 1.61 4.583 5.14 7.583 3.86 10.50 1.29 1.667 1.61 4.67 5.14 7.667 3.86 10.67 1.29 1.667 1.61 4.67 5.14 7.67 3.86 10.67 1.29 1.833 1.61 4.833 5.14 7.83 3.86 10.18 1.29 1.833 1.61 4.833 5.14 7.83 3.86 10.10 1.29 1.833 1.61 4.833 5.14 7.83 3.86 10.10 1.29 1.833 1.61 4.833 5.14 7.83 3.86 10.10 1.29 1.200 1.61 4.750 5.14 7.750 3.86 10.17 1.29 1.201 1. | | 3.007 2.37 | | 14 9.07 2.23 |
| 0.917 1.611 3.917 2.57 6.917 5.14 9.92 2.25 1.083 1.631 4.083 3.86 7.7000 5.14 10.00 2.25 1.083 1.61 4.083 3.86 7.7000 5.14 10.00 2.25 1.167 1.61 4.083 3.86 7.760 3.86 10.17 1.29 1.201 1.61 4.150 3.86 7.150 3.86 10.17 1.29 1.201 1.61 4.313 3.86 7.313 3.86 10.33 1.29 1.201 1.61 4.314 3.86 7.313 3.86 10.33 1.29 1.583 1.61 4.583 5.14 7.583 3.86 10.50 1.29 1.583 1.61 4.583 5.14 7.583 3.86 10.50 1.29 1.667 1.61 4.67 5.14 7.667 3.86 10.67 1.29 1.667 1.61 4.67 5.14 7.67 3.86 10.67 1.29 1.833 1.61 4.833 5.14 7.83 3.86 10.18 1.29 1.833 1.61 4.833 5.14 7.83 3.86 10.10 1.29 1.833 1.61 4.833 5.14 7.83 3.86 10.10 1.29 1.833 1.61 4.833 5.14 7.83 3.86 10.10 1.29 1.200 1.61 4.750 5.14 7.750 3.86 10.17 1.29 1.201 1. | 0.730 1.61 | 3 833 2 57 | 6 833 5 | 14 9 83 2 25 |
| 1.000 1.61 4.000 2.57 7.000 5.14 10.00 2.25 1.083 1.61 4.083 3.86 7.083 3.86 10.083 1.29 1.166 1.61 4.083 3.86 7.1687 3.86 10.08 1.29 1.29 1.20 1.20 1.20 1.20 1.20 1.20 1.20 1.20 | | 3.917 2.57 | 6.917 5. | 14 9.92 2.25 |
| 1.083 1.61 4.083 3.86 7.083 3.86 10.08 1.29 1.250 1.661 4.250 3.86 7.250 3.86 10.17 1.29 1.250 1.61 4.250 3.86 7.250 3.86 10.17 1.29 1.250 1.61 4.250 3.86 7.250 3.86 10.25 1.29 1.250 1.61 4.250 3.86 7.250 3.86 10.33 1.29 1.29 1.20 1.20 1.20 1.20 1.20 1.20 1.20 1.20 | 1.000 1.61 | 1 4 000 2 57 | 17.000 5. | 14 10.00 2.25 |
| 1.250 1.61 4.250 3.86 7.250 3.86 10.25 1.29 1.333 1.61 4.333 3.86 7.250 3.86 10.33 1.29 1.417 1.61 4.417 3.86 7.417 3.86 10.42 1.29 1.500 1.61 4.500 3.86 7.417 3.86 10.50 1.29 1.20 1.20 1.20 1.20 1.20 1.20 1.20 1.20 | | 4.083 3.86 | 7.083 3. | 86 10.08 1.29 |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | 1.167 1.61 | 4.167 3.86 | 7.167 3. | 86 10.17 1.29 |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | 1.250 1.61 | 4.250 3.86 | | 86 10.25 1.29 |
| 1.500 1.61 4.500 3.86 7.500 3.86 10.50 1.29 1.683 1.61 4.583 5.14 7.583 3.86 10.58 1.29 1.666 7.61 1.61 4.583 5.14 7.687 3.86 10.58 1.29 1.667 1.61 4.667 5.14 7.687 3.86 10.67 1.29 1.833 1.661 4.833 5.14 7.833 3.86 10.75 1.29 1.833 1.61 4.833 5.14 7.833 3.86 10.75 1.29 1.833 1.61 4.833 5.14 7.833 3.86 10.83 1.29 1.29 1.29 1.20 1.20 1.20 1.20 1.20 1.20 1.20 1.20 | | 4.333 3.86 | | 86 10.33 1.29 |
| 1.583 1.61 4.583 5.14 7.583 3.86 10.58 1.29 1.667 1.614 4.565 5.14 7.567 3.86 10.67 1.29 1.750 1.61 4.6567 5.14 7.7667 3.86 10.67 1.29 1.750 1.61 4.755 3.14 7.750 3.86 10.675 1.29 1.803 1.803 1.61 4.753 5.14 7.750 3.86 10.75 1.29 1.803 1.80 | 1.417 1.61 | 4.417 3.86 | 7.417 3. | 86 10.42 1.29 |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | 1.500 1.61 | 4.500 3.86 | 7.500 3. | 86 10.50 1.29 |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | 1.303 1.01 | 4.303 3.14 | 7.565 3. | 00 10.30 1.29 |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | | 1 4.007 5.14 | 7.007 3. | 86 10.07 1.29 |
| $\begin{array}{cccccccccccccccccccccccccccccccccccc$ | | 4 833 5 14 | | 86 10.83 1.29 |
| 2.000 1.61 5.000 5.14 8.000 3.86 11.00 1.29 2.083 1.93 5.083 7.72 8.083 2.25 11.08 1.29 2.167 1.93 5.160 7.72 8.167 2.25 11.17 1.29 2.230 1.93 5.333 7.72 8.417 2.25 11.33 1.29 2.417 1.93 5.417 7.72 8.417 2.25 11.42 1.29 2.583 1.93 5.583 30.86 8.593 2.25 11.58 1.29 2.667 1.93 5.673 30.86 8.563 2.25 11.75 1.29 2.750 1.93 5.750 30.86 8.8667 2.25 11.67 1.29 2.750 1.93 5.750 30.86 8.870 2.25 11.57 1.29 2.750 1.93 5.750 30.86 8.8667 2.25 11.67 1.29 2.750 1.9 | 1.917 1.61 | 4.917 5.14 | 7.917 3. | 86 10.92 1.29 |
| 2.083 1.93 5.083 7.72 8.083 2.25 11.08 1.29 2.167 1.93 5.167 7.72 8.167 2.25 11.17 1.29 2.250 1.93 5.250 7.72 8.250 2.25 11.25 1.29 2.333 1.93 5.333 7.72 8.417 2.25 11.33 1.29 2.417 1.93 5.417 7.72 8.417 2.25 11.42 1.29 2.503 1.93 5.860 7.72 8.417 2.25 11.42 1.29 2.533 1.93 5.867 30.86 8.150 2.25 11.186 1.29 2.657 1.93 5.700 30.86 8.750 2.25 11.75 1.29 2.657 1.93 5.833 8.48 8.750 2.25 11.75 1.29 2.657 1.93 5.833 8.48 8.83 2.25 11.83 1.29 2.917 1.93 5.917 84.88 8.817 2.25 11.20 1.29 3.000 1.93 6.000 84.87 9.000 2.25 12.00 1.29 | 2.000 1.61 | 5.000 5.14 | 1 8.000 3. | 86 11.00 1.29 |
| 2.250 1.93 5.250 7.72 8.250 2.25 11.25 1.29 2.333 1.93 5.333 7.72 8.433 2.25 11.33 1.29 2.417 1.93 5.417 7.72 8.417 2.25 11.42 1.29 2.503 1.93 5.867 70.86 8.850 2.25 11.50 1.29 2.667 1.93 5.867 30.86 8.832 2.25 11.58 1.29 2.670 1.93 5.00 30.86 8.832 2.25 11.75 1.29 2.753 1.93 5.833 84.88 8.650 2.25 11.75 1.29 2.917 1.93 5.833 84.88 8.831 2.25 11.83 1.29 3.000 1.93 6.000 84.87 9.000 2.25 12.00 1.29 | 2.083 1.93 | 5.083 7.72 | 8.083 2. | 25 11.08 1.29 |
| 2.333 1.93 5.333 7.72 8.333 2.25 11.33 1.29 2.417 1.93 5.447 7.72 8.417 2.25 11.42 1.29 2.500 1.93 5.500 7.72 8.500 2.25 11.50 1.29 2.583 1.93 5.583 30.86 8.583 2.25 11.58 1.29 2.667 1.93 5.667 30.86 8.667 2.25 11.67 1.29 2.750 1.93 5.750 30.86 8.675 2.25 11.75 1.29 2.833 1.93 5.833 8.488 8.833 2.25 11.83 1.29 2.917 1.93 5.917 84.88 8.831 2.25 11.82 1.29 3.000 1.93 6.000 84.87 9.000 2.25 12.00 1.29 | 2.167 1.93 | 5.167 7.72 | 8.167 2. | 25 11.17 1.29 |
| $ \begin{array}{cccccccccccccccccccccccccccccccccccc$ | | | 8.250 2. | 25 11.25 1.29 |
| 2.583 1.93 5.583 30.86 8.583 2.25 11.58 1.29 2.667 1.93 5.667 30.86 8.667 2.25 11.67 1.29 2.750 1.93 5.750 30.86 8.750 2.25 11.75 1.29 2.833 1.93 5.233 84.88 8.837 2.25 11.83 1.23 2.917 1.33 5.207 84.8 8.837 2.25 11.22 1.29 3.000 1.93 6.000 84.87 9.000 2.25 12.00 1.29 | 2.333 1.93 | 5.333 /./2 | 8.333 2. | 25 11.33 1.29 |
| 2.583 1.93 5.583 30.86 8.583 2.25 11.58 1.29 2.667 1.93 5.667 30.86 8.667 2.25 11.67 1.29 2.750 1.93 5.750 30.86 8.750 2.25 11.75 1.29 2.833 1.93 5.233 84.88 8.837 2.25 11.83 1.23 2.917 1.33 5.207 84.8 8.837 2.25 11.22 1.29 3.000 1.93 6.000 84.87 9.000 2.25 12.00 1.29 | 2.41/ 1.93 | 5.41/ /./2 | 8.41/ 2. | 25 11.42 1.29 |
| 2.750 1.93 5.750 30.86 8.750 2.25 11.75 1.29 2.833 1.93 5.833 84.88 8.833 2.25 11.83 1.29 2.917 1.93 5.917 84.88 8.917 2.25 11.92 1.29 3.000 1.93 6.000 84.87 9.000 2.25 12.00 1.29 | 2.500 1.95 | | 0.300 2. | 25 11.50 1.29 |
| 2.750 1.93 5.750 30.86 8.750 2.25 11.75 1.29 2.833 1.93 5.833 84.88 8.833 2.25 11.83 1.29 2.917 1.93 5.917 84.88 8.917 2.25 11.92 1.29 3.000 1.93 6.000 84.87 9.000 2.25 12.00 1.29 | 2.303 1.93 2.667 1.93 | 5 667 30 86 | 8 667 2 | 25 11.50 1.29 |
| 2.833 1.93 5.833 84.88 8.833 2.25 11.83 1.29 2.917 1.93 5.917 84.88 8.917 2.25 11.92 1.29 3.000 1.93 6.000 84.87 9.000 2.25 12.00 1.29 | 2 750 1 93 | | 8 750 2 | 25 11 75 1 29 |
| 3.000 1.93 6.000 84.87 9.000 2.25 12.00 1.29 | 2 833 1 93 | | 8 833 2 | 25 11 83 1 29 |
| 3.000 1.93 6.000 84.87 9.000 2.25 12.00 1.29 | 2.917 1.93 | 5.917 84.88 | 8.917 2. | 25 11.92 1.29 |
| Max.Eff.Inten.(mm/hr)= 84.88 66.77 | 3.000 1.93 | | 9.000 2. | 25 12.00 1.29 |
| Max.Eff.Inten.(mm/hr)= 84.88 66.77 | | • | | |
| | | | | |
| over (min) 5.00 15.00 Storage Coeff. (min)= 1.93 (ii) 10.99 (ii) | | 5.00 | | |
| Storage Coeff. (min)= 1.93 (ii) 10.99 (ii) Unit Hvd. Tpeak (min)= 5.00 15.00 | | | | |
| Unit Hyd. rpeak (mrn)= 5.00 15.00 Unit Hyd. peak (cms)= 0.31 0.09 | | | | |
| *TOTALS* | onic nyar peak (cms)= | 0.51 | 0.03 | *TOTALS* |
| PEAK FLOW (cms)= 0.08 0.02 0.096 (iii) | PEAK FLOW (cms)= | 0.08 | | 0.096 (iii) |
| TIME TO PEAK (hrs)= 6.00 6.08 6.00 | TIME TO PEAK (hrs)= | 6.00 | | 6.00 |
| RUNOFF VOLUME (mm)= 63.30 42.31 57.83 | | 63.30 | 42.31 | 57.83 |
| TOTAL RAINFALL (mm)= 64.30 64.30 64.30 | | | | |
| RUNOFF COEFFICIENT = 0.98 0.66 0.90 | RUNOFF COEFFICIENT = | 0.98 | 0.66 | 0.90 |

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

| ADD HYD (0121) | AREA | QPEAK | TPEAK | R.V. |
|-----------------|------|-------|-------|-------|
| | (ha) | (cms) | (hrs) | (mm) |
| | 0.25 | 0.056 | 6.00 | 59.51 |
| | 0.47 | 0.096 | 6.00 | 57.83 |
| ID = 3 (0121): | 0.72 | 0.151 | 6.00 | 58.41 |

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| CALIB STANDHYD (20111) ID= 1 DT= 5.0 min | Area Total | (ha)= 0.87 Imp(%)= 67.00 | Dir. Conn.(%)= | 67.00 |
|---|-------------------------------------|--|--|-------|
| Surface Area Dep. Storage Average Slope Length Mannings n | (ha)= (mm)= (%)= (m)= = | IMPERVIOUS 0.58 1.00 1.00 76.16 0.013 | PERVIOUS (i) 0.29 1.00 2.00 40.00 0.290 | |

| - Indiminings ii | 0.013 | 0.230 | |
|--|--|---|--|
| NOTE: RAINFALL WAS | TRANSFORMED TO | 5.0 MIN. TIME ST | EP. |
| 0.333 1.61 0.417 1.61 0.503 1.01 0.503 1.01 0.667 1.61 0.750 1.61 0.833 1.61 0.917 1.61 1.063 1.67 1.1083 1.61 1.1083 1.61 1.150 1.61 1.150 1.61 1.150 1.61 1.150 1.61 1.150 1.61 1.150 1.61 1.150 1.61 1.150 1.61 1.250 1.61 | TIME RAIL hrs mm/h . 3.083 2.55 3.167 2.55 3.25 3.260 2.55 3.500 2.55 3.500 2.55 3.667 2.55 3.667 2.55 3.667 2.55 3.667 2.55 3.683 3.25 3.25 3.667 2.55 3.883 3.25 3.25 3.25 3.25 3.25 3.25 3.25 3.2 | 7 6.083 11.57 6.162 11.57 6.250 11.57 6.250 11.57 6.250 11.57 6.250 11.57 6.250 11.57 6.250 11.57 6.250 11.57 6.583 5.14 7.665 5.14 7.665 5.14 7.6667 5.14 7.6667 5.14 7.667 3.86 7.747 | TIME RAIN RAIN Hrs mm/hr 9.088 2.25 9.172 2.25 9.572 2.25 9.572 2.25 9.572 2.25 9.572 2.25 9.573 2.25 2.25 9.573 2.25 2.25 9.573 2.25 2.25 9.573 2.25 2.25 2.25 9.573 2.25 2.25 2.25 9.573 2.25 2.25 2.25 9.573 2.25 2.25 2.25 9.573 2.25 2.25 2.25 9.573 2.25 2.25 2.25 9.573 2.25 2.25 2.25 9.573 2.25 |
| Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= | 84.88 5.00 2.32 (ii) 5.00 0.30 | 66.77 15.00 11.38 (ii) 15.00 0.09 | |
| PEAK FLOW (CMS) = TIME TO PEAK (hrs) = RUNOFF VOLUME (mm) = TOTAL RAINFALL (mm) = RUNOFF COEFFICIENT = | 0.14 6.00 63.30 64.30 0.98 | 0.04 6.08 42.31 64.30 | TALS* 1.169 (iii) 6.00 6.37 4.30 0.88 |

**** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $\mathbb{C} N^2 = 89.0$ Ia = Dep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
IMPERVIOUS
0.72
1.00
1.00
77.46
0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PERVIOUS (i)
0.18
1.00
2.00
40.00
0.290
                                                                                                                     Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                         NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TRANSFORMED HYETOGRAPH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TIME hrs 6.083 6.167 6.250 6.333 6.417 6.500 6.583 6.667 6.750 6.833 6.917 7.000 7.083
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TIME hrs 0.083 0.167 0.250 0.333 0.167 0.500 0.833 0.667 1.000 0.750 0.750 0.833 0.667 1.000 0.750 0.833 0.667 0.750 0.833 0.667 0.750 0.833 0.667 0.750 0.833 0.750 0.833 0.750 0.833 0.750 0.833 0.750 0.833 0.750 0.833 0.750 0.833 0.750 0.833 0.750 0.833 0.750 0.833 0.750 0.750 0.833 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TIME hrs 3.083 3.417 3.250 3.8417 3.500 3.883 3.417 4.250 4.082 4.082 4.082 4.082 4.082 5.082 5.500 5.883 5.417 5.250 5.883 5.417 5.250 5.883 5.417 5.250 5.883 5.417 5.250 5.883 5.417 5.250 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.000 6.
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                                                                                                 Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               84.88
5.00
2.34 (ii)
5.00
0.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    66.77
10.00
7.07 (ii)
10.00
0.14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      *TOTALS*
0.197 (iii)
6.00
59.10
64.30
0.92
                                                                                                        PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0.17
6.00
63.30
64.30
0.98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0.03
6.00
42.31
64.30
0.66
                                                                                                 * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0. Ia = Dep. Storage (Above) (ii) TIME STEP (OT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
             IMPERVIOUS PERVIOUS (i)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HYETOGR

' TIME

' hrs

6.083

6.167

6.250

6.333

6.417

6.500

6.583

6.667

6.750
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                                                                                                        Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         84.88
5.00
1.93 (ii)
5.00
0.31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    66.77
10.00
6.04 (ii)
10.00
0.15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      *TOTALS*
0.105 (iii)
6.00
60.14
64.30
0.94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0.01
6.00
42.31
64.30
0.66
                                                                                                              PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0.09
6.00
63.30
64.30
0.98
                                                                                    ** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^\circ = 89.0, Ia = Dep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
CALIB
STANDHYD (201022)
ID= 1 DT= 5.0 min
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Area (ha)= 0.47 Total Imp(\%)= 85.00 Dir. Conn.(\%)= 85.00
                                                                                                                                                                                                                                                                                                                                                                                                                                             (ha)=
(mm)=
(%)=
(m)=
=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           IMPERVIOUS PERVIOUS (i)
                                                                                                              Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0.40
1.00
1.00
55.98
0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0.07
1.00
2.00
40.00
0.290
                                                                                                                                                                                                         NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | RAIN | TIME RAIN
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Surface Area
Dep. Storage
Average Slope
Length
                                                                                                                                                                                                                                                                                   (ha)=
(mm)=
(%)=
(m)=
=
                                                                                                                                                                                                                                                                                                                                                                                                                                 0.90
1.00
1.00
86.02
0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0.21
1.00
2.00
40.00
0.290
                                                               Mannings n
                                                                                                            NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORMED TO 5.0 MEN. TIM

TRANSFORMED HYETOGRAPH

RE RATH. ' TIME

RE RATH. '
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TIME
hrss
3.083
3.167
3.250
3.333
3.417
3.583
3.657
3.750
4.083
4.007
4.250
4.250
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4.583
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0.683
0.675
0.750
0.833
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1.250
1.333
1.417
1.750
1.883
1.417
1.750
2.000
2.000
2.016
2.000
                                                                                                                                                                                                                                                                                                                            2.167
2.250
2.333
2.417
2.500
2.583
2.667
2.750
2.833
2.917
3.000
                                                                                                                                                                                                                                                                                                                                                                                                              5.250
5.333
5.417
5.500
5.583
5.667
5.750
5.833
5.917
6.000
                                                    Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                          84.88
5.00
2.49 (ii)
5.00
0.29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     66.77
10.00
7.10 (ii)
10.00
0.14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        *TOTALS*
0.244 (iii)
6.00
59.31
64.30
0.92
                                                    PEAK FLOW (Cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                 0.21
6.00
63.30
64.30
0.98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0.03
6.00
42.31
64.30
0.66
                                                           WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                    (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^\circ=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
IMPERVIOUS 0.40 0.07
1.00 1.00
1.00 2.00
55.98 40.00
0.013 0.290
                                                    Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                   (ha)=
(mm)=
(%)=
(m)=
                                                                                                        NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                          1.61 3.417
1.61 3.500
1.61 3.583
1.61 3.667
1.61 3.753
1.61 3.677
1.61 4.000
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1.61 4.157
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6.917
7.000
7.083
7.167
7.250
7.333
7.417
7.500
7.583
7.591
8.083
8.187
8.583
8.417
8.583
8.583
8.583
8.583
8.750
8.838
8.917
9.000
                                                                                                                                                                                                     0.417

0.507

0.583

0.667

750

0.837

1.083

1.167

1.250

1.333

1.417

1.500

1.383

1.417

1.500

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8.886
8.814
4.144
7.777
7.772
7.772
300.886
884.888
884.888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       11.00
11.08
11.17
11.25
11.33
11.42
11.50
11.58
11.67
11.75
11.83
11.92
12.00
                                                Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                      84.88
5.00
1.93 (ii)
5.00
0.31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     66.77
10.00
6.04 (ii)
10.00
0.15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        *TOTALS*
0.105 (iii)
6.00
60.14
64.30
0.94
                                                                                                                                                                                                                                                                                                                                                                                                                                 0.09
6.00
63.30
64.30
0.98
                                                    PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0.01
6.00
42.31
64.30
0.66
                                         ** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^{\circ} = 89.0 Ia = Dep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. IN THAS THE STORAGE TO TINCLUDE BASEFLOW IF ANY.
```

ADD HYD (0136) | 1 + 2 = 3 ID = 3 (0136): 0.94 0.211 6.00 60.14 NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY. | CALIB |

| STANDHYD (2005) ID= 1 DT= 5.0 min | Area Total | (ha) = 0. Imp(%) = 90. | | 90.00 |
|---|-------------------------------------|--|--|-------|
| Surface Area Dep. Storage Average Slope Length Mannings n | (ha)= (mm)= (%)= (m)= = | IMPERVIOUS 0.25 1.00 1.00 43.20 0.013 | PERVIOUS (i) 0.03 1.00 2.00 40.00 0.290 | |

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

TRANSFORMED HYETOGRAPH -TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN hrs mm/hr | hrs mm/hr | hrs mm/hr | hrs mm/hr | hrs mm/hr

| 0.083 | 0.750 |
|--|---|
| (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFCIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. CALIB | TOTAL Imp(%) = 89.50 Dir. Conn.(%) = 89.50 |
| 1.417 1.61 4.417 3.86 7.417 3.86 10.42 1.29 | 2.083 1.93 5.083 7.72 8.083 2.25 11.08 1.29 |
| CALIB STANDHYD (200121) Area (ha) = 0.11 Total Imp(%) = 87.00 Dir. Conn.(%) = 87.00 Total Imp(%) = 87.00 Dir. Conn.(%) = 87.00 Dir. C | Tide |

| 1.750 1.61 4.720 3.14 7.750 3.46 10.75 1.29 1.1917 1.61 4.927 3.14 7.917 3.86 10.92 1.29 1.201 1.63 5.003 5.72 8.003 3.86 10.92 1.29 2.003 1.63 5.003 5.72 8.003 3.86 11.00 1.29 2.107 1.03 5.003 5.72 8.003 3.86 11.00 1.29 2.107 1.03 5.003 5.72 8.003 3.86 11.00 1.29 2.107 1.03 5.003 5.72 8.003 3.86 11.00 1.29 2.107 1.03 5.107 7.72 8.133 2.25 11.33 1.29 2.107 1.03 5.107 7.72 8.133 2.25 11.33 1.29 2.107 1.03 5.107 7.72 8.133 2.25 11.33 1.29 2.108 1.03 5.003 5.407 7.72 8.133 2.25 11.33 1.29 2.109 1.03 5.003 5.407 7.72 8.133 2.25 11.33 1.29 2.100 1.03 5.003 5.000 8.00 8.00 8.000 8.000 1.20 11.20 2.100 1.03 5.000 1.03 5.00 1.00 1.20 2.100 1.03 5.00 1.00 8.00 8.00 8.00 1.20 11.72 1.20 2.100 1.00 1.00 1.00 1.20 1.20 1.20 1.20 | 2,447 1.38 2,420 7,722 8,430 2,25 11.40 1.29 |
|--|--|
| CALTB STANDHYD (20022) Area (ha) = 0.80 Dir. Conn. (%) = 85.00 | Impervious Depty Depty |

```
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
CALIB
STANDHYD ( 20031)
ID= 1 DT= 5.0 min
                                                Area (ha)= 0.43 Total Imp(\%)= 90.00 Dir. Conn.(\%)= 90.00
                                              (ha) = 0.39 0.00 (ii) (hg) = 0.00 (iii) (iii) (hg) = 0.39 0.00 (iii) (iii) = 0.00 1.00 (iii) = 0.00 (iii) = 0.00 (iii) = 0.01 0.00 (iii) = 0.013 0.290
         Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                 NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
```

| TIME RAIN | TIME RAIN | ED HYETOGRA | RAIN | TIME | RAIN |
|---|------------------------------|-------------------|----------------|----------------|--------------|
| hrs mm/hr | hrs mm/hr | | mm/hr | hrs | mm/hr |
| 0.083 1.90 | 3.083 3.04 | 6.083 | 13.68 | 9.08 | 2.66 |
| 0.167 1.90 | 3.167 3.04 | | 13.68 | 9.17 | 2.66 |
| 0.250 1.90 0.333 1.90 | 3.250 3.04 3.333 3.04 | | 13.68 | 9.25 9.33 | 2.66 |
| 0.333 1.90 | 3.417 3.04 | | 13.68 | 9.33 | 2.66 |
| 0.500 1.90 | i 3.500 3.04 | 6.500 | 13.68 | 9.50 | 2.66 |
| 0.583 1.90 | 3.583 3.04 | | 6.08 | 9.58 | 2.66 |
| 0.667 1.90 | 3.667 3.04 | | 6.08 | 9.67 | 2.66 |
| 0.750 1.90 0.833 1.90 | 3.750 3.04 3.833 3.04 | | 6.08 | 9.75 9.83 | 2.66 |
| 0.917 1.90 | 3.917 3.04 | | 6.08 | 9.92 | 2.66 |
| 1.000 1.90 | 4.000 3.04 | 7.000 | 6.08 | 10.00 | 2.66 |
| 1.083 1.90 | 4.083 4.56 | | 4.56 | 10.08 | 1.52 |
| 1.167 1.90 1.250 1.90 | 4.167 4.56 4.250 4.56 | 7.167 | 4.56 | 10.17 10.25 | 1.52 |
| 1.333 1.90 | 4.333 4.56 | | 4.56 | 10.23 | 1.52 |
| 1.417 1.90 | 4.417 4.56 | 7.417 | 4.56 | 10.42 | 1.52 |
| 1.500 1.90 1.583 1.90 | 4.500 4.56 | 7.500 | 4.56 | 10.50 | 1.52 |
| 1.583 1.90 1.667 1.90 | 4.583 6.08 4.667 6.08 | | 4.56 4.56 | 10.58 10.67 | 1.52 |
| 1.750 1.90 | 4.750 6.08 | | 4.56 | 10.67 | 1.52 |
| 1.833 1.90 | 4.833 6.08 | | 4.56 | 10.83 | 1.52 |
| 1.917 1.90 | 4.917 6.08 | 7.917 | 4.56 | 10.92 | 1.52 |
| 2.000 1.90 2.083 2.28 | 5.000 6.08 5.083 9.12 | | 4.56 2.66 | 11.00 11.08 | 1.52 1.52 |
| 2.167 2.28 | 5.167 9.12 | 8.167 | 2.66 | 11.17 | 1.52 |
| 2.250 2.28 | 5.250 9.12 | 8.250 | 2.66 | 11.25 | 1.52 |
| 2.333 2.28 | i 5.333 9.12 | 8.333 | 2.66 | 11.33 | 1.52 |
| 2.417 2.28 | 5.417 9.12 | 8.417 | 2.66 | 11.42 | 1.52 |
| 2.500 2.28 2.583 2.28 | 5.500 9.12 5.583 36.48 | 8.500 | 2.66 | 11.50 11.58 | 1.52 |
| 2.667 2.28 | 5.667 36.48 | | 2.66 | 11.67 | 1.52 |
| 2.750 2.28 | 1 5.750 36.48 | 8.750 | 2.66 i | 11.75 | 1.52 |
| 2.833 2.28 | 5.833 100.32 | 8.833 | 2.66 | 11.83 | 1.52 |
| 2.917 2.28 3.000 2.28 | 5.917 100.32 6.000 100.32 | 8.917 | 2.66 | 11.92 12.00 | 1.52 |
| 3.000 2.28 | 0.000 100.32 | 1 3.000 | 2.00 | 12.00 | 1.32 |
| Max.Eff.Inten.(mm/hr)= | 100.32 | 82.63 | | | |
| over (min) | 5.00 | 5.00 | | | |
| Storage Coeff. (min)= | 1.75 (ii) | 4.95 (ii) 5.00 |) | | |
| Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= | 5.00 0.32 | 0.22 | | | |
| offic Hyu. peak (Cilis)= | 0.32 | 0.22 | *TOT | ALS* | |
| PEAK FLOW (cms)= | 0.11 | 0.01 | 0. | 117 (iii) |) |
| TIME TO PEAK (hrs)= | 6.00 | 6.00 | | .00 | |
| RUNOFF VOLUME (mm)= TOTAL RAINFALL (mm)= | 75.00 76.00 | 52.87 76.00 | | .78 | |
| RUNOFF COFFETCTENT = | 0.99 | 0.70 | | .96 | |
| | | | | | |

** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^{\circ}=89.0$ Ia = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB | STANDHYD (20032) | Area (ha)= 0.47

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

| | TRANSFORM | D INVETOCRADII | |
|------------------------|--|--|--|
| TIME R. mm/ | TIME RAIN I STANDARD RESERVATION I STANDARD | 6.750 6.08 6.833 6.08 6.917 6.08 7.000 6.08 7.083 4.56 7.167 4.56 7.250 4.56 7.417 4.56 7.500 4.56 7.500 4.56 7.500 4.56 7.500 4.56 7.500 4.56 7.750 4.56 7.750 4.56 7.750 4.56 | hrs mm/hr 9.08 2.66 9.17 2.66 9.17 2.66 9.32 2.66 9.32 2.66 9.58 2.66 9.58 2.66 9.58 2.66 9.75 2.66 9.83 2.66 9.83 2.66 10.00 2.66 10.00 1.52 10.03 1.52 |
| Max.Eff.Inten.(mm/hr)= | 100.32 | 82.63 | |

| Unit Hyd. Tpeak | (min) (min)= (min)= | 100.32 5.00 1.65 5.00 0.32 | 82.63 5.00 (ii) 4.99 5.00 0.22 | (ii) | |
|------------------|---------------------------|--|--|----------|-------|
| offic flyd. peak | (CIII3)= | 0.32 | 0.22 | *TOTALS* | |
| PEAK FLOW | (cms)= | 0.09 | 0.01 | 0.095 | (iii) |
| TIME TO PEAK | (hrs)= | 6.00 | 6.00 | 6.00 | |
| RUNOFF VOLUME | (mm)= | 75.00 | 52.87 | 72.56 | |
| TOTAL RAINFALL | (mm)= | 76.00 | 76.00 | 76.00 | |
| RUNOFF COEFFICIE | NT = | 0.99 | 0.70 | 0.95 | |

** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^{\circ}=89.0$ Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB STANDHYD (20042) ID= 1 DT= 5.0 min | Area Total | (ha)= 0.36 Imp(%)= 85.00 | Dir. Conn.(%)= | 85.00 |
|---|---------------|-----------------------------|----------------|-------|
| | | IMPERVIOUS | PERVIOUS (i) | |
| Surface Area | (ha)= | 0.31 | 0.05 | |
| Dep. Storage | (mm)= | 1.00 | 1.00 | |
| Average Slope | (%)= | 1.00 | 2.00 | |
| Length | (m)= | 48.99 | 40.00 | |
| Mannings n | = | 0.013 | 0.290 | |

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

| | | TRA | NSFORMED HYETOGR | RAPH | |
|-------|-------|-------|------------------|--------------|-------|
| TIME | RAIN | TIME | RAIN TIME | RAIN TIME | RAIN |
| hrs | mm/hr | hrs | mm/hr ' hrs | mm/hr hrs | mm/hr |
| 0.083 | 1.90 | 3.083 | 3.04 6.083 | 13.68 9.08 | 2.66 |

|ID= 1 DT= 5.0 min | Total Imp(%)= 87.00 Dir. Conn.(%)= 87.00 IMPERVIOUS 0.41 0.06 1.00 1.00 1.00 2.00 55.98 40.00 0.290 Surface Area Dep. Storage Average Slope Length Mannings n

| NOTE: RAINFALL W | AS TRANSFORME | D TO 5.0 MIN. | TIME STEP. | |
|---|----------------------------|---------------------------------|------------------------------|---------------|
| | | | | |
| | | NSFORMED HYETOG | | |
| | AIN TIME /hr hrs | RAIN TIME | | RAIN mm/hr |
| | .90 3.083 | 3.04 6.083 | 13.68 9.08 | 2.66 |
| 0.167 1 | .90 i 3.167 | 3.04 6.167 | 13.68 j 9.17 | 2.66 |
| 0.250 1 | .90 3.250 | 3.04 6.250 | 13.68 9.25 | 2.66 |
| | .90 3.333 | 3.04 6.333 | 13.68 9.33 | 2.66 |
| 0.417 1 0.500 1 | .90 3.417 .90 3.500 | 3.04 6.417 3.04 6.500 | 13.68 9.42 13.68 9.50 | 2.66 |
| 0.583 1 | .90 3.583 | 3.04 6.583 | 6.08 i 9.58 | 2.66 |
| 0.667 1 | .90 3.667 | 3.04 6.667 | 6.08 9.67 | 2.66 |
| 0.750 1 0.833 1 | .90 3.750 .90 3.833 | 3.04 6.750 3.04 6.833 | 6.08 9.75 6.08 9.83 | 2.66 |
| 0.833 1 | .90 3.833 | 3.04 6.833 | 6.08 9.92 | 2.66 |
| 1.000 1 | .90 4.000 | 3.04 7.000 | 6.08 10.00 | 2.66 |
| 1.083 1 | .90 4.083 | 4.56 7.083 | 4.56 10.08 | 1.52 |
| 1.167 1 1.250 1 | .90 4.167 .90 4.250 | 4.56 7.167 4.56 7.250 | 4.56 10.17 4.56 10.25 | 1.52 |
| 1.333 1 | .90 4.230 | 4.56 7.333 | 4.56 10.23 | 1.52 |
| 1,417 1 | .90 4.417 | 4.56 7.417 | 4.56 10.42 | 1.52 |
| 1.500 1 | .90 4.500 | 4.56 7.500 | 4.56 10.50 | 1.52 |
| 1.583 1 1.667 1 | .90 4.583 .90 4.667 | 6.08 7.583 6.08 7.667 | 4.56 10.58 4.56 10.67 | 1.52 |
| 1.750 1 | .90 i 4.750 | 6.08 7.750 | 4.56 10.75 | 1.52 |
| 1.833 1 | .90 4.833 | 6.08 7.833 | 4.56 10.83 | 1.52 |
| 1.917 1 2.000 1 | .90 4.917 .90 5.000 | 6.08 7.917 6.08 8.000 | 4.56 10.92 4.56 11.00 | 1.52 |
| 2.083 2 | .28 5.083 | 6.08 8.000 9.12 8.083 | 2.66 11.08 | 1.52 |
| 2.167 2 | .28 5.167 | 9.12 8.167 | 2 66 i 11 17 | 1.52 |
| 2.250 2 | .28 5.250 | 9.12 8.250 | 2.66 11.25 | 1.52 |
| 2.333 2 2.417 2 | .28 5.333 .28 5.417 | 9.12 8.333 9.12 8.417 | 2.66 11.33 2.66 11.42 | 1.52 1.52 |
| 2.500 2 | .28 5.500 | 9.12 8.500 | 2.66 11.50 | 1.52 |
| 2.583 2 | .28 5.583 | 36.48 8.583 | 2.66 j 11.58 | 1.52 |
| 2.667 2 | .28 5.667 | 36.48 8.667 | 2.66 11.67 | 1.52 |
| 2.750 2 2.833 2 | .28 5.750 | 36.48 8.750 100.32 8.833 | 2.66 11.75 2.66 11.83 | 1.52 |
| 2.917 2 | .28 5.833 .28 5.917 | 100.32 8.917 | 2.66 11.83 2.66 11.92 | 1.52 |
| 3.000 2 | .28 6.000 | 100.32 9.000 | 2.66 12.00 | 1.52 |
| Max.Eff.Inten.(mm/hr) | | 82.63 | | |
| over (min) Storage Coeff. (min) | | 10.00 (ii) 5.40 (i | i) | |
| Unit Hyd. Tpeak (min) Unit Hyd. peak (cms) | = 5.00 | 10.00 | ., | |
| Unit Hyd. peak (cms) | = 0.32 | 0.16 | *TOTALS* | |
| PEAK FLOW (cms): | = 0.11 | 0.01 | 0.126 (ii | i) |
| TIME TO PEAK (hrs) | = 6.00 | 6.00 | 6.00 | |
| RUNOFF VOLUME (mm) | | 52.87 | 72.11 | |
| TOTAL RAINFALL (mm): RUNOFF COEFFICIENT | | 76.00 0.70 | 76.00 0.95 | |
| KUNUFF CUEFFICIENT | - 0.99 | 0.70 | 0.95 | |

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^\circ=89.0$ Ia = Dep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB STANDHYD (20041) ID= 1 DT= 5.0 min Area (ha)= 0.35Total Imp(%)= 89.00 Dir. Conn.(%)= 89.00

Surface Area Dep. Storage Average Slope Length Mannings n

| 0.167 1.90 0.250 1.90 0.337 1.90 0.317 1.90 0.517 1.90 0.517 1.90 0.583 1.90 0.667 1.90 0.683 1.90 1.007 1.90 1.007 1.90 1.008 1.90 1.008 1.90 1.008 1.90 1.008 1.90 1.009 1.90 1.90 1.009 | 5.250 9.12 5.333 9.12 5.417 9.12 5.500 9.12 5.583 36.48 5.667 36.48 5.750 36.48 5.833 100.32 5.917 100.32 6.000 100.32 | 6.333 13.6 6.417 13.6 6.500 13.6 6.583 6.0 6.657 6.0 6.917 6.0 7.017 6.0 7.0 | 8 9.32 2.66 8 9.33 2.66 8 9.34 2.66 8 9.45 2.66 8 9.50 2.66 8 9.50 2.66 8 9.50 2.66 8 9.57 2.66 8 9.52 2.66 8 9.52 2.66 8 9.52 2.66 8 9.52 2.66 6 10.008 1.52 6 10.25 1.52 6 10.42 1.52 6 10.42 1.52 6 10.42 1.52 6 10.42 1.52 6 10.53 1.52 6 10.83 1.52 6 10.83 1.52 6 10.83 1.52 6 10.83 1.52 6 10.83 1.52 6 10.83 1.52 6 11.93 1.52 6 11.94 1.52 6 11.95 1.52 6 11.95 1.52 6 11.15 1.52 6 11.15 1.52 6 11.15 1.52 6 11.15 1.52 6 11.18 1.52 |
|---|---|--|---|
| over (min) | 5.00 | 10.00 | |

Max. over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)= 5.00 1.66 (ii) 5.00 0.32 10.00 5.51 (ii) 10.00 *TOTALS* 0.096 (iii) 6.00 71.67 76.00 0.94 PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT = 0.09 6.00 75.00 76.00 0.99 0.01 6.00 52.87 76.00 0.70

**** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^{\circ}=89.0$ Ia=bep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB STANDHYD (20052) ID= 1 DT= 5.0 min | Area Total | (ha)= 0 Imp(%)= 78 | .29 .00 Dir. Conn.(%)= | 78.00 |
|--|---------------|-----------------------|---------------------------|-------|
| | | | | |
| | | IMPERVIOUS | PERVIOUS (i) | |
| Surface Area | (ha)= | 0.23 | 0.06 | |
| Dep. Storage | (mm)= | 1.00 | 1.00 | |
| | (%)= | 1.00 | 2.00 | |
| Average Slope | | | | |
| Length | (m)= | 43.97 | 40.00 | |
| Mannings n | | 0.012 | 0.200 | |

| | | TR | ANSFORME | D HYETOGR | APH | | |
|-------|-------|-------|----------|-----------|---------|------|-------|
| TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN |
| hrs | mm/hr | hrs | mm/hr | ' hrs | mm/hr | hrs | mm/hr |
| 0.083 | 1.90 | 3.083 | 3.04 | 6.083 | 13.68 | 9.08 | 2.66 |
| 0.167 | 1.90 | 3.167 | 3.04 | 6.167 | 13.68 | 9.17 | 2.66 |
| 0.250 | 1.90 | 3.250 | 3.04 | 6.250 | 13.68 | 9.25 | 2.66 |
| 0.333 | 1.90 | 3.333 | 3.04 | 6.333 | 13.68 İ | 9.33 | 2.66 |
| 0.417 | 1.90 | 3.417 | 3.04 | 6.417 | 13.68 | 9.42 | 2.66 |
| 0.500 | 1.90 | 3.500 | 3.04 | 6.500 | 13.68 İ | 9.50 | 2.66 |
| 0.583 | 1.90 | 3.583 | 3.04 | 6.583 | 6.08 | 9.58 | 2.66 |
| 0.667 | 1.90 | 3.667 | 3.04 | 6.667 | 6.08 i | 9.67 | 2.66 |
| 0.750 | 1.90 | 3.750 | 3.04 | 6.750 | 6.08 | 9.75 | 2.66 |
| | | | | | | | |

| 0.833 1.90 3.833 3.04 6.833 6.08 9.83 2.66 0.917 1.90 3.913 3.04 6.937 6.08 9.92 2.66 1.083 1.90 4.083 4.56 7.083 4.56 10.08 1.083 1.90 4.163 4.56 7.083 4.56 10.08 1.187 1.90 4.165 4.56 7.167 4.56 10.02 1.183 1.90 4.333 4.56 7.333 4.56 10.08 1.333 1.90 4.333 4.56 7.333 4.56 10.32 1.433 1.90 4.333 4.56 7.333 4.56 10.32 1.430 1.90 4.470 4.56 7.450 4.56 10.02 1.583 1.90 4.833 6.08 7.583 4.56 10.58 1.687 1.90 4.583 6.08 7.583 4.56 10.58 1.687 1.90 4.583 6.08 7.583 4.56 10.58 1.687 1.90 4.583 6.08 7.583 4.56 10.58 1.833 1.90 4.833 6.08 7.833 4.56 10.58 1.833 1.90 4.833 6.08 7.833 4.56 10.58 1.917 1.90 4.910 6.08 7.697 4.56 10.07 1.833 1.90 4.833 6.08 7.833 4.56 10.83 1.917 1.90 4.910 6.08 7.917 4.56 10.07 1.833 1.90 4.930 6.08 7.917 4.56 10.07 1.833 1.90 4.930 6.08 7.917 4.56 10.07 1.833 1.90 4.930 6.08 7.917 4.56 10.07 1.833 1.90 4.930 6.08 7.917 4.56 10.07 1.917 1.91 1.91 4.910 6.08 7.917 1.927 2.083 2.28 5.383 9.12 8.383 2.66 11.08 1.52 2.083 2.28 5.383 9.12 8.383 2.66 11.08 1.52 2.187 2.28 5.160 9.17 8.160 2.66 11.08 1.52 2.28 2.28 5.383 9.12 8.333 2.66 11.33 1.52 2.28 2.28 5.383 3.08 8.833 2.66 11.33 1.52 2.28 2.28 5.383 3.08 8.833 2.66 11.38 1.52 2.28 3.27 2.88 5.833 2.66 11.58 1.52 2.28 3.27 2.88 5.60 6.00 6.00 3.20 | 1.500 1.90 4.500 4.56 7.500 4.56 10.50 1.52 |
|---|--|
| 1.417 1.90 4.417 4.56 7.437 4.56 10.42 1.52 | 2.083 2.28 5.083 9.12 8.083 2.66 11.08 1.52 2.833 2.28 5.832 100.32 8.833 2.66 11.08 1.52 2.9317 2.28 5.9317 100.32 8.833 2.66 11.08 1.52 Max.Eff.Inten.(mm/hr) |

```
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0.31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0.15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          *TOTALS*
0.155 (iii)
6.00
71.68
76.00
0.94
                                                                 PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0.02
6.00
52.87
76.00
0.70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0.14
6.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           75.00
76.00
0.99
                                                ** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN° = 89.0 Ia = Dep. Storage (Above)

ITIME STEP (DT) SHOULD BE SMALLER OR EQUAL

THAN THE STORAGE COEFFICIENT.

THAN THE STORAGE TO TINCLUDE BASEFLOW IF ANY.
CALIB
STANDHYD (20092)
ID= 1 DT= 5.0 min
                                                                                                                                                                                                                                                                                                                         Area (ha) = 0.63
Total Imp(\%) = 81.00 Dir. Conn.(\%) = 81.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PERVIOUS (i)
0.12
1.00
2.00
40.00
0.290
                                                                                                                                                                                                                                                                                                                                                                                                                              IMPERVIOUS
                                                             Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                             (ha)=
(mm)=
(%)=
(m)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0.51
1.00
1.00
64.81
0.013
                                                                                                                     NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TRANSFORMED HYETOGRAPH

TRANSFORMED HYETOGRAPH

TRANSFORMED HYETOGRAPH

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                                                                                                                                                                                                                                                                                                                                             TIME hrs 0.083 0.167 0.250 0.250 0.41 0.250 0.451 0.250 0.451 0.250 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TIME hrs 3.083 3.087 3.250 3.3417 3.250 3.333 3.417 3.333 3.417 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.250 3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TIME hrss 9 0.87 9 .087 9 .087 9 .9.25 9 .508 9 .67 5 9 .9.20 10 .087 10 .25 10 .05 10 .508 11 .17 10 .25 11 .008 11 .17 12 .11 .588 11 .17 58 11 .588 11 .17 59 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .500 11 .5
                                                             Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                       100.32
5.00
1.97
5.00
0.31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              82.63
10.00
6.28 (ii)
10.00
0.15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (ii)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             *TOTALS*
0.166 (iii)
6.00
70.79
76.00
0.93
                                                                 PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0.14
6.00
75.00
76.00
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0.02
6.00
52.87
76.00
0.70
                                                                                                                                                                                                                                                                                                                         Area (ha)= 0.38 Total Imp(\%)= 70.00 Dir. Conn.(\%)= 70.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PERVIOUS (i)
0.11
1.00
2.00
40.00
0.290
                                                                                                                                                                                                                                                                                                                                                                                                                              IMPERVIOUS
                                                                 Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                 (ha)=
(mm)=
(%)=
(m)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0.27
1.00
1.00
50.33
0.013
                                                                                                                     NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
```

| | | TR | ANSFORME | HYETOGR | ΔРН | _ | |
|----------------|--------------|-------|-----------------|----------------|----------------|----------------|-------|
| TIME | RAIN | TIME | RAIN | ' TIME | RAIN | TIME | RAIN |
| hrs | mm/hr | hrs | mm/hr | ' hrs | mm/hr | hrs | mm/hr |
| 0.083 | 1.90 | 3.083 | 3.04 | 6.083 | 13.68 | 9.08 | 2.66 |
| 0.167 | 1.90 | 3.167 | 3.04 | 6.167 | 13.68 | 9.17 | 2.66 |
| 0.250 | 1.90 | 3.250 | 3.04 3.04 | 6.250 | 13.68 13.68 | 9.25 | 2.66 |
| 0.333 | 1.90 | 3.417 | 3.04 | 6.417 | 13.68 | 9.33 | 2.66 |
| 0.500 | 1.90 | 3.500 | 3.04 | 6.500 | 13.68 | 9.50 | 2.66 |
| 0.583 | 1.90 | 3.583 | 3.04 | 6.583 | 6.08 | 9.58 | 2.66 |
| 0.667 | 1.90 | 3.667 | 3.04 | 6.667 | 6.08 | 9.67 | 2.66 |
| 0.750 | 1.90 | 3.750 | 3.04 | 6.750 | 6.08 | 9.75 | 2.66 |
| 0.833 | 1.90 | 3.833 | 3.04 | 6.833 | 6.08 | 9.83 | 2.66 |
| 0.917 | 1.90 1.90 | 3.917 | 3.04 3.04 | 6.917 7.000 | 6.08 | 9.92 10.00 | 2.66 |
| 1.083 | 1.90 | 4.083 | 4.56 | 7.083 | 4.56 | 10.00 | 1.52 |
| 1.167 | 1.90 | 4.167 | 4.56 | 7.167 | 4.56 | 10.17 | 1.52 |
| 1.250 | 1.90 | 4.250 | 4.56 | 7.250 | 4.56 | 10.25 | 1.52 |
| 1.333 | 1.90 | 4.333 | 4.56 | 7.333 | 4.56 | 10.33 | 1.52 |
| 1.417 | 1.90 | 4.417 | 4.56 | 7.417 | 4.56 | 10.42 | 1.52 |
| 1.500 1.583 | 1.90 1.90 | 4.500 | 4.56 6.08 | 7.500 | 4.56 | 10.50 10.58 | 1.52 |
| 1.667 | 1.90 | 4.583 | 6.08 | 7.667 | 4.56 | 10.58 | 1.52 |
| 1.750 | 1.90 | 4.750 | 6.08 | 7.750 | 4.56 | 10.75 | 1.52 |
| 1.833 | 1.90 | 4.833 | 6.08 | 7.833 | 4.56 | 10.83 | 1.52 |
| 1.917 | 1.90 | 4.917 | 6.08 | 7.917 | 4.56 | 10.92 | 1.52 |
| 2.000 | 1.90 | 5.000 | 6.08 | 8.000 | 4.56 | 11.00 | 1.52 |
| 2.083 | 2.28 | 5.083 | 9.12 | 8.083 | 2.66 | 11.08 | 1.52 |
| 2.167 2.250 | 2.28 | 5.167 | 9.12 9.12 | 8.167 8.250 | 2.66 | 11.25 | 1.52 |
| 2.333 | 2.28 | 5.333 | 9.12 | 8.333 | 2.66 | 11.33 | 1.52 |
| 2.417 | 2.28 | 5.417 | 9.12 | 8.417 | 2.66 | 11.42 | 1.52 |
| 2.500 | 2.28 | 5.500 | 9.12 | 8.500 | 2.66 | 11.50 | 1.52 |
| 2.583 | 2.28 | 5.583 | 36.48 | 8.583 | 2.66 | 11.58 | 1.52 |
| 2.667 | 2.28 | 5.667 | 36.48 | 8.667 | 2.66 | 11.67 | 1.52 |
| 2.750 | 2.28 | 5.750 | 36.48 100.32 | 8.750 8.833 | 2.66 | 11.75 11.83 | 1.52 |
| 2.917 | 2.28 | 5.917 | 100.32 | 8.917 | 2.66 | 11.92 | 1.52 |
| 3.000 | 2.28 | 6.000 | 100.32 | 9.000 | 2.66 | 12.00 | 1.52 |
| | | | | , | | | |

| Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= | 100.32 5.00 1.69 (ii) | 82.63 15.00 10.02 (ii) | |
|---|-----------------------------|------------------------------|-------------|
| Unit Hyd. Tpeak (min)= | 5.00 | 15.00 | |
| Unit Hyd. peak (cms)= | 0.32 | 0.10 | |
| | | | *TOTALS* |
| PEAK FLOW (cms)= | 0.07 | 0.02 | 0.091 (iii) |
| TIME TO PEAK (hrs)= | 6.00 | 6.08 | 6.00 |
| RUNOFF VOLUME (mm)= | 75.00 | 52.87 | 68.35 |
| TOTAL RAINFALL (mm)= | 76.00 | 76.00 | 76.00 |
| RUNOFF COEFFICIENT = | 0.99 | 0.70 | 0.90 |
| | | | |

WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

| CALIB STANDHYD (200811) ID= 1 DT= 5.0 min | Area Total | (ha)= Imp(%)= | 0.07 84.00 | Dir. Co | onn.(%)= | 84.00 | |
|--|---------------|--------------------|---------------|------------------|----------|-------|--|
| Surface Area | (ha)= | IMPERVIOUS 0.06 | | PERVIOUS 0.01 | (i) | | |

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^{\circ}=89.0$ Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB STANDHYD (20091) ID= 1 DT= 5.0 min | Area Total | (ha)= Imp(%)= | 0.40 77.00 | Dir. | Conn.(%)= | 77.00 |
|---|-------------------------------------|--|---------------|--|-----------|-------|
| Surface Area Dep. Storage Average Slope Length Mannings n | (ha)= (mm)= (%)= (m)= = | IMPERVIO 0.31 1.00 1.00 51.64 0.013 |) | 0.09 1.00 2.00 40.00 0.290 | | |

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

| NOTE. | KAINFALL | . WAS 11 | KANSFURME | 10 | J.U MIN. I | THE SIE | r. | |
|---------------|----------------|---------------|------------------|------------------|------------|----------------|----------------|---------------|
| | | | | | | | | |
| | TTM5 | DATN | | ANSFORME RAIN | D HYETOGRA | | | DATM |
| | TIME hrs | RAIN mm/hr | TIME hrs | mm/hr | ' TIME | RAIN mm/hr | | RAIN mm/hr |
| | 0.083 | 1.90 | | 3.04 | | 13.68 | 9.08 | 2.66 |
| | 0.167 | 1.90 | | 3.04 | 6.167 | 13.68 | 9.17 | 2.66 |
| | 0.250 | 1.90 | 3.250 | | 6.250 | 13.68 | 9.25 | 2.66 |
| | 0.333 | 1.90 | 3.333 | | 6.333 | 13.68 | 9.33 | 2.66 |
| | 0.417 | 1.90 | 3.417 | 3.04 | 6.417 | 13.68 | 9.42 | 2.66 |
| | 0.500 | 1.90 | 3.500 | 3.04 | 6.500 | 13.68 | 9.50 | 2.66 |
| | 0.583 | 1.90 1.90 | 3.583 | 3.04 3.04 | 6.583 | 6.08 | | 2.66 |
| | 0.750 | | 3.750 | 3.04 | 6.750 | 6.08 | | 2.66 |
| | 0.833 | 1.90 | 3.833 | 3.04 | | 6.08 | 9.83 | 2.66 |
| | 0.917 | 1.90 | 3.917 | 3.04 | 6.917 | 6.08 | 9.92 | 2.66 |
| | 1.000 | 1.90 | 4.000 | 3.04 | 1 7.000 | 6.08 | 10.00 | 2.66 |
| | 1.083 | 1.90 | 4.083 | 4.56 | 7.083 | 4.56 | | 1.52 |
| | 1.167 1.250 | 1.90 | 4.167 | 4.56 | 7.167 | 4.56 | 10.17 10.25 | 1.52 |
| | 1.333 | | 4.333 | 4.56 | 7.333 | 4.56 | 10.23 | 1.52 |
| | 1.417 | | 4.417 | 4.56 | 7.417 | 4.56 | 10.42 | 1.52 |
| | 1.500 | 1.90 | 4.500 | 4.56 | 7.500 | 4.56 | 10.50 | 1.52 |
| | 1.583 | 1.90 | 4.583 | 6.08 | 7.583 | 4.56 | 10.58 | 1.52 |
| | 1.667 | | 4.667 | 6.08 | | 4.56 | 10.67 | 1.52 |
| | 1.750 1.833 | 1.90 | 4.750 4.833 | 6.08 | | 4.56 4.56 | | 1.52 1.52 |
| | 1.917 | 1.90 | 4.917 | 6.08 | 7.917 | 4.56 | 10.92 | 1.52 |
| | 2.000 | | 5.000 | 6.08 | | 4.56 | 11.00 | 1.52 |
| | 2.083 | 2.28 | 5.083 | 9.12 | 8.083 | 2.66 | 11.08 | 1.52 |
| | 2.167 | 2.28 | 5.167 | | | 2.66 | | 1.52 |
| | 2.250 | 2.28 | 5.250 | 9.12 | 8.250 | 2.66 | | 1.52 |
| | 2.333 | 2.28 | 5.333 | 9.12 9.12 | 8.333 | 2.66 | 11.33 11.42 | 1.52 |
| | 2.500 | 2.28 | 5.500 | 9.12 | 8.500 | 2.66 | 11.50 | 1.52 |
| | 2.583 | 2.28 | 5.583 | 36.48 | 8.583 | 2.66 i | 11.58 | 1.52 |
| | 2.667 | 2.28 | 5.667 | 36.48 | 8.667 | 2.66 | 11.67 | 1.52 |
| | 2.750 | 2.28 | 5.750 | 36.48 | 8.750 | 2.66 | 11.75 | 1.52 |
| | 2.833 | 2.28 | 5.833 | 100.32 | 8.833 | 2.66 | 11.83 | 1.52 |
| | 2.917 3.000 | 2.28 | 5.917 | 100.32 | 8.917 | 2.66 | 11.92 12.00 | 1.52 |
| | 3.000 | 2.20 | 0.000 | 100.32 | 9.000 | 2.00 | 12.00 | 1.32 |
| Max.Eff.In | ten.(mm/h | r)= | 100.32 | | 82.63 | | | |
| | over (mi | n) | 5.00 | | 10.00 | | | |
| Storage Co | | n)= | 1.72 | (ii) | 6.47 (ii) |) | | |
| Unit Hyd. | | | 5.00 | | 10.00 | | | |
| Unit Hyd. | реак (сп | 15)= | 0.32 | | 0.14 | *TOT | ALS* | |
| PEAK FLOW | (cr | ıs)= | 0.09 | | 0.02 | | 104 (iii) | |
| TIME TO PE | | 's)= | 6.00 | | 6.00 | 6 | 5.00 | |
| RUNOFF VOL | UME (n | nm)= | 75.00 | | 52.87 | 69 | .90 | |
| TOTAL RAIN | | ım)= | 76.00 | | 76.00 | | .00 | |
| RUNOFF COE | FFICIENT | = | 0.99 | | 0.70 | 0 | .92 | |
| **** WARNING. | STOPAGE (| OEEE . | TC CMALLE | D THAN | TTME STED! | | | |

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^{\circ}=89.0$ Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Dep. Storage Average Slope Length Mannings n

| NOTE: | RAINFALL | WAS TE | RANSFORM | ED TO | 5.0 MIN. | TIME STE | Р. | |
|--------------------------------------|----------------|--------------|--|------------------|------------------------|--------------------------------------|-------------------------|--------------|
| | | | | | | | | |
| | TIME | RAIN | | ANSFORME RAIN | D HYETOGR | RAIN | TIME | RAIN |
| | hrs | mm/hr | hrs | mm/hr | i' hrs | mm/hr | hrs | mm/hr |
| | 0.083 | 1.90 | | 3.04 | 6.083 | 13.68 | 9.08 | 2.66 |
| | 0.250 | 1.90 | 3.250 | 3.04 | 6.250 | 13.68 | 9.25 | 2.66 |
| | 0.333 | 1.90 | 3.333 | 3.04 | | 13.68 | | 2.66 |
| | 0.417 | 1.90 | 3.41/ | 3.04 3.04 | | 13.68 | | 2.66 |
| | 0.583 | 1.90 | 3.583 | 3.04 | 6.583 | 6.08 | 9.58 | 2.66 |
| | 0.667 | 1.90 | 3.667 | 3.04 | 6.667 | 6.08 | 9.67 9.75 | 2.66 |
| | 0.833 | 1.90 | 3.167 3.250 3.333 3.417 3.500 3.583 3.667 3.750 3.833 3.917 | 3.04 | 6.833 | 6.08 6.08 6.08 6.08 6.08 | 9.83 | 2.66 |
| | 0.917 | 1.90 | 3.917 4.000 | 3.04 | 6.917 | 6.08 | 9.92 | 2.66 |
| | 1.083 | 1.50 | 4.000 | 3.04 | | 6.08 4.56 | 10.08 | 1.52 |
| | 1.167 1.250 | 1.90 | 4.167 | 4.56 | 7.167 | 4.56 | 10.17 10.25 | 1.52 |
| | 1.333 | 1.90 | 4.230 | 4.56 | 7.230 | 4.56 | 10.33 | 1.52 |
| | 1.417 | 1.90 | 4.417 | 4.56 | 7.417 | 4.56 | 10.42 | 1.52 |
| | 1.500 1.583 | 1.90 | 4.500 | 6.08 | 7.500 | 4.56 | 10.50 | 1.52 |
| | 1.667 | 1.90 | 4.083 4.167 4.250 4.333 4.417 4.500 4.583 4.667 4.750 | 6.08 | 7.667 | 4.56 | 10.58 10.67 | 1.52 |
| | 1.750 1.833 | 1.90 | 4.750 4.833 4.917 | 6.08 | 7.750 | 4.56 | 10.75 10.83 | 1.52 1.52 |
| | 1.917 | | 4.917 | 6.08 | 7.917 | 4.56 | 10.92 | 1.52 |
| | 2.000 | 1.90 | 5.000 5.083 5.167 | 6.08 9.12 | 8.000 | 4.56 | 11.00 11.08 | 1.52 |
| | 2.167 | 2.28 | 5.167 | 9.12 | 8.167 | 2.66 | 11.17 | 1.52 |
| | 2.250 | 2.28 | 5.250 | 9.12 | 8.250 | 2.66 | 11.25 11.33 | 1.52 |
| | 2.333 | 2.28 | 5.417 | 9.12 | 8.333 | 2.66 | 11.33 | 1.52 |
| | 2.500 | 2.28 | 5.500 | 9.12 | 8.500 | 2.66 | 11.50 | 1.52 |
| | 2.583 | 2.28 | 5.583 5.667 | 36.48 36.48 | 8.583 | 2.66 | 11.58 11.67 | 1.52 1.52 |
| | 2.750 | 2.28 | 5.750 | 36.48 | 8.750 | 2.66 | 11.75 | 1.52 |
| | 2.833 | 2.28 | 5.833 5.917 | 100.32 | 8.833 | 2.66 | 11.83 | 1.52 1.52 |
| | 3.000 | 2.28 | 6.000 | 100.32 | 9.000 | 2.66 | 11.83 11.92 12.00 | 1.52 |
| Max.Eff.In | nten.(mm/h | ır)= | 100.32 | | 82.63 | | | |
| Storage Co Unit Hyd. Unit Hyd. | over (mi | n)_ | 5.00 | (66) | 5.00 4.99 (ii | ` | | |
| Unit Hyd. | Tpeak (mi | n)= | 5.00 | (11) | 5.00 | , | | |
| Unit Hýd. | peak (cm | ıs)= | 0.34 | (11) | 0.22 | *TOT | ALS* | |
| PEAK FLOW | (cm | ıs)= | 0.02 6.00 | | 0.00 | O. | 019 (iii) | |
| TIME TO PE RUNOFF VOL | AK (hr | rs)= nm)= | 6.00 75.00 | | 6.00 | 71 | .45 | |
| TOTAL RAIN | IFALL (m | m)= | 76.00 | | 52.87 76.00 0.70 | 76 | .00 | |
| RUNOFF COE | FFICIENT | = | 0.99 | | 0.70 | C | .94 | |

**** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

 CN° = 89.0 Ia = Dep. Storage (Above)

 ITAM STEP (DT) SHOULD BE SMALLER OR EQUAL

 THAN THE STORAGE COEFFICIENT.

 (iii) PEAK FLOW DOES NOT INCLIDE BASEFLOW IF ANY.

| ADD HYD (0110) | AREA | QPEAK | TPEAK | R.V. |
|--------------------|------|-------|-------|-------|
| 1 + 2 = 3 | (ha) | (cms) | (hrs) | (mm) |
| ID1= 1 (200811): | 0.07 | 0.019 | 6.00 | 71.45 |
| + ID2= 2 (200812): | 0.38 | 0.091 | 6.00 | 68.35 |
| ID = 3 (0110): | 0.45 | 0.110 | 6.00 | 68.83 |

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| CALIB | STANDHYD (200822)| Area (ha)= 0.39

```
|ID= 1 DT= 5.0 min | Total Imp(%)= 59.00 Dir. Conn.(%)= 59.00
                                                                                                                                                                                                                                                                                          IMPERVIOUS PERVIOUS (i) 0.23 0.16
                                           Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                             (ha)=
(mm)=
(%)=
(m)=
                                                                                                                                                                                                                                                                                                                     1.00
1.00
50.99
0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                1.00
2.00
40.00
0.290
                                                                                  NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                TIME hrs 0.083 0.167; 0.083 0.167; 0.083 0.167; 0.0500 0.333 0.167; 0.500 0.117; 0.500 0.117; 0.500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 0.117; 0.0500 
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hrs
3.083
3.167
3.250
3.333
3.417
3.500
3.583
3.750
3.833
3.917
4.000
4.083
4.167
4.250
4.333
4.167
4.500
4.417
4.500
4.750
4.750
4.833
4.750
                                                                                                                                                                                                                                                                                                          5.000
5.083
5.167
5.250
5.333
5.417
5.500
5.583
5.667
5.750
5.833
5.917
6.000
                                         Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                          100.32
5.00
1.70 (ii)
5.00
0.32
                                                                                                                                                                                                                                                                                                                                                                                                                                                82.63
15.00
10.03 (ii)
15.00
0.10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 *TOTALS*
0.088 (iii)
6.00
65.91
76.00
0.87
                                           PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                     0.06
6.00
75.00
76.00
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                0.03
6.08
52.87
76.00
0.70
  ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                           (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^\circ = 89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
  CALIB
STANDHYD (200821)
ID= 1 DT= 5.0 min
                                                                                                                                                                                                                     Area (ha)= 0.07 Total Imp(\%)= 83.00 Dir. Conn.(\%)= 83.00
                                                                                                                                                                                                                                                                                                                                                                                                                             PERVIOUS (i)
0.01
1.00
2.00
40.00
0.290
                                                                                                                                                                                                             (ha)= 0.06
(mm)= 1.00
(%)= 1.00
(m)= 21.60
= 0.013
                                              Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                 Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                             (mm) =
(%) =
(m) =
=
                                                                                                                                                                                                                                                                                                                  1.00
1.00
55.98
0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                1.00
2.00
40.00
0.290
                                                                               NOTE: RAINFALL WAS TRANSFORMED TO
                                                                                                                                                                                                                                                                                                                                                                                                                                     5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                     RAIN | 13.68 | 13.68 | 13.68 | 13.68 | 13.68 | 13.68 | 13.68 | 13.68 | 6.08 | 6.08 | 6.08 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4.56 | 4
                                                                                                                                                   TIME hrs 0.083 0.167 0.250 0.257 0.250 0.333 0.417 0.500 0.583 0.667 0.750 0.833 1.167 1.250 1.883 1.417 2.000 2.250 2.253 2.333
                                                                                                                                                                                                                                                                                                                                                                                                                                                        hrs
6.083
6.167
6.250
6.333
6.417
6.500
6.383
6.667
6.700
7.083
7.107
7.250
7.353
7.417
7.500
7.883
7.47
7.500
7.883
7.77
7.750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TIME hrs 9.08 9.17 9.25 9.33 9.42 9.50 9.58 9.67 9.75 9.83 10.00 10.08 10.17 10.25 10.33 10.42 10.50 10.58 10.67 10.75 10.83 10.92
                                                                                                                                                                                                                                      11.00
11.08
11.17
11.25
11.33
11.42
11.50
11.58
11.67
11.75
11.83
11.92
12.00
                                                                                                                                                      2.333
2.417
2.500
2.583
2.667
2.750
2.833
2.917
3.000
                                                                                                                                                                                                                                        2.28 |
2.28 |
2.28 |
2.28 |
2.28 |
2.28 |
2.28 |
2.28 |
2.28 |
                                         Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                82.63
15.00
10.13 (ii)
15.00
0.10
                                                                                                                                                                                                                                                                                                     100.32
5.00
1.80 (ii)
5.00
0.32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 *TOTALS*
0.115 (iii)
6.00
69.23
76.00
0.91
                                           PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                     0.10
6.00
75.00
76.00
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                0.02
6.08
52.87
76.00
0.70
***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                           (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^\circ = 89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                         -----
| CALIB
| STANDHYD ( 20101)
| ID= 1 DT= 5.0 min
                                                                                                                                                                                                                  Area (ha)= 0.25
Total Imp(%)= 82.00 Dir. Conn.(%)= 82.00
                                                                                                                                                                                                                                                                                                                                                                                                                             PERVIOUS (i)
0.05
1.00
2.00
40.00
0.290
                                                                                                                                                                                                                                                                                          IMPERVIOUS
                                                 Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                  (ha)=
(mm)=
(%)=
(m)=
=
                                                                                                                                                                                                                                                                                                                  0.20
1.00
1.00
40.82
0.013
                                                                                  NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
```

| NOTE: | RAINFALL WAS | TRANSFORM | ED TO | 5.0 MIN. | FIME STE | P. | | |
|--|--|---|--|---|---|--|--|--|
| | TIME RAINFALL WAS TIME RAINFALL WAS TIME RAINFALT 0.083 1.90 0.1667 1.90 0.393 1.90 0.593 1.90 0.583 1.90 0.583 1.90 1.590 1.90 1.590 1.90 1.167 1.90 1.167 1.90 1.167 1.90 1.167 1.90 1.167 1.90 1.167 1.90 1.167 1.90 1.167 1.90 1.167 1.90 1.167 1.90 1.167 1.90 1.167 1.90 1.167 1.90 1.168 1.90 1.169 1.90 1.1750 1.90 1.1833 1.90 1.1910 1.90 1.1833 1.90 1.1910 1.90 1.1910 1.90 1.1910 1.90 1.1910 1.90 1.1910 1.90 1.1910 1.90 1.1910 1.90 1.1910 1.90 1.1910 1.90 1.1910 1.90 1.1910 1.90 1.1910 1.90 1.1910 1.90 1.1910 1.90 1.1910 1.90 1.1910 1.90 1.1910 1.90 1.9 | TIME hrs hrs 3 .0837 3 .1830 3 .3833 3 .417 3 .500 3 .3833 3 .417 4 .000 4 .083 4 .417 4 .500 4 .783 4 .417 4 .500 5 .083 5 .667 5 .753 5 .583 5 .667 5 .753 5 .753 5 .675 5 .753 | ANSFORMEL RAIN, 104 A 3.04 A 3 | D HYETOGRA, I TIME 1 0.0827 1 6.1527 1 6.1527 1 6.1527 1 6.1527 1 6.1527 1 6.1527 1 6.1527 1 7.003 1 7.1527 1 7.003 1 7.1527 1 7.003 1 7.1527 1 7.003 1 7.1527 1 7.003 1 7.1527 1 8.003 8.1527 8.1527 8.1527 8.1528 8.1527 8.1528 8.1527 8.1528 8.1527 8.1528 8.1527 8.1528 8.1527 8.1528 8.1527 8.1528 8.1528 8.1528 8.1528 8.1533 8.1529 8.1533 8.1527 8.1533 | PH | TIME hrs 9.08 9.08 9.09 9.50 9.50 9.50 9.50 9.50 9.50 9.50 10.08 10.17 10.08 10.17 10.08 10.15 10.58 10.50 10.58 10.50 10.58 10.17 10.75 11.158 11. | RAIN mm/h6r 22.666 (22.6666 (22.66666 (22.6666 (22.6666 (22.6666 (22.6666 (22.6666 (22.6666 (22.6666 (22.6666 (22.6666 (22.6666 (22.6666 (22.6666 (22.6666 (22.66666 (22.6666 (22.6666 (22.6666 (22.6666 (22.6666 (22.6666 (22.66666 (22.6666 (22.6666 (22.6666 (22.6666 (22.6666 (22.6666 (22.66666 (22.6666 (22.6666 (22.6666 (22.6666 (22.6666 (22.6666 (22.66666 (22.6666 (22.6666 (22.6666 (22.6666 (22.6666 (22.6666 (22.66666 (22.6666 (22.6666 (22.6666 (22.6666 (22.6666 (22.6666 (22.66666 (22.6666 (22.6666 (22.6666 (22.6666 (22.6666 (22.6666 (22.66666 (22.6666 (22.6666 (22.6666 (22.6666 (22.6666 (22.6666 (22.66666 (22.6666 (22.6666 (22.6666 (22.6666 (22.6666 (22.6666 (22.66666 (22.6666 (22.6666 (22.66666 (22.66666 (22.66666 (22.66666 (22.66666 (22.66666 (22.66666 (22.66666 (22.66666 (22.66666 (22.666666 (22.66666 (22.66666 (22.66666 (22.66666 (22.66666 (22.666666 (22.66666 (22.66666 (22.666666 (22.666666 (22.666666 (22.666666 (22.666666 (22.666666 (22.666666 (22.666666 (22.666666 (22.666666666 (22.6666666 (22.6666666 (22.6666666 (22.6666666 (22.6666666666 | |
| Storage Coe Unit Hyd. 1 Unit Hyd. 1 | ten.(mm/hr)= over (min) eff. (min)= rpeak (min)= peak (cms)= (cms)= AK (hrs)= JME (mm)= FALL (mm)= FFICIENT = | 1.02 5.00 0.34 | (ii) | 5.10 (ii) 10.00 0.16 |) | | | |
| ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN* = 89.0 Ia - Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. | | | | | | | | |
| ID = 3 (| (200821): (200822): (0111): (CFLOWS DO NOT | 0.46 0. | 106 (| 6.00 60 S IF ANY. | R.V. (mm) 1.21 5.91 ===== 5.71 | | | |
| CALIB STANDHYD (201 ID= 1 DT= 5.0 r | | | | | . (%)= 7 | 74.00 | | |

| ADD HYD (0111) 1 + 2 = 3 | AREA (ha) | QPEAK (cms) | TPEAK (hrs) | R.V. | | |
|---|-------------------------|-------------------|----------------|------------|-------|--|
| ID1= 1 (20082 + ID2= 2 (20082 | 1): 0.07 | 0.019 | | | | |
| ID = 3 (011 | 1): 0.46 | 0.106 | 6.00 | 66.71 | | |
| NOTE: PEAK FLOW | S DO NOT INCL | UDE BASEFL | OWS IF AN | IY. | | |
| CALIB STANDHYD (20102) ID= 1 DT= 5.0 min | Area (ha Total Imp(% | 0.47 0)= 74.00 | Dir. Co | onn . (%)= | 74.00 | |
| | | RVIOUS | PERVIOUS | | | |

| | TD | ANCEODME | D HYETOGR | A DU | | |
|-------------------------------------|------------------------|--------------|-----------|-------|----------------|--------------|
| TIME RAI | | RAIN | TIME | RAIN | TIME | RAIN |
| hrs mm/h | | mm/hr | ' hrs | mm/hr | | mm/hr |
| 0.083 1.9 | | 3.04 | 6.083 | 13.68 | | 2.66 |
| 0.167 1.9 | | 3.04 | 6.167 | 13.68 | 9.17 | 2.66 |
| 0.250 1.9 | | 3.04 | | 13.68 | 9.25 | 2.66 |
| 0.333 1.9 | 0 3.333 | 3.04 | 6.333 | 13.68 | 9.33 | 2.66 |
| 0.417 1.9 | 00 3.417 | | 6.417 | 13.68 | 9.42 | 2.66 |
| 0.500 1.9 | 0 3.500 | 3.04 | 6.500 | | 9.50 | 2.66 |
| 0.583 1.9 | 00 i 3.583 | 3.04 | | 6.08 | 9.58 | 2.66 |
| 0.667 1.9 | 00 3.667 | 3.04 | 6.667 | 6.08 | 9.67 | 2.66 |
| 0.750 1.9 | 0 3.750 | 3.04 | 6.750 | 6.08 | 9.75 | 2.66 |
| 0.833 1.9 | 90 3.833 | 3.04 | 6.833 | 6.08 | 9.83 | 2.66 |
| 0.917 1.9 | 0 3.917 | | 6.917 | 6.08 | 9.92 | 2.66 |
| 1.000 1.9 | 00 4.000 | 3.04 | 7.000 | 6.08 | | 2.66 |
| 1.083 1.9 1.167 1.9 | 0 4.083 | 4.56 4.56 | 7.083 | 4.56 | 10.08 | 1.52 |
| 1.167 1.9 | 00 4.167 | 4.56 | 7.167 | 4.56 | 10.17 | 1.52 |
| 1.250 1.9 1.333 1.9 | 0 4.250 | 4.56 | 7.250 | 4.56 | 10.25 | 1.52 |
| 1.333 1.9 | | | 7.333 | 4.56 | | 1.52 |
| 1.417 1.9 | 0 4.417 | | 7.417 | 4.56 | | 1.52 |
| 1.500 1.9 1.583 1.9 | 0 4.500 | 4.56 6.08 | 7.500 | 4.56 | 10.50 | 1.52 1.52 |
| 1.383 1.3 | 00 4.583 | 6.08 | | 4.56 | 10.58 | 1.52 |
| 1.667 1.9 1.750 1.9 | 0 4.667 | | 7.667 | 4.56 | | 1.52 |
| 1.833 1.9 | 0 4.730 | 6.08 | | 4.56 | | 1.52 |
| 1.917 1.9 | 0 4.917 | 6.08 | 7.917 | 4.56 | 10.92 | 1.52 |
| 2.000 1.9 | 0 5.000 | | 8.000 | 4.56 | 11.00 | 1.52 |
| 2.083 2.2 | 8 5.083 | 9.12 | 8.083 | 2.66 | | 1.52 |
| 2 167 2 2 | 8 5.167 | 9.12 | 8.167 | 2.66 | 11.17 | 1.52 |
| 2.250 2.2 | 8 5.250 | 9.12 | 8.250 | 2.66 | 11.25 | 1.52 |
| 2.250 2.2 2.333 2.2 2.417 2.2 | 8 5.250 8 5.333 | 9.12 9.12 | 8.333 | 2.66 | 11.25 11.33 | 1.52 |
| 2 417 2 2 | 8 5.417 | 9.12 | 8.417 | 2.66 | 11.42 | 1.52 |
| 2.500 2.2 | 8 5.500 | 9.12 | 8.500 | 2.66 | 11.50 | 1.52 |
| 2.583 2.2 | 8 5.583 | 36.48 | 8.583 | 2.66 | 11.58 | 1.52 |
| 2.667 2.2 | 8 5.667 | 36.48 | 8.667 | 2.66 | 11.67 | 1.52 |
| 2.750 2.2 | 8 5.750 | 36.48 | 8.750 | 2.66 | 11.75 | 1.52 |
| 2.833 2.2 | 28 5.833 | | 8.833 | 2.66 | | 1.52 |
| 2.917 2.2 | 8 5.917 | 100.32 | 8.917 | 2.66 | 11.92 | 1.52 |
| 3.000 2.2 | 8 6.000 | 100.32 | 9.000 | 2.66 | 12.00 | 1.52 |
| .Inten.(mm/hr)= | 100.32 | | 82.63 | | | |
| over (min) | 5.00 | | 10.00 | | | |
| Coeff. (min)= | | (ii) | 5.69 (ii |) | | |

| Max.Eff.Inten.(r | | 100.32 | 82.63 | |
|------------------|--------|-----------|-----------|-------------|
| over | (min) | 5.00 | 10.00 | |
| Storage Coeff. | (min)= | 1.49 (ii) | 5.69 (ii) | |
| Unit Hyd. Tpeak | (min)= | 5.00 | 10.00 | |
| Unit Hyd. peak | (cms)= | 0.33 | 0.15 | |
| | () | | | *TOTALS* |
| PEAK FLOW | (cms)= | 0.06 | 0.01 | 0.066 (iii) |
| TIME TO PEAK | (hrs)= | 6.00 | 6.00 | 6.00 |
| | | | | |
| RUNOFF VOLUME | (mm)= | 75.00 | 52.87 | 71.00 |
| TOTAL RAINFALL | (mm)= | 76.00 | 76.00 | 76.00 |
| RUNOEE COFFETCTE | | 0.99 | 0.70 | 0.93 |

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^\circ=89.0$ Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ADD HYD (0121) 1 + 2 = 3 | AREA (ha) 0.25 0.47 | QPEAK (cms) 0.066 0.115 | TPEAK (hrs) 6.00 6.00 | R.V. (mm) 71.00 69.23 |
|--|------------------------------|----------------------------------|--------------------------------|--------------------------------|
| ID = 3 (0121): | 0.72 | 0.181 | 6.00 | 69.85 |

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY. L CALTR

| STANDHYD (20111) | Area Total | (ha)= 0.8 Imp(%)= 67.0 | 87 00 Dir. Conn.(%)= | 67.00 |
|---|------------------------|------------------------------------|--------------------------------------|-------|
| Surface Area Dep. Storage Average Slope | (ha)= (mm)= (%)= | IMPERVIOUS 0.58 1.00 1.00 | PERVIOUS (i) 0.29 1.00 2.00 | |
| Length Mannings n | (m)= = | 76.16 0.013 | 40.00 0.290 | |

| | NOTE: RAI | NFALL WAS T | TRANSFORM | ED TO | 5.0 MIN. T | IME STE | EP. | | |
|---|--|---|---|--|---|----------------|---|--|--|
| | TI h 0.0.1 0.1 0.2 0.5 0.6 0.7 0.8 0.8 0.7 0.8 0.7 0.8 0.7 0.7 0.8 0.7 0.7 0.8 0.7 0.7 0.8 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.7 0.7 | ME RAIN ME RAIN RAIN RS mm/hr RS | TR. TIME 11 ME 13 ME 13 ME 13 ME 13 ME 13 ME 13 ME 13 ME 13 ME 14 ME 14 ME 14 ME 14 ME 14 ME 15 | ANSFORMM RATN 13.044 13.044 13.044 13.044 13.044 13.044 13.044 13.044 13.044 13.044 13.044 13.046 14.566 6.08 8.9.12 9.12 9.12 9.12 100.32 100 | ED HYETOGRAP TIME 1 TIME 1 hrs 6.083 6.083 6.167 6.233 6.67 6.233 6.6583 6.6750 7.083 7.107 7.250 7.833 7.417 7.550 7.833 7.417 8.000 7.833 7.417 8.000 8.583 8.183 8.417 8.500 8.583 8.500 8.583 8.917 8.900 | PH | TIME hrs 9.08 1.0 | RAIN mm/hr 2.66 2.66 2.66 2.66 2.66 2.152 2.66 2.152 2.66 2.152 2. | |
| | Storage Coeff. Unit Hyd. Tpea Unit Hyd. peak | (min)= k (min)= (cms)= | 2.17 5.00 0.31 | (ii) | 10.49 (ii) 15.00 0.09 | ***** | ΓΔΙ S* | | |
| | PEAK FLOW TIME TO PEAK RUNOFF VOLUME TOTAL RAINFALL RUNOFF COEFFIC | (cms)= (hrs)= (mm)= (mm)= IENT = | 0.16 6.00 75.00 76.00 0.99 | | 0.05 6.08 52.87 76.00 0.70 | 0. 67 76 | .204 (iii) 5.00 7.69 5.00).89 | | |
| *** WARNING: STORAGE COFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: (N° = 89.0 I a Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. | | | | | | | | | |
| CAI ST/ D= | LIB ANDHYD (20112) 1 DT= 5.0 min Surface Area | - Area Total I | (ha)= [mp(%)= | 0.90 80.00 | Dir. Conn. | (%)= 8 | 30.00 | | |
| | Surface Area Dep. Storage Average Slope Length Mannings n | (ha) = (mm) = (%) = (m) = | IMPERVIO 0.72 1.00 1.00 77.46 0.013 | JS PE | ERVIOUS (i) 0.18 1.00 2.00 40.00 0.290 | | | | |
| | NOTE: RAI | NFALL WAS T | RANSFORM | ED TO | 5.0 MIN. T | IME STE | P. | | |

| CALIB STANDHYD (20112) ID= 1 DT= 5.0 min | Area Total | (ha)= (Imp(%)= 80 |).90).00 D | Dir. Con | n.(%)= | 80.00 | |
|---|-------------------------------------|--|----------------|---|--------|-------|--|
| Surface Area Dep. Storage Average Slope Length Mannings n | (ha)= (mm)= (%)= (m)= = | 0.72 1.00 1.00 77.46 0.013 | 4 | RVIOUS (1 0.18 1.00 2.00 40.00 0.290 | i) | | |
| NOTE: RAINFA | ALL WAS | TRANSFORME | то 5 | 5.0 MIN. | TIME S | TEP. | |

| | | TR/ | | | YETOGR | APH | | |
|-------|-------|-------|-------|-----|--------|---------|------|-------|
| TIME | RAIN | TIME | RAIN | | TIME | RAIN | TIME | RAIN |
| hrs | mm/hr | hrs | mm/hr | | hrs | mm/hr | hrs | mm/hr |
| 0 000 | 1 00 | 3 083 | 2 04 | 1 6 | 002 | 12 60 1 | 9 08 | 2 66 |

| 0.833 1.90 0.917 1.90 1.000 1.90 1.1083 1.90 1.250 1.90 1.250 1.90 1.431 1.90 1.4417 1.90 1.500 1.90 1.500 1.90 1.503 1.90 1.667 1.90 1.750 1.90 1.750 2.80 2.167 2.28 2.250 2.28 2.333 2.28 2.417 2.28 2.590 2.28 | 3.833 3.04 3.917 3.04 4.083 4.56 4.183 4.56 4.177 4.56 4.177 4.56 4.177 4.56 4.177 4.56 4.183 6.08 4.177 6.08 4.583 6.08 4.757 | 8.083 8.167 8.250 8.333 8.417 8.500 8.583 8.667 8.750 | 6.08 9.83 2.66 6.08 9.83 2.66 6.08 9.92 2.66 6.08 10.00 1.52 4.56 10.00 1.52 4.56 10.35 1.52 4.56 10.33 1.52 4.56 10.33 1.52 4.56 10.93 1.52 4.56 10.67 1.52 4.56 10.83 1.52 4.56 10.83 1.52 4.56 10.83 1.52 4.56 10.83 1.52 4.56 10.83 1.52 4.56 10.83 1.52 2.66 11.10 1.52 2.66 11.10 1.52 2.66 11.15 1.52 2.66 11.50 1.52 2.66 11.90 1.52 |
|--|---|---|---|
| Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= | 100.32 5.00 2.33 (ii) 5.00 0.30 | 82.63 10.00 6.65 (ii) 10.00 0.14 | |
| PEAK FLOW (CMS)= TIME TO PEAK (hrs)= RUNOFF VOLUME (mm)= TOTAL RAINFALL (mm)= RUNOFF COEFFICIENT = | 0.25 6.00 75.00 76.00 0.99 | 0.04 6.00 52.87 76.00 0.70 | *TOTALS* 0.291 (iii) 6.00 70.79 76.00 0.93 |

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

 CN° = 89.0 Ia = Dep. Storage (Above)

 (i) TIME STEP (DT) SMOULD BE SMALLER OR EQUAL

 THAN THE STORAGE COEFFICIENT.

 (iii) PEAK FLOW DOES NOT INCLIDE BASEFLOW IF ANY.

| CALIB STANDHYD (201021) ID= 1 DT= 5.0 min | Area Total | (ha)= Imp(%)= | 0.47 85.00 | Dir. Conn.(%)= | 85.00 |
|---|-------------------------------------|--|------------------|--|-------|
| Surface Area Dep. Storage Average Slope Length Mannings n | (ha)= (mm)= (%)= (m)= = | IMPERVI 0.4 1.0 1.0 55.9 0.01 | 0 0 0 8 | PERVIOUS (i) 0.07 1.00 2.00 40.00 0.290 | |

| | | TR | ANSFORME | HYETOGR | APH | - | |
|-------|-------|-------|----------|---------|-------|-------|-------|
| TIME | RAIN | TIME | RAIN | ' TIME | RAIN | TIME | RAIN |
| hrs | mm/hr | hrs | mm/hr | ' hrs | mm/hr | hrs | mm/hr |
| 0.083 | 1.90 | 3.083 | 3.04 | 6.083 | 13.68 | 9.08 | 2.66 |
| 0.167 | 1.90 | 3.167 | 3.04 | 6.167 | 13.68 | 9.17 | 2.66 |
| 0.250 | 1.90 | 3.250 | 3.04 | 6.250 | 13.68 | 9.25 | 2.66 |
| 0.333 | 1.90 | 3.333 | 3.04 | 6.333 | 13.68 | 9.33 | 2.66 |
| 0.417 | 1.90 | 3.417 | 3.04 | 6.417 | 13.68 | 9.42 | 2.66 |
| 0.500 | 1.90 | 3.500 | 3.04 | 6.500 | 13.68 | 9.50 | 2.66 |
| 0.583 | 1.90 | 3.583 | 3.04 | 6.583 | 6.08 | 9.58 | 2.66 |
| 0.667 | 1.90 | 3.667 | 3.04 | 6.667 | 6.08 | 9.67 | 2.66 |
| 0.750 | 1.90 | 3.750 | 3.04 | 6.750 | 6.08 | 9.75 | 2.66 |
| 0.833 | 1.90 | 3.833 | 3.04 | 6.833 | 6.08 | 9.83 | 2.66 |
| 0.917 | 1.90 | 3.917 | 3.04 | 6.917 | 6.08 | 9.92 | 2.66 |
| 1.000 | 1.90 | 4.000 | 3.04 | 7.000 | 6.08 | 10.00 | 2.66 |
| 1.083 | 1.90 | 4.083 | 4.56 | 7.083 | 4.56 | 10.08 | 1.52 |
| 1.167 | 1.90 | 4.167 | 4.56 | 7.167 | 4.56 | 10.17 | 1.52 |
| 1.250 | 1.90 | 4.250 | 4.56 | 7.250 | 4.56 | 10.25 | 1.52 |
| 1.333 | 1.90 | 4.333 | 4.56 | 7.333 | 4.56 | 10.33 | 1.52 |
| 1.417 | 1.90 | 4.417 | 4.56 | 7.417 | 4.56 | 10.42 | 1.52 |

| 0.500 1.90 0.583 1.90 0.687 1.90 0.687 1.90 0.687 1.90 0.917 1.90 1.000 1.90 1.000 1.90 1.1087 1.90 1.1087 1.90 1.1087 1.90 1.1087 1.90 1.1087 1.90 1.1087 1.90 1.1087 1.90 1.1087 1.90 1.1087 1.90 1.109 1.90 | 3.500 3.04 3.587 3.04 3.587 3.04 3.587 3.04 4.083 4.56 4.000 3.04 4.083 4.56 4.164 4.58 4.167 4.56 4.500 4.56 4.500 4.56 4.500 4.56 4.500 4.56 4.500 4.56 5.000 6.08 5.000 6.08 5.000 6.08 5.000 9.12 5.000 6.08 5.000 9.12 5.000 6.08 5.000 | 8.040 | 9.508 2.666 9.507 2.666 9.975 2.666 9.983 2.666 9.992 2.666 10.000 2.666 10.005 1.52 10.35 1.52 10.35 1.52 10.50 1.52 10.50 1.52 10.50 1.52 10.50 1.52 10.50 1.52 10.50 1.52 10.50 1.52 10.50 1.52 10.50 1.52 11.008 1.52 11.008 1.52 11.008 1.52 11.108 1.52 11.11.52 11.52 11.52 11.52 |
|--|---|---|---|
| PEAK FLOW (cms)= TIME TO PEAK (hrs)= RUNOFF VOLUME (mm)= TOTAL RAINFALL (mm)= RUNOFF COEFFICIENT = | 0.20 6.00 75.00 76.00 0.99 | 0.04 0 6.00 52.87 7 76.00 7 | 1.236 (iii) 6.00 0.57 6.00 0.93 |
| **** WARNING: STORAGE COEFF. : (i) CN PROCEDURE SELECTI CN° = 83.0 I ia (ii) TIME STEP (DT) SHOUL THAN THE STORAGE COI (iii) PEAK FLOW DOES NOT | S SMALLER THAN | | |
| | | | |
| CALTB STANDHYD (20122) Area ID= 1 DT= 5.0 min Total Ir SUFFACE Area (ha) = Dep. Storage (mm) = AVERAGE Slope (%) = Length (%) = Mannings n = NOTE: RAINFALL WAS TH | 0.90 1.00 1.00 86.02 0.013 | RVIOUS (i) 0.21 1.00 2.00 40.00 0.290 5.0 MIN. TIME ST | EP. |
| 0.065 1.90 | TRANSFORME TIME RAIN hrs mm/hr 3.083 3.04 3.167 3.04 3.250 3.04 3.353 3.04 3.417 3.04 3.500 3.04 3.583 3.04 3.583 3.04 3.750 3.04 | D HYETOGRAPH | TIME RAIN hrs mm/hr 9.08 2.66 9.17 2.66 9.23 2.66 9.23 2.66 9.53 2.66 9.53 2.66 9.55 2.66 9.58 2.66 9.57 2.66 9.75 2.66 9.75 2.66 |
| 1.667 1.90 1.750 1.90 1.833 1.90 1.917 1.90 2.083 2.28 2.167 2.28 2.250 2.28 2.333 2.28 2.417 2.28 2.500 2.28 2.500 2.28 | 4.750 6.08 4.833 6.08 4.917 6.08 5.000 6.08 5.083 9.12 5.167 9.12 5.250 9.12 5.333 9.12 5.417 9.12 | 7.750 | 10.67 |
| Max.Eff.Inten.(mm/hr) = Storage.Coeff (min) = Unit Hyd. Theak (min) = Unit Hyd. Theak (min) = Unit Hyd. Theak (min) = PEAK FLOW TIME TO FEAK (the) = RUNGFF VOLUME (mn) = TOTAL RAINFALL (mn) = RUNGFF COEFFICIENT = | 100.32 5.00 1.80 (ii) 5.00 0.32 | 82.63 10.00 5.65 (ii) 10.00 0.15 **TO 0.01 6.00 52.87 76.00 | TALS* 1.126 (iii) 6.00 1.67 6.00 0.94 |
| ***** WARNING: STORAGE COEFF. : (i) CN PROCEDURE SELECTI CN° = 89.0 I ia (ii) TIME STEP (DT) SHOUL THAN THE STORAGE COL (iii) PEAK FLOW DOES NOT | ED FOR PERVIOUS | LOSSES: (Above) | |
| CALIB STANDHYD (201022) Area ID= 1 DT= 5.0 min | (ha)= 0.47 mp(%)= 85.00 PE IMPERVIOUS PE 0.40 1.00 1.00 55.98 0.013 | Dir. Conn.(%)= RVIOUS (i) 0.07 1.00 2.00 40.00 0.290 | |
| 0.683 1.90 0.163 1.90 0.163 1.90 0.250 1.90 0.333 1.90 0.500 1.90 0.500 1.90 0.500 1.90 0.500 1.90 0.500 1.90 0.500 1.90 0.500 1.90 0.500 1.90 0.833 1.90 0.933 1.90 0.913 1.90 1.000 1.90 1.1087 1.90 1.1087 1.90 1.1687 1.90 1.1583 1.90 1.1583 1.90 1.583 1.90 1.583 1.90 1.583 1.90 1.583 1.90 1.583 1.90 1.583 1.90 1.583 1.90 1.583 1.90 1.583 1.90 | 3.083 3.04 3.167 3.04 3.250 3.04 3.417 3.04 3.500 3.04 3.500 3.04 3.583 3.04 3.667 3.04 3.750 3.04 4.083 4.56 4.250 4.56 4.250 4.56 4.417 4.56 4.417 4.56 | D HYETOGRAPH 'TIME RAIN 'hrs RAIN 'hrs RAIN 6.083 13.68 6.167 13.68 6.250 13.68 6.550 13.68 6.550 6.08 6.653 70.11 6.083 70.11 6.083 70.11 6.083 70.11 6.083 70.11 6.083 70.11 6.083 70.11 6.083 70.11 6.083 70.11 6.083 70.11 6.083 70.11 6.083 70.11 6.083 70.11 6.083 70.11 6.083 70.11 6.083 70.11 6.083 70.11 6.084 70.11 6.084 70.11 6.084 70.11 6.085 70.11 6. | 9.187 2.66 9.187 2.66 9.187 2.66 9.53 2.66 9.50 2.66 9.50 2.66 9.67 2.66 9.67 2.66 9.83 2.66 9.83 2.66 10.00 2.66 10.00 2.66 10.01 1.52 10.17 1.52 10.42 1.52 |

| 2.167 2.28 5.167 9.12 8.167 2.66 11.17 1.52 | 1.833 1.90 4.833 6.08 7.833 4.56 10.83 1.52 1.917 1.90 4.917 6.08 7.917 4.56 10.92 1.52 2.000 1.90 5.000 6.08 8.000 4.56 10.92 1.52 2.083 2.28 5.083 9.12 8.083 2.66 11.08 1.52 2.167 2.28 5.167 9.12 8.167 2.66 11.75 1.52 2.250 2.28 5.250 9.12 8.250 2.66 11.175 1.52 2.251 2.28 5.333 9.12 8.333 2.66 11.25 1.52 2.2417 2.28 5.333 9.12 8.333 2.66 11.33 1.52 2.417 2.28 5.347 9.12 8.417 2.66 11.42 1.52 2.502 2.28 5.500 9.14 8.500 2.66 11.42 1.52 2.503 2.28 5.500 9.6.48 8.500 2.66 11.42 1.52 2.683 2.28 5.500 9.6.48 8.500 2.66 11.50 1.25 2.263 2.28 5.500 9.6.48 8.500 2.66 11.50 1.52 2.263 2.28 5.500 9.6.48 8.500 2.66 11.50 1.52 2.2750 2.28 5.5750 36.48 8.750 2.66 11.57 1.52 2.283 2.28 5.833 10.32 8.833 2.66 11.75 1.52 2.2170 2.28 5.751 0.36.48 8.750 2.66 11.75 1.52 2.2170 2.28 5.731 10.03 8.917 2.66 11.75 1.52 2.2170 2.28 5.833 10.32 8.833 2.66 11.75 1.52 2.2170 2.28 5.917 100.32 8.917 2.66 11.75 1.52 2.2170 2.28 5.917 100.32 8.917 2.66 11.75 1.52 2.22 5.700 2.28 5.917 100.32 8.917 2.66 11.75 1.52 2.22 5.700 2.28 5.917 100.32 8.917 2.66 11.75 1.52 2.700 |
|--|---|
| Time Time Rain Time | CALIB STANDHYD (20121) Total Imp(%) = 56.00 Dir. conn.(%) = 56.00 |
| 2.500 2.28 5.500 8.12 8.500 2.66 11.50 1.52 2.667 2.28 5.667 36.48 8.667 2.66 11.67 1.52 2.667 2.28 5.667 36.48 8.667 2.66 11.67 1.52 2.750 2.28 5.750 36.48 8.667 2.66 11.67 1.52 2.750 2.28 5.750 36.48 8.750 2.66 11.75 1.52 2.750 2.28 5.381 30.032 8.383 2.66 11.75 1.52 2.750 2.28 5.381 30.032 8.383 2.66 11.75 1.52 2.750 2.28 5.750 36.48 8.750 2.66 11.75 1.52 2.750 2.28 5.750 36.48 8.750 2.66 11.75 1.52 3.750 3.750 3.750 3.750 3.750 3.750 4.750 4.750 4.750 4.750 4.750 5.750 5.750 5.750 5.750 4.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.750 5.75 | Max.Eff.Inten.(mm/hr) |

RUNOFF VOLUME (mm)= TOTAL RAINFALL (mm)= RUNOFF COEFFICIENT = Unit Hyd. peak (cms)= 0.34 0.15 *TOTALS* 0.026 (iii) 6.00 70.32 76.00 0.93 0.02 6.00 75.00 76.00 0.99 0.00 6.00 52.87 76.00 0.70 (cms)= (hrs)= PEAK FLOW TIME TO PEAK WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! RUNOFF VOLUME (mm)= TOTAL RAINFALL (mm)= RUNOFF COEFFICIENT = (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^{\circ}=89.0$ Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^{\circ}=89.0$ Ia = Dep. Storage (Above) if TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. ADD HYD (0142) | 1 + 2 = 3 | TPEAK (hrs) 6.00 6.00 | CALIB | STANDHYD (200122) |ID= 1 DT= 5.0 min Area (ha)= 0.13Total Imp(%)= 86.00 Dir. Conn.(%)= 86.00ID = 3 (0142): 0.21 0.057 72.38 6.00 IMPERVIOUS PERVIOUS (i) Surface Area Dep. Storage Average Slope Length Mannings n (ha)= (mm)= (%)= (m)= 0.11 1.00 1.00 29.44 0.013 0.02 1.00 2.00 40.00 0.290 NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY. NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. IMPERVIOUS 0.08 1.00 1.00 25.69 0.013 PERVIOUS (i) 0.02 1.00 2.00 40.00 0.290 Surface Area Dep. Storage Average Slope Length Mannings n (ha)= (mm)= (%)= (m)= TRANSFORMED HYETOGRAPI TIME hrs 3.083 3.167 3.250 ' TIME 6.083 6.167 6.250 6.333 6.417 6.500 6.583 6.667 6.750 6.833 6.917 7.000 7.083 7.167 7.250 7.333 7.417 TIME hrs 0.083 0.107 0.250 0.167 0.250 0.167 0.250 0.167 0.250 0.167 0.750 0.167 0.750 0.158 0.167 0.750 0.158 0.167 0.750 0.158 0.167 0.750 0.167 0.750 0.167 0.750 0.167 0.750 0.167 0.1 NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. 3.333 3.417 3.500 3.583 3.917 4.000 4.083 4.167 4.250 4.833 4.417 4.750 4.833 4.417 5.083 5.167 5.083 5.167 5.583 5.317 5.583 5.583 5.583 5.583 5.583 5.583 5.583 5.667 6.000 ED HYETOGRAPH

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6.7000 6.70 TIME hrs of 0.0833 0.167 0.250 0.417 0.250 0.417 1.000 0.583 0.667 1.250 0.833 1.167 1.250 0.833 1.2417 1.250 0.250 1.250 0.25 TIME horses 9.18 9.17 9.33 9.42 9.50 9.58 9.67 9.83 9.67 9.00 10.08 10.17 10.25 10.58 10.75 10.88 10.75 10.88 11.08 11.12 11.08 11.12 11.13 11.42 10.50 10.58 10.67 10.75 10.83 1.52 1.52 1.52 1.52 1.52 7.500 7.583 7.667 7.750 7.833 7.917 8.000 8.083 8.167 8.253 8.417 8.583 8.583 8.667 8.753 8.853 8.817 9.000 10.09 11.08 11.17 11.25 11.33 11.42 11.50 11.58 11.67 11.75 11.83 11.92 12.00 1.52 1.52 1.52 1.52 Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (Cms)= 100.32 5.00 1.23 5.00 0.33 82.63 5.00 4.95 (ii) 5.00 0.22 2.417 2.500 2.583 2.667 2.750 2.833 2.917 3.000 11.42 11.50 11.58 11.67 11.75 11.83 11.92 12.00 (ii) *TOTALS* 0.035 (iii) 6.00 71.89 76.00 0.95 0.03 6.00 75.00 76.00 0.99 0.00 6.00 52.87 76.00 0.70 Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= 100.32 5.00 1.13 (ii) 5.00 82.63 10.00 5.66 (ii) 10.00 *** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! | CALIB | | STANDHYD (20022) | |ID= 1 DT= 5.0 min | (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^{\circ}=89.0$. In a Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. Area (ha)= 0.80 Total Imp(%)= 85.00 Dir. Conn.(%)= 85.00 IMPERVIOUS 0.68 1.00 1.00 73.03 0.013 Surface Area Dep. Storage Average Slope Length Mannings n PERVIOUS (i) (ha)= (mm)= (%)= (m)= 0.12 1.00 2.00 40.00 0.290 | ADD HYD (0145) | | 1 + 2 = 3 | SFORMED TO 5.0 MIN. T1m

-- TRANSFORMED HYETOGRAPH
TIME RAIN | TIME
BRAIN | TIME
RAIN | TIME
1.083 3.633 6.306 6.083 16
3.250 3.633 6.250 11
3.250 3.633 6.306 6.250 11
3.250 3.633 6.306 6.250 11
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3.250 3.633 6.500 11
3.250 3.633 6.500 11
3.250 3.633 6.750 3
3.633 6.750 3.63 6.670 3
3.633 3.63 6.683 3
3.636 7.267 7.267 7.750 3
4.000 3.63 7.267 7.267 7.283 4
4.570 5.44 7.400 4
4.250 5.44 7.400 4
4.250 5.44 7.250 4
4.333 7.26 7.267 7.283 4
4.570 7.26 7.667 7.667 7.667 7.26 7.267 7.2 NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. OPEAK (cms) 0.026 0.035 TPEAK (hrs) 6.00 6.00 ID1= 1 (200112): + ID2= 2 (200122): TIME hrs 9.08 9.17 9.25 9.33 9.50 9.58 9.67 9.75 9.75 9.83 9.90 10.08 10.17 10.25 10.33 ID = 3 (0145): 0.23 0.061 71.21 6.00 0.083 0.167 0.250 0.250 0.417 0.750 0.750 0.750 0.750 0.750 0.150 0.750 0.750 0.150 NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY / I SSSSS U U A L
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I SSSSS UUUUU A A LLLLL 3.17 1.81 1.81 1.81 1.81 1.81 1.81 1.81 1.81 1.81 ***** DETAILED OUTPUT ***** 10.83 10.92 11.00 11.08 11.17 11.25 11.33 11.42 11.50 11.58 11.67 11.75 11.83 11.92 12.00 Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\V02\voin.dat
Output filename: C:\User3\caef070146\Apppata\Loca\\Civica\VH5\0564c49-8c07-4086-8157-8729fb3caba3\d5d7529a
Summary filename: C:\User3\caef070146\Apppata\Loca\\Civica\VH5\0564c49-8c07-4086-8157-8729fb3caba3\d5d7529a 1.81 1.81 1.81 1.81 1.81 USER: 1.81 1.81 1.81 1.81 1.81 Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= 119.72 5.00 1.97 5.00 0.31 102.72 10.00 5.56 (ii) 10.00 0.16 (ii) *TOTALS*
0.257 (iii)
6.00
86.21
90.70
0.95 PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT = 0.23 6.00 89.70 90.70 0.99 0.03 6.00 66.45 90.70 0.73 Filename: C:\Users\caef070146\AppD ata\Local\Temp\ a3a8b910-d519-48ad-be84-5b44b6daecc3\2d33b8b1 Comments: 25-Yr,12-hr SCS, City of Barrie READ STORM Ptotal= 90.70 mm RAIN | TIME hrs 0.25 0.50 0.75 1.00 1.25 1.50 1.75 2.00 2.25 2.75 3.00 RAIN | TIME WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! RAIN mm/hr 3.63 3.63 3.63 5.44 7.26 7.26 10.88 10.88 43.54 119.72 RAIN mm/hr 16.33 | 16.33 | 7.26 | 7.26 | 5.44 | 5.44 | 5.44 | 5.44 | 3.17 | 3.17 | 3.17 | TIME hrss 9.25 9.50 9.75 10.00 10.75 11.00 11.25 11.50 11.75 12.00 mm/hr 3.17 3.17 3.17 3.17 mm/hr 2.27 2.27 2.27 2.27 2.27 2.27 2.27 2.72 2.72 2.72 2.72 hrs 3.25 3.50 3.75 4.00 4.25 4.50 4.75 5.00 5.25 5.75 6.00 hrs 6.25 6.50 6.75 7.00 7.25 7.50 7.75 8.00 8.25 8.75 9.00 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^{\circ}=89.0$ Ia = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. 3.17 1.81 1.81 1.81 1.81 1.81 1.81 1.81 CALIB STANDHYD (20021) ID= 1 DT= 5.0 min Area (ha)= 0.70 Total Imp(%)= 89.00 Dir. Conn.(%)= 89.00 IMPERVIOUS PERVIOUS (i)

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Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                         (%)=
(m)=
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Nrs (0.883 (0.167 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1884 (0.1
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over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
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TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0.01
6.00
66.45
90.70
0.73
                                                             Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 119.72
5.00
1.89 (ii)
5.00
0.32
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10.00
5.00 (ii)
10.00
0.16
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              *TOTALS*
0.227 (iii)
6.00
87.14
90.70
0.96
                                                                      PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0.21
6.00
89.70
90.70
0.99
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6.00
66.45
90.70
0.73
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                                             ** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^{\circ}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SMOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Area (ha)= 0.47
Total Imp(%)= 87.00 Dir. Conn.(%)= 87.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IMPERVIOUS PERVIOUS (i) 0.41 0.06 1.00 1.00 2.00 55.98 40.00 0.013 0.290
        | CALIB | STANDHYD ( 20031) | Area (ha) = 0.43 | Total Imp(%) = 90.00 | Dir. Conn.(%) = 90.00 | IMPERVIOUS | PERVIOUS (i)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                             (ha) = IMPERVIOUS

(mm) = 0.39

(mm) = 1.00

(%) = 1.00

(m) = 53.54

= 0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PERVIOUS (i)
0.04
1.00
2.00
40.00
0.290
                                                                  Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TIME RAIN | TIME hrs mm/hr | hrs m 3.083 3.63 6.083 16 3.65 6.253 16 3.33 3.63 6.253 16 3.33 3.63 6.33 16 3.33 3.63 6.33 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.50 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 3.63 6.35 
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RAIN |
mm/hr |
16.33 |
16.33 |
16.33 |
16.33 |
16.33 |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RAIN
mm/hr
2.27
2.27
2.27
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2.27
2.27
                                                                                                                           NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                         ---- TRANSFORMED HYETOGRAPH ----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2.27 | 4.250 | 5.44 |
2.27 | 4.333 | 5.44 |
2.27 | 4.417 | 5.44 |
2.27 | 4.450 | 5.44 |
2.27 | 4.583 | 7.26 |
2.27 | 4.583 | 7.26 |
2.27 | 4.667 | 7.26 |
2.27 | 4.817 | 7.26 |
2.27 | 4.817 | 7.26 |
2.27 | 4.817 | 7.26 |
2.27 | 5.083 | 10.88 |
2.72 | 5.167 | 10.88 |
2.72 | 5.167 | 10.88 |
2.72 | 5.250 | 10.88 |
2.72 | 5.333 | 10.88 |
2.72 | 5.553 | 3.34 |
2.72 | 5.583 | 3.54 |
2.72 | 5.583 | 3.54 |
2.72 | 5.667 | 43.54 |
2.72 | 5.67 | 43.54 |
2.72 | 5.687 | 43.54 |
2.72 | 5.697 | 43.54 |
2.72 | 5.697 | 43.54 |
2.72 | 5.697 | 43.54 |
2.72 | 5.697 | 43.54 |
2.72 | 5.697 | 43.54 |
2.72 | 5.697 | 43.54 |
2.72 | 5.697 | 43.54 |
2.72 | 5.697 | 5.917 |
2.72 | 5.917 | 119.72 |
2.72 | 6.000 | 119.72 |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3.583
3.667
3.750
3.833
3.917
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3.63 | 6.667

3.63 | 6.673

3.63 | 6.733

3.63 | 6.933

3.63 | 6.933

5.44 | 7.168

5.44 | 7.708

5.44 | 7.750

5.44 | 7.417

5.46 | 7.750

5.47 | 7.50

5.47 | 7.50

5.48 | 7.750

5.49 | 7.750

5.40 | 7.750

5.40 | 7.750

5.41 | 7.350

5.42 | 7.750

5.44 | 7.350

5.44 | 7.350

5.44 | 7.350

5.44 | 7.350

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5.44 | 7.350

5.44 | 7.350

5.44 | 7.350

5.46 | 7.570

7.26 | 7.677

7.26 | 7.677

7.26 | 7.677

7.28 | 8.000

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9.67

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10.08

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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      *TOTALS*
0.114 (iii)
6.00
87.14
90.70
0.96
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TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0.10
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90.70
0.99
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6.00
66.45
90.70
0.73
                                                             Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                     119.72
5.00
1.68 (ii)
5.00
0.32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      102.72
10.00
5.03 (ii)
10.00
0.16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    **** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              *TOTALS*
0.152 (iii)
6.00
86.67
90.70
0.96
                                                                  PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0.14
6.00
89.70
90.70
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0.02
6.00
66.45
90.70
0.73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                  * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN° = 89.0 Ia = Dep. Storage (Above)

ITAM STEP (DT) SMOULD BE SMALLER OR EQUAL

THAN THE STORAGE COEFFICIENT.

(iii) PEAK FLOW DOES NOT INCLIDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Area (ha)= 0.36
Total Imp(%)= 85.00 Dir. Conn.(%)= 85.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | IMPERVIOUS | PERVIOUS (1) | (ha) = 1.00 | 1.00 | 1.00 | (%) = 1.00 | 2.00 | (m) = 48.99 | 40.00 | = 0.013 | 0.290 |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Surface Area
Dep. Storage
Average Slope
Length
Mannings n
| CALIB
| STANDHYD ( 20041)
| ID= 1 DT= 5.0 min
                                                                                                                                                                                                                                                                                                                             Area (ha)= 0.35 Total Imp(\%)= 89.00 Dir. Conn.(\%)= 89.00
                                                                  Surface Area (ha)=
Dep. Storage (mm)=
Average Slope (%)=
Length (m)=
                                                                                                                                                                                                                                                                                                                                                                                                                    IMPERVIOUS PERVIOUS (i)
0.31 0.04
1.00 1.00
1.00 2.00
48.30 40.00
0.013 0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TRANSFORMED HYETOGRAPH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ED HYETOGR

TIME

'hrs

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                                                                                                                           NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TIME hrs 3.083 3.167 3.250 3.333 3.417 3.500 3.583 3.667 3.750 3.833 3.917 4.003 4.083 4.167
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                                                                                                                                                                                                                                                                                                                                                      TIME hrs 6.083 6.167 6.250 6.333 6.417 6.500 6.583 6.667 6.750 6.833 6.917 7.000 7.083 7.167
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9.58
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10.00
10.08
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hrs 9.08 9.17

9 .75 9 .88 9 .58 9 .59 9 .59 9 .75 9 .83 9 .92 10 .00 10 .08 10 .10 .58 10 .58 10 .69 11 .00 11 .08 11 .08 11 .08 11 .108 11 .175 11 .138 11 .158 11 .158 11 .158 11 .89 11 .89 11 .89 11 .89 11 .89 11 .89 11 .89 11 .89 11 .89 11 .99 12 .90

TIME hrs 9.08 9.17 9.25 9.33 9.42 9.50

10.25 10.33 10.42 10.50 10.56 10.67 10.75 10.83 11.08 11.17 11.25 11.33 11.42 11.58 11.58 11.68 11.75 11.88 11.75

TIME 9.08 9.17 9.25 9.33 9.42 9.50 9.58 9.75 9.83 10.00 10.02 10.17 10.23 10.42 10.58 10.67 10.67 10.83

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RAIN mm/hr 3.17 3.17 3.17 3.17 3.17 3.17

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| 2.000 2. 2.083 2. 2.083 2. 2.183 2. 2.333 2. 2.2417 2. 2.500 2. 2.500 2. 2.500 2. 2.583 2. 2.500 2. 2.583 2. 2.650 2. 2. | 72 3-533 10-88 8-533 72 5-417 10-88 8-417 72 5-417 10-88 8-417 72 5-500 10-88 8-500 72 5-583 43-54 8-667 43-54 8-667 43-54 8-667 43-54 8-667 43-54 8-667 22 5-937 119-72 8-937 22 6-000 119-72 9-000 119-72 10-00 10-00 1-55 10-00 1-55 10-00 10-00 1-55 10-00 10-00 1-55 10-00 10-00 1-55 10-00 10-00 1-55 10-00 10-00 1-55 10-00 10-00 1-55 10-00 10-00 1-55 10-00 10-00 1-55 10-00 1-55 10-00 10-00 1-55 10-00 10-00 1-55 10-00 10-00 1-55 10-00 10-00 1-55 10-00 | -10AL5- 0.116 (iii) 6.00 86.70 90.70 0.95 | |
|--|--|--|--|
| CALTB CALTB STANDHYD (20052) Area ID= 1 DT= 5.0 min Tota Dep. Storage (mp) Average Slope (capth) Mannings n | Ta = Dep. Storage (Above) HOULD BE SMALLER OR EQUAL COEFFICIENT. OT INCLUDE BASEFLOW IF ANY. (ha)= 0.29 1 Imp(%)= 78.00 Dir. Conr IMPERVIOUS PERVIOUS (1.00 1.00 1.00 1.00 2.00 43.97 40.00 0.013 0.290 S TRANSFORMED TO 5.0 MIN. | i) TIME STEP. | |
| 0.917 2. 1.000 2. 1.000 2. 1.000 2. 1.050 2. 1.250 2. 1.4170 2. 1.250 2. 1.433 2. 1.583 2. 1.750 2. 1.833 2. 1.917 2. 2.000 2. 2. 2.000 2. 2. 2.150 2. 2. 2.150 2. 2. 2.150 2. 2. 2.150 2. 2. 2.150 2. 2. 2.150 2. 2. 2.150 2. 2. 2.150 2. 2. 2. 2.150 2. 2. 2. 2.150 2. 2. 2. 2.150 2. 2. 2. 2.150 2. 2. 2. 2.150 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. | 27 3.917 3.63 6.917 77 4.000 3.63 7.000 3.63 7.000 7.000 3.63 7.000 | RAIN TIME RAIN | |
| CN* = 89.0 (ii) TIME STEP (DT) S THAN THE STORAGE | 0.19 0.04 6.00 6.00 89.70 66.45 90.70 90.70 0.99 0.73 | *TOTALS* 0.231 (iii) 6.00 85.06 99.70 0.94 | |
| Surface Area (ha)= Dep. Storage (mm)= Average Slope (%)= Length (m)= Mannings n = | IMPERVIOUS PERVIOUS (i 0.55 0.10 1.00 1.00 1.00 2.00 | i) | |
| New mm/y m | 77 3.1667 3.663 6.167 77 3.250 3.633 6.250 77 3.250 3.633 6.250 77 3.250 3.633 6.250 77 3.260 3.633 6.250 77 3.260 3.633 6.250 77 3.260 3.633 6.250 77 3.260 3.633 6.250 77 3.260 3.633 6.250 77 3.260 3.633 6.250 77 3.260 3.633 6.250 77 3.260 3.633 6.250 77 3.260 3.260 3.633 6.250 77 3.260 3.260 3.260 6.250 77 4.000 3.63 7.000 77 4.000 3.63 7.000 77 4.000 3.63 7.000 77 4.250 5.444 7.250 77 4.250 5.447 7.250 77 4.250 5.447 7.250 77 4.250 7.250 7.250 7.250 77 4.250 7.250 7.250 7.250 77 4.250 7.250 7.250 7.250 77 4.250 7.250 7.250 7.250 77 4.250 7.250 7.250 7.250 77 4.250 7.250 7.250 7.250 77 4.250 7.250 7.250 7.250 77 4.250 7.250 7.250 7.250 77 4.250 7.250 7.250 7.250 77 4.250 7.250 7.250 7.250 77 4.250 7.250 7.250 7.250 77 4.250 7.250 7.250 7.250 77 4.250 7.250 7.250 7.250 77 4.250 7.250 7.250 7.250 77 4.250 7.250 7.250 7.250 7.250 77 4.250 7.250 7.250 7.250 7.250 77 4.250 7.250 7.250 7.250 7.250 77 4.250 7.250 7.250 7.250 7.250 77 4.250 7.250 7.250 7.250 7.250 77 4.250 7.250 7.250 7.250 7.250 77 4.250 7.250 7.250 7.250 7.250 77 4.250 7.250 7.250 7.250 7.250 77 4.250 7.250 7.250 7.250 7.250 77 4.250 7.250 7.250 7.250 7.250 7.250 77 4.250 7.250 7.250 7.250 7.250 7.250 77 5.250 7.250 7.250 7.250 7.250 7.250 77 5.250 7.250 | NAPH | |
| ver (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= PEAK FLOW (cms) TIME TO PEAK (hrs)= RUNOFF VOLUME (mm)= | 5.00 10.00 1.85 (ii) 5.44 (ii 5.00 10.00 0.32 0.16 0.18 0.02 | *TOTALS* 0.209 (iii) 6.00 86.21 | |

| Max.Eff.Ir Storage Co | over (| 2.72 2.72 2.72 2.72 2.72 2.72 n/hr)= (min) | 5.583 5.667 5.750 5.833 5.917 6.000 119.72 5.00 1.45 5.00 | 119.72 | 8.583 8.667 8.750 8.833 8.917 9.000 | 3.17 3.17 3.17 3.17 | 11.58 11.67 11.75 11.83 11.92 12.00 | 1.81 1.81 1.81 1.81 1.81 1.81 |
|--|--|--|---|--|---|---|---|---|
| Storage Co Unit Hyd. Unit Hyd. PEAK FLOW TIME TO PH RUNOFF VOI TOTAL RAII RUNOFF COI | (EAK (LUME NFALL EFFICIEN | (cms)= (hrs)= (mm)= (mm)= NT = | 0.33 0.08 6.00 89.70 90.70 0.99 | | 10.00 0.15 0.02 6.00 66.45 90.70 0.73 | *TO | TALS* .091 (iii) 6.00 4.57 0.70 0.93 | |
| (i) CN F CN' (ii) TIME THAN (iii) PEAR | ROCEDUR = 89 E STEP (N THE ST C FLOW D | RE SELECT 1.0 Ia (DT) SHOU FORAGE CO DOES NOT | TED FOR P A = Dep.: JLD BE SM. DEFFICIEN INCLUDE | ERVIOUS Storage ALLER OF T. BASEFLOW | LOSSES: (Above) R EQUAL V IF ANY. | | | |
| CALIB STANDHYD (20 ID= 1 DT= 5.0 Surface Al Dep. Stora Average S Length Mannings I | rea age lope | | (ha)= Emp(%)= IMPERVIO 0.58 1.00 1.00 69.76 0.013 | US PE | Dir. Conn ERVIOUS (i 0.15 1.00 2.00 40.00 0.290 | | 80.00 | |
| NOTE: | RAINFA | ALL WAS T | FRANSFORM | ED TO | 5.0 MIN. | | EP. | |
| | TIME hrs 0.083 0.167 0.250 0.333 0.667 0.583 0.667 0.750 0.833 0.107 0.1000 1.083 1.167 1.250 0.1583 1.417 1.750 1.750 1.250 0.2083 1.250 2.333 1.217 0.2083 2.167 1.250 0.2083 2.167 1.250 0.2083 2.167 1.250 0.2083 2.167 1.250 0.2083 2.167 0.2082 2.167 0.2082 2.167 0.2082 2.167 0.2082 2.167 0.2082 2.167 | mm/hr 2 - 2 - 27 | 3.083 3.183 3.333 3.417 3.500 3.583 3.667 3.750 4.083 4.107 4.083 4.107 4.250 4.373 4.417 4.500 4.750 4.750 4.750 4.750 4.750 4.750 5.750 | 3.63 3.63 3.63 3.63 3.63 3.63 3.63 3.63 | 6. 417 6. 500 6. 583 6. 667 6. 750 6. 833 6. 917 7. 000 7. 083 7. 167 7. 250 7. 333 7. 417 7. 583 7. 657 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7 | 16.333 16.333 16.333 16.326 77.226 77.226 77.226 77.226 55.44 55.4 | hrs 9.08 9.17 9.25 9.32 9.32 9.32 9.32 9.32 9.32 9.32 9.32 9.33 9.92 10.00 10.08 10.17 10.25 10.50 10. | RAIN mm/hr 3.17 3.17 3.17 3.17 3.17 3.17 3.17 3.17 |
| | 2.500 2.583 2.667 | 2.72 | 5.500 5.583 5.667 5.750 5.833 5.917 6.000 | 10.88 43.54 43.54 | 8.500 8.583 8.667 | 3.17 3.17 3.17 3.17 3.17 | 11.42 11.50 11.58 11.67 11.75 11.83 11.92 | 1.81 1.81 1.81 1.81 1.81 |
| May Fff Ti | 2.750 2.833 2.917 3.000 | | | | 8.833 8.917 9.000 | 3.17 3.17 | 11.92 | 1.81 1.81 |
| Max.Eff.I | 2.750 2.833 2.917 3.000 | | 5.917 6.000 119.72 | 119.72 | 8.917 9.000 | 3.17 | 11.92 12.00 | |
| TOTAL RAIN RUNOFF CON ***** WARNING: | 2.750 2.833 2.917 3.000 hten.(mm NFALL EFFICIEN STORAGE PROCEDUR * = 89 EN THE 51 | (mm)= NT = E COEFF. RE SELECT 9.0 Ia (DT) SHOL | 90.70 0.99 IS SMALL TED FOR P a = Dep. | ER THAN ERVIOUS Storage ALLER OF | 90.70 0.73 TIME STEP LOSSES: (Above) | 3.17 | 11.92 12.00 | |
| TOTAL RAIR RUNOFF COI | 2.750 2.833 2.917 3.000 nten.(mm NFALL EFFICIEN STORAGE V = 88 E STEP (N THE ST (FLOW D | (mm)= VT = E COEFF. RE SELECT 9.0 Id (DT) SHOU TOTRAGE CC DOES NOT | 90.70 0.99 IS SMALL TED FOR P a = Dep. | ER THAN ERVIOUS Storage ALLER OF T. BASEFLOW | 90.70 0.73 TIME STEP LOSSES: (Above) | 3.17 3.17 | 0.70 | |
| TOTAL RAIN RUNOFF COI ***** WARNING: (i) CN (ii) TIM (iii) PEAI CALIB 5TANDHYD (24 5 | 2.750 2.833 2.917 3.000 nten.(mm NFALL EFFICIEN STORAGE PROCEDUR * = 89 E STEP (N THE ST C FLOW E 0072) min 0072) min 0072) min 0072 | (mm)= NT = E COEFF. RE SELECT 9.0 IS HOL TOTRAGE CC DOES NOT | 90.70 0.99 IS SMALL: FED FOR P. A. D. S. SMALL: JLD BE SM. JLD BE | ER THAN ERVIOUS STORAGE ALLER OF F. BASEFLOW 0.64 84.00 US PE | 90.70 0.73 TIME STEP LOSSES: (Above) EQUAL V IF ANY. | 3.17 3.17 91 ! | 0.70 | |
| TOTAL RAIN RUNOFF COI ***** WARNING: (i) CN (ii) TIM (iii) PEAI CALIB 5TANDHYD (24 5 | 2.750 A CALL CARREST OF THE PROPERTY OF THE PR | m/hr)= (mm)= E COEFF. RE SELECTA (TOTA) SHORT SHORT TOTAL (mm)= (| 119.72 90.70 90.70 90.70 1.00 1 | ER THAN ERVIOUS ESTOTAGE LLER OF MASSFORMER AND STATE AN | 90.70 | 3.17 3.17 3.17 3.17 4PH | 0.70 0.95 | |
| TOTAL RAIN RINOFF COI ***** WARNING: (i) CN IN | 2.750 A C C C C C C C C C C C C C C C C C C | m/hr)= (mm)= E COEFF. RE SELECT: (DT) SHOLITORAGEC CODES NOT Area Total I (mm)= (%)= (%)= (%)= 2.277 2. | 90.70 90.70 90.70 1S SMALL TED FOR P. ALID BES SM. DEFFICICENT INCLUDE (ha) = IMPERVIO 0.54 1.00 65.32 0.013 3.133 3.14.17 3.500 1.3.333 3.34.17 3.500 1.3.333 3.34.17 3.500 1.3.353 3.3.417 3.500 4.083 3.3.417 3.500 4.083 4.091 4.087 4.1833 4.191 4.500 4.1837 4.500 4.1837 4.500 4.1837 4.500 4.1837 4.500 4.1837 6.700 6.803 6.8 | ER THAN ERVIOUS ESTORAGE LLER OF TO TO TO TO TO TO TO TO TO TO TO TO TO | 90.70 0.73 TIME STEP LOSSES: (Above) 1.01 0.10 0.10 0.10 0.10 0.10 0.10 0.1 | 3.17 3.17 3.17 3.17 3.17 3.17 3.17 3.17 | 0.70 0.95 | RAIN mm/hr 3.17 7.3 3.17 7.3 3.17 3.17 1.81 1.81 1.81 1.81 1.81 1.81 1.81 1 |
| TOTAL RAID RUNOFF COI ***** WARNING: (i) CN (ii) THAI (iii) PEA CALIB STANDHYD (2 (ID= 1 DT= 5.0 SUFFace A. Dep. Story Average S' Length Mannings I NOTE: | 2.750 A TIME A T | m/hr)= (mm)= E COEFF. RE SELECT ODDES NOT Area Total I (mm)= (%)= (mm)= (%)= ALL WAS T RAIN RAI | 90.70 90.70 90.70 0.99 IS SMALL. IED FOR Paid Paid Paid Paid Paid Paid Paid Paid | ER THAN THE THAN THE THAN THE THAN THE THAN THAN THE THAN THAN THAN THAN THAN THAN THAN THAN | 90.70 102.72 90.70 0.73 TIME STEP LOSSES: (Above) (Above) 10.10 0.10 1.00 0.10 1.00 0.290 5.0 MIN 0.10 1.00 0.290 5.0 MIN 0.10 1.00 0.290 5.0 MIN 0.10 1.00 0.290 1.00 0.290 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1. | 3.17 3.17 3.17 3.17 3.17 3.17 3.17 3.17 | 0.70 0.70 0.95 84.00 84.00 84.00 84.00 84.00 84.00 84.00 84.00 84.00 84.00 84.00 84.00 84.00 84.00 84.00 84.00 84.00 84.00 85.00 86. | RAIN mm/hr 3.17 7.3 1.17 1.81 1.81 1.81 1.81 1.81 1.81 1.81 |

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THAN THE STORAGE COEFFICIENT. 
 (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
  CALIB
| STANDHYD ( 20071)
| ID= 1 DT= 5.0 min
                                                                                                                                                                                              Area (ha)= 0.58
Total Imp(%)= 85.00 Dir. Conn.(%)= 85.00
                                                                                                                                                                                                                                                       IMPERVIOUS
0.49
1.00
1.00
62.18
0.013
                                                                                                                                                                                                                                                                                                                                                                                 PERVIOUS (i)
0.09
1.00
2.00
40.00
0.290
                                     Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                         (ha)=
(mm)=
(%)=
(m)=
                                                                          NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                 TIME hrs 0.083 0.083 0.167 0.250 0.333 0.167 0.500 0.333 0.667 1.083 0.667 1.083 0.667 1.083 1.167 1.083 1.167 1.250 1.333 1.167 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.250 1.2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TIME hrss 9.08 9.17 9.25 9.33 9.42 9.58 9.58 9.58 9.58 9.58 10.17 10.25 10.33 10.67 10.50 10.50 11.50 11.55 11.58 11.75 11.58 11.69 11.58 11.69 11.58 11.69 11.59 11.20 11.59 11.20 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 11.69 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                           119.72
5.00
1.79 (ii)
5.00
0.32
                                                                                                                                                                                                                                                                                                                                                                                           102.72
10.00
5.37 (ii)
10.00
0.16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         *TOTALS*
0.186 (iii)
6.00
86.21
90.70
0.95
                                                                                                                                                                                                                                                                                   0.16
6.00
89.70
90.70
0.99
                                       PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                       0.02
6.00
66.45
90.70
0.73
                                     * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                     (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^{\pm} = 89.0 IA = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
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| TIME RAIN TIME hrs mm/hr hrs | mm/hr | ' TIME | APH RAIN | | RAI |
|---|--------------|-------------------|----------------|---------------------|--------------|
| | mm/hr | | | | |
| 0.083 2.27 3.083 | 3.63 | 6.083 | mm/hr 16.33 | | mm/h 3.17 |
| 0.167 2.27 3.167 0.250 2.27 3.250 | 3.63 | 6.167 | 16.33 | 9.17 9.25 | 3.17 |
| 0.333 2.27 3.333 | 3.63 | 6.333 | 16.33 | 9.33 | 3.17 |
| 0.417 2.27 3.417 0.500 2.27 3.500 | 3.63 | 6.417 | 16.33 16.33 | 9.42 9.50 | 3.17 |
| 0.583 2.27 3.583 0.667 2.27 3.667 | 3.63 3.63 | 6.583 | 7.26 | 9.58 9.67 | 3.17 |
| 0.750 2.27 3.750 | 3.63 | 6.750 | 7.26 | 9.75 | 3.17 |
| 0.833 2.27 3.833 0.917 2.27 3.917 | 3.63 | 6.833 | 7.26 | 9.83 9.92 | 3.17 |
| 1.000 2.27 4.000 1.083 2.27 4.083 | | 7.000 | 7.26 5.44 | 10.00 10.08 | 3.17 |
| 1.167 2.27 4.167 | 5.44 | 7.167 | 5.44 | 10.17 | 1.81 |
| 1.250 2.27 4.250 1.333 2.27 4.333 | 5.44 | 7.250 | 5.44 5.44 | 10.25 10.33 | 1.81 1.81 |
| 1.417 2.27 4.417 1.500 2.27 4.500 | | 7.417 | 5.44 5.44 | 10.42 10.50 | 1.81 |
| 1.583 2.27 4.583 1.667 2.27 4.667 | 7.26 | 7.583 | 5.44 5.44 | 10.58 10.67 | 1.81 |
| 1.750 2.27 4.750 | 7.26 | 7.750 | 5.44 | 10.75 | 1.81 |
| 1.833 2.27 4.833 1.917 2.27 4.917 | 7.26 | 7.833 | 5.44 5.44 | | 1.81 |
| 2.000 2.27 5.000 2.083 2.72 5.083 | 7.26 | 8.000 | 5.44 3.17 | 11.00 11.08 | 1.81 |
| 2.167 2.72 5.167 | 10.88 | 8.167 | 3.17 | 11.17 | 1.81 |
| 2.250 2.72 5.250 2.333 2.72 5.333 | 10.88 | | 3.17 3.17 | 11.25 11.33 | 1.81 1.81 |
| 2.417 2.72 5.417 2.500 2.72 5.500 | 10.88 | 8.417 | 3.17 3.17 | 11.42 11.50 | 1.81 |
| 2.583 2.72 5.583 | 43.54 | 8.583 | 3.17 3.17 | 11.58 11.67 | 1.81 |
| 2.750 2.72 5.750 | 43.54 | 8.750 | 3.17 | 11.75 | 1.81 |
| 2.833 2.72 5.833 2.917 2.72 5.917 | 119.72 | 8.833 8.917 | 3.17 3.17 | 11.83 11.92 | 1.81 1.81 |
| 3.000 2.72 6.000 | 119.72 | 9.000 | 3.17 | 12.00 | 1.81 |
| Max.Eff.Inten.(mm/hr)= 119.7 over (min) 5.0 | | 02.72 10.00 | | | |
| Storage Coeff. (min)= 1.6 Unit Hyd. Tpeak (min)= 5.0 | 0 (ii) | 6.03 (ii 10.00 |) | | |
| Unit Hyd. Theak (min)= 3.0 Unit Hyd. peak (cms)= 0.3 | | 0.15 | | | |
| PEAK FLOW (cms)= 0.1 | .0 | 0.02 | | TALS* .125 (iii) | |
| TIME TO PEAK (hrs)= 6.0 RUNOFF VOLUME (mm)= 89.7 | | 6.00 66.45 | | 5.00 1.34 | |
| TOTAL RAINFALL (mm)= 90.7 RUNOFF COEFFICIENT = 0.9 | 0 | 90.70 0.73 | 90 |).70).93 | |
| | | | | 7.55 | |
| ** WARNING: STORAGE COEFF. IS SMAL | | | | | |
| (i) CN PROCEDURE SELECTED FOR CN* = 89.0 Ia = Dep. | Storage | (Above) | | | |
| (ii) TIME STEP (DT) SHOULD BE S THAN THE STORAGE COEFFICIE | NT. | | | | |
| (iii) PEAK FLOW DOES NOT INCLUDE | BASEFLOW | IF ANY. | | | |

Area (ha)= 0.38 Total Imp(%)= 70.00 Dir. Conn.(%)= 70.00

---- TRANSFORMED HYETOGRAPH ---RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME
mm/hr | hrs mm/hr | hrs mm/hr | hrs
2.27 | 3.083 | 3.63 | 6.083 | 16.33 | 9.08
2.27 | 3.167 | 3.63 | 6.167 | 16.33 | 9.17

PERVIOUS (i) 0.11 1.00 2.00

IMPERVIOUS 0.27 1.00 1.00 50.33 0.013

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

(ha)= (mm)= (%)= (m)=

Surface Area Dep. Storage Average Slope Length Mannings n

| Surface Area Dep. Storage Average Slope Length Mannings n NOTE: RAINF | | | | | Ρ. | |
|--|--|---|--|---|--|---|
| 0.417 0.500 0.583 0.6557 0.6583 0.6577 1.000 1.088 1.167 1.2550 1 | mm/hr / hr | 3.083 3.185 3.3417 3.588 3.687 3.588 3.687 3.750 4.083 4.4167 4.1267 4.1267 4.1267 4.1267 4.1267 4.1267 4.1267 4.1267 4.1267 5.0083 5.1267 5.1 | SFORMED HYETOGE RAIN IN THE PRINCIPLE OF | 16.33 16.33 16.33 16.33 16.33 16.33 17.26 7.26 7.26 7.26 7.26 7.26 7.26 7.26 | 9.58 9.67 9.75 9.83 9.92 10.00 10.08 10.17 10.25 10.33 10.50 10.50 10.67 10.75 11.08 11.108 11.17 | RAIN mm/hr 3.17 3.17 3.17 3.17 3.17 3.17 3.17 3.17 |
| MAX.EFF.Inten.(m over Storage Coeff. Unit Hyd. Tpeak Unit Hyd. peak PEAK FLOW TIME TO PEAK RUNOFF VOLUME TOTAL RAINFALL RUNOFF COFFFICEE ***** WARNING: STORAG (i) CN PROCEDU (CN° = 8 (ii) TIME STEP THAN THES (iii) PEAK FLOW | (cms)= (hrs)= (mm)= (mm)= NT = E COEFF. I RE SELECTE 9.0 Ia (DT) SHOUL TORAGE COE DOES NOT I | 0.17 6.00 89.70 90.70 0.99 S SMALLER D FOR PER = DEP. St D BE SMAL EFFICIENT. NCLUDE BA | 0.03 6.00 66.45 90.70 0.73 THAN TIME STEF VIOUS LOSSES: orage (Above) LER OR EQUAL | *TOT. 0.: 6 85 90 0 | 200 (iii) .00 .27 .70 .94 | |
| CALTB STANDHYD (20091) ID= 1 DT= 5.0 min Surface Area Dep. Storage Average Slope Length Mannings n | Area Total Im (ha)= (mm)= (%)= (m)= = | (ha)= 0 pp(%)= 77 MPERVIOUS 0.31 1.00 1.00 51.64 0.013 | .40 Dir. Conr PERVIOUS (1 0.09 1.00 2.00 40.00 0.290 |) | 7.00 | |
| 0.250 0.333 0.417 0.500 0.583 0.667 0.750 0.813 0.617 0.910 1.000 1.030 | 2.27 2.27 2.27 2.27 2.27 2.27 2.27 2.27 | 3.893 3.893 4.083 4.167 4.250 4.250 4.250 4.333 4.417 4.500 4.583 4.917 5.003 5.167 5.250 5.333 5.167 5.250 5.333 | 3.63 6.250 3.63 6.333 3.63 6.500 3.63 6.500 3.63 6.667 3.63 6.687 3.63 6.687 3.63 6.702 3.63 6.702 3.63 6.702 3.63 7.000 5.44 7.167 5.44 7.167 5.44 7.150 5.44 7.150 7.26 7.583 7.26 7.583 7.26 7.726 7.833 7.26 7.726 7.833 7.26 7.833 7.26 8.818 10.88 8.167 10.88 8.167 10.88 8.363 10.88 8.363 10.89 8.3 | | 9.25 9.25 9.42 9.95 9.96 9.96 9.75 9.75 9.75 10.00 10.08 10.10 10.17 10.25 10.55 10.67 10.75 10.83 10.67 10.83 11.13 11.13 11.13 11.13 11.14 11.15 11. | 3.17 3.17 3.17 3.17 3.17 3.17 3.17 3.17 |
| Max.Eff.Inten.(m over Storage Coeff. Unit Hyd. Tpeak Unit Hyd. peak | m/hr)= (min)= (min)= (min)= (min)= (cms)= (hrs)= (hrs)= (mm)= NT = E COEFF. I RE SELECTE 9.0 Ia (DT) SHOUL | 119.72 5.00 1.57 (5.00 0.33 0.09 6.00 89.70 90.70 0.99 S SMALLER ED FOR PER Dep. St D BE SMAL | 102.72 10.00 9.21 (ii 10.00 0.12 0.03 6.00 66.45 90.70 0.73 THAN TIME STEF VIOUS LOSSES: orage (Above) LER OR EQUAL | *TOT. 0 6 82 90 0 | ALS* 114 (iii) .00 | 1.02 |
| Surface Area Dep. Storage Average Slope Length Mannings n | (ha)= (mm)= (%)= (m)= = | MPERVIOUS 0.06 1.00 1.00 21.60 0.013 | .07 .00 Dir. Conr PERVIOUS (i 0.01 1.00 2.00 40.00 0.290 TO 5.0 MIN. |) | | |
| TIMM hrs. 0.083 0.167 0.250 0.333 0.417 0.500 0.583 0.667 0.756 0.750 0.083 0.667 0.750 0.833 0.833 0.835 0.833 0.835 0.835 0.833 0.835 0. | 2.27 2.27 2.27 2.27 2.27 2.27 2.27 2.27 | TIME hrs 3.083 3.167 3.250 3.333 3.417 3.500 3.583 3.667 3.750 3.833 | SFORMED HYETOGE RAIN 'TIME mmm/hn' hrs 3.63 6.083 3.63 6.167 3.63 6.250 3.63 6.333 3.63 6.417 3.63 6.500 3.63 6.583 3.63 6.667 3.63 6.750 3.63 6.750 | RAPH RAIN mm/hr 16.33 16.33 16.33 16.33 7.26 7.26 7.26 | TIME hrs 9.08 9.17 9.25 9.33 9.42 9.50 9.67 9.75 9.83 | RAIN mm/hr 3.17 3.17 3.17 3.17 3.17 3.17 3.17 3.17 |

```
3.63 | 6.917

3.63 | 7.000

5.44 | 7.083

5.44 | 7.250

5.44 | 7.250

5.44 | 7.333

5.44 | 7.417

5.44 | 7.503

7.26 | 7.533

7.26 | 7.583

7.26 | 7.833

7.26 | 7.833

7.26 | 7.833

7.26 | 7.833

7.26 | 7.833

7.26 | 7.833

7.26 | 7.833

7.26 | 8.000

10.88 | 8.083

10.88 | 8.167

10.88 | 8.253

10.88 | 8.317

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7.26 | 10.08

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1.250
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1.417
1.500
1.583
1.667
1.750
2.083
2.167
2.250
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2.4167
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2.583
2.450
2.583
2.450
2.583
2.750
2.833
2.917
3.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           119.72 102.72
5.00 5.00
0.95 (ii) 4.65
5.00 5.00
0.34 0.22
                                                     Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           *TOTALS*
0.023 (iii)
6.00
85.97
90.70
0.95
                                                        PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                              0.02
5.92
89.70
90.70
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0.00
6.00
66.45
90.70
0.73
***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^2=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
      | ADD HYD ( 0110) | AREA QPEAK (ha) (cms) | T01=1 (200811): 0.07 0.023 | T02=2 (200812): 0.38 0.114
                                                                                ID = 3 ( 0110): 0.45 0.136 6.00 83.21
                                                     NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
| CALIB | | STANDHYD (200822) | ID= 1 DT= 5.0 min |
                                                                                                                                                                                                                                                                Area (ha)= 0.39 Total Imp(\%)= 59.00 Dir. Conn.(\%)= 59.00
                                                     NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                        RAIN
mm/hr
2.27
2.27
2.27
2.27
2.27
2.27
                                                                                                                                                                                                                                                                                 2.77 | 4.250 | 5.44 | 7.250 |
2.271 | 4.333 | 5.44 | 7.353 |
2.272 | 4.417 | 5.44 | 7.417 |
2.273 | 4.417 | 5.44 | 7.417 |
2.274 | 4.500 | 5.44 | 7.500 |
2.274 | 4.583 | 7.26 | 7.583 |
2.277 | 4.583 | 7.26 | 7.583 |
2.277 | 4.500 | 7.26 | 7.667 |
2.277 | 4.750 | 7.26 | 7.667 |
2.277 | 4.813 | 7.26 | 7.83 |
2.271 | 5.483 | 7.26 | 7.83 |
2.272 | 5.667 | 6.800 |
2.72 | 5.250 | 10.88 | 8.087 |
2.72 | 5.250 | 10.88 | 8.250 |
2.72 | 5.253 | 10.88 | 8.250 |
2.72 | 5.253 | 10.88 | 8.331 |
2.72 | 5.437 | 10.88 | 8.331 |
2.72 | 5.437 | 10.88 | 8.331 |
2.72 | 5.550 | 43.54 | 8.667 |
2.72 | 5.550 | 43.54 | 8.583 |
2.72 | 5.567 | 43.54 | 8.583 |
2.72 | 5.575 | 43.54 | 8.570 |
2.72 | 5.833 | 11.972 | 8.833 |
2.72 | 5.677 | 119.72 | 8.831 |
2.72 | 5.677 | 119.72 | 8.831 |
2.72 | 6.000 | 119.72 | 8.917 |
2.72 | 6.000 | 119.72 | 8.917 |
2.72 | 6.000 | 119.72 | 8.917 |
2.72 | 6.000 | 119.72 | 8.917 |
2.72 | 6.000 | 119.72 | 8.917 |
2.72 | 6.000 | 119.72 | 8.917 |
2.72 | 6.000 | 119.72 | 8.917 |
2.72 | 6.000 | 119.72 | 8.917 |
2.72 | 6.000 | 119.72 | 9.000 |
2.72 | 6.72 | 6.72 | 6.72 |
2.72 | 6.72 | 6.72 | 6.72 |
2.72 | 6.72 | 6.72 | 6.72 |
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2.72 | 6.72 |
2.73 | 6.73 |
2.74 | 6.75 |
2.75 | 6.75 |
2.77 | 6.72 |
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2.7
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5.44 | 11.82
5.44 | 11.82
5.44 | 11.83
3.17 | 11.25
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           *TOTALS*
0.023 (iii)
6.00
85.73
90.70
0.95
                                                        PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                              0.02
5.92
89.70
90.70
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0.00
6.00
66.45
90.70
0.73
***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^2=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. IT ANY LOW DOES NOT INCLUDE BASEFLOW IF ANY.
             AREA QPEAK (ha) (cms) 0.07 0.023 0.39 0.112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TPEAK R.V.
(hrs) (mm)
6.00 85.73
6.00 80.15
                                                                                   ID = 3 ( 0111):  0.46  0.134  6.00  81.00
                                                     NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
   | CALIB | STANOHYD ( 20102) | Area (ha) = 0.47 | 10 = 1 DT = 5.0 min | Total Imp(%) = 74.00 | DT . Conn.(%) = 74.00 | TOTAL IMPORTANCE | DEPUTATION (i)
                                                                                                                                                                                                        (ha)= 0.35 0.12 (i) (mm)= 1.00 1.00 1.00 (ii) (iii) (i
                                                  Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                    NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                        TRANSFORMED HYETOGRAPH
TIME RAIN | TIME RAIN
hrs mm/hr hrs; mm/hr hrs;
3.083 3.63 6.083 16.33
1.67 3.63 6.250 16.33
3.250 3.63 6.250 16.33
3.251 3.63 6.30 16.33
3.317 3.63 6.30 16.33
3.500 3.63 6.500 16.33
3.500 3.63 6.500 7.26
3.63 6.667 7.26
3.63 3.63 6.833 7.26 1
3.833 3.63 6.833 7.26 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TIME
hrs
9.08
9.17
9.25
9.33
9.42
9.50
9.58
9.67
9.75
9.83
                                                                                                                                                                                    TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
```

| |) 917 2-27 1.007 2-27 1.008 2-27 1.018 2-27 1.019 2-27 1.019 2-27 1.333 2-27 1.333 2-27 1.3417 2-27 1.500 2-27 1.500 2-27 1.750 | 3.750 3.63 3.633 3.63 3.833 3.63 3.830 3.63 3.630 3.630 3.630 3.630 3.630 5.44 4.167 5.44 4.250 5.44 4.250 5.44 4.350 5.44 4.350 5.44 4.350 5.44 4.350 7.26 4.450 7.26 4.750 7.26 4.750 7.26 4.750 7.26 5.333 10.88 5.167 10.88 5.167 10.88 5.167 10.88 5.333 10.88 5.335 10.88 5.335 10.88 5.335 10.88 5.335 10.88 5.335 10.88 5.335 10.88 5.335 10.88 5.335 10.88 5.335 10.88 5.335 10.88 5.335 10.88 5.335 10.88 5.335 10.88 5.335 10.88 5.335 10.88 5.335 10.88 5.335 10.88 5.355 10.8 | 6.750 7.2 6.833 7.2 6.907 7.2 7.1083 7.2 7.1083 5.4 7.1067 5.4 7.1067 5.4 7.107 5.4 7.1083 5.4 7.1083 5.4 7.7508 5.4 7.7508 5.4 7.7508 5.4 7.7508 5.4 7.7508 5.4 7.7508 5.4 7.7508 5.4 7.7508 5.4 7.7508 5.4 7.7508 5.4 7.7508 5.4 7.7508 5.4 7.7508 5.4 7.7508 5.4 7.833 5.4 7.835 5.4 7. | 6 9.92 3.17 6 10.00 3.17 4 10.08 1.88 4 10.08 1.88 4 10.27 1.81 4 10.27 1.81 4 10.23 1.81 4 10.50 1.81 4 10.50 1.81 4 10.57 1.81 4 10.67 1.81 4 10.67 1.81 4 10.63 1.81 4 10.63 1.81 7 11.08 1.81 7 11.108 1.81 7 11.125 1.81 7 11.125 1.81 7 11.136 1.81 7 11.136 1.81 7 11.136 1.81 7 11.136 1.81 7 11.136 1.81 7 11.136 1.81 7 11.136 1.81 7 11.136 1.81 7 11.136 1.81 7 11.136 1.81 7 11.136 1.81 7 11.136 1.81 7 11.136 1.81 |
|--|--|---|--|--|
| Unit Hyd. Tj Unit Hyd. Tj Unit Hyd. pi PEAK FLOW TIME TO PEAI RUNOFF VOLUM TOTAL RAINF, RUNOFF COEFI ***** WARNING: S` | FICIENT = | 0.08 6.00 89.70 90.70 0.99 | 6.00 66.45 90.70 0.73 | TOTALS* 0.112 (iii) 6.00 80.15 90.70 0.88 |
| (i) CN PRI CN* (ii) TIME : THAN : (iii) PEAK I | DCEDURE SELECTED = 89.0 Ia = STEP (DT) SHOULD THE STORAGE COEF FLOW DOES NOT IN | FOR PERVIOUS Dep. Storage BE SMALLER OR FICIENT. | LOSSES: (Above) EQUAL IF ANY. | |
| CALIB STANDHYD (2008; ID= 1 DT= 5.0 m Surface Are: Dep. Storag: Average Slo; Length Mannings n | 21) Area (in Total Imp IM (ha) = (mm) = (%) = (m) = = (%) = (| 0.06 1.00 1.00 21.60 0.013 | RVIOUS (i) 0.01 1.00 2.00 40.00 0.290 5.0 MIN. TIME | |
| | 0.167 2.27 0.250 2.27 0.333 2.27 0.417 2.27 0.500 2.27 0.5667 2.27 0.750 2.27 0.833 2.27 0.917 2.27 0.91 | 3.250 3.63 3.333 3.63 3.417 3.63 3.500 3.63 3.583 3.63 3.667 3.63 3.750 3.63 3.833 3.63 3.917 3.63 4.000 3.63 | D HYETOGRAPH - 1 TIME RA 1 T | hr hrs mm/hr 3.17 |
| | 1.167 2.27 1.250 2.27 1.333 2.27 1.500 2.27 1.500 2.27 1.500 2.27 1.500 2.27 1.667 2.27 1.667 2.27 1.667 2.27 1.667 2.27 1.667 2.27 1.667 2.27 1.667 2.27 1.667 2.27 1.667 2.27 1.667 2.27 1.667 2.27 1.67 2.27 1.68 2.2 | 4.167 5.44 4.250 5.44 4.333 5.44 4.417 5.44 4.583 7.26 4.750 7.26 4.750 7.26 4.917 7.26 4.917 7.26 5.000 7.26 5.003 10.88 5.167 10.88 5.333 10.88 5.333 10.88 5.333 10.88 | 7.167 5.4 7.250 5.4 7.333 5.4 7.500 5.4 7.500 5.4 7.500 5.4 7.500 5.4 7.600 5.4 7.833 5.4 8.800 5.4 8.800 5.4 8.167 3.1 8.167 3.1 8.167 3.1 8.500 3.1 8.500 3.1 8.500 3.1 8.500 3.1 8.500 3.1 8.500 3.1 8.500 3.1 8.500 3.1 8.500 3.1 8.500 3.1 | 4 10.08 1.81 4 10.17 1.81 4 10.17 1.81 4 10.17 1.81 1.81 4 10.25 1.81 1.81 4 10.50 1.81 4 10.50 1.81 4 10.50 1.81 4 10.50 1.81 4 10.75 1.81 4 10.67 1.81 4 10.75 1.81 4 10.75 1.81 4 10.75 1.81 7 11.08 1.81 7 11.108 1.81 7 11.108 1.81 7 11.125 1.81 7 11.13 1.81 7 11.142 1.81 7 11.158 1.81 7 11.158 1.81 7 11.158 1.81 7 11.158 1.81 7 11.158 1.81 7 11.163 1.81 7 11.163 1.81 7 11.181 1.81 7 11.181 1.81 7 11.181 1.81 7 11.181 1.81 7 11.181 1.81 7 11.181 1.81 7 11.181 1.81 1.81 7 11.183 1.81 1 1 1 1 1 1 1 1 1 |
| Max.Eff.Into Storage Coe Unit Hyd. T Unit Hyd. po | en.(mm/hr)= over (min) ff. (min)= oeak (min)= eak (cms)= | 5.00 1.68 (ii) | 02.72 10.00 6.40 (ii) 10.00 0.14 | TOTALS* |
| PEAK FLOW TIME TO PEAI RUNOFF VOLUI TOTAL RAINF, RUNOFF COEF ***** WARNING: S' (i) CN PRC CN** (ii) TIME (iii) TIME (iii) TIME (iiii) TIME (iiiiiiii) | ALL (mm)= FICIENT = FORAGE COEFF. IS | 90.70 0.99 SMALLER THAN | 0.03 6.00 66.45 90.70 0.73 TIME STEP! | 0.146 (iii) 6.00 83.64 90.70 0.92 |
| | DCEDURE SELECTED = 89.0 Ia = STEP (DT) SHOULD THE STORAGE COEF FLOW DOES NOT IN | FICIENT. | IF ANY. | |
| SALIB STANDHYD (2010 ID= 1 DT= 5.0 m Surface Are: Dep. Storage Average Slot Length Mannings n | a (ha)= e (mm)= | DERVIOUS PE 0.20 1.00 1.00 40.82 0.013 | Dir. Conn.(%)= RVIOUS (i) 0.05 1.00 2.00 40.00 0.290 5.0 MIN. TIME | |

| | | TR/ | ANSFORME |) HYETOGR | APH | - | |
|-------|-------|-------|----------|-----------|-------|-------|-------|
| TIME | RAIN | TIME | RAIN | ' TIME | RAIN | | RAIN |
| hrs | mm/hr | hrs | mm/hr | ' hrs | mm/hr | hrs | mm/hr |
| 0.083 | 2.27 | 3.083 | 3.63 | | 16.33 | | 3.17 |
| 0.167 | 2.27 | 3.167 | 3.63 | 6.167 | 16.33 | 9.17 | 3.17 |
| 0.250 | 2.27 | 3.250 | 3.63 | 6.250 | 16.33 | 9.25 | 3.17 |
| 0.333 | 2.27 | 3.333 | 3.63 | 6.333 | 16.33 | 9.33 | 3.17 |
| 0.417 | 2.27 | 3.417 | 3.63 | 6.417 | 16.33 | 9.42 | 3.17 |
| 0.500 | 2.27 | 3.500 | 3.63 | 6.500 | 16.33 | 9.50 | 3.17 |
| 0.583 | 2.27 | 3.583 | 3.63 | 6.583 | 7.26 | 9.58 | 3.17 |
| 0.667 | 2.27 | 3.667 | 3.63 | 6.667 | 7.26 | 9.67 | 3.17 |
| 0.750 | 2.27 | 3.750 | 3.63 | 6.750 | 7.26 | 9.75 | 3.17 |
| 0.833 | 2.27 | 3.833 | 3.63 | 6.833 | 7.26 | 9.83 | 3.17 |
| 0.917 | 2.27 | 3.917 | 3.63 | 6.917 | 7.26 | 9.92 | 3.17 |
| 1.000 | 2.27 | 4.000 | 3.63 | 7.000 | 7.26 | 10.00 | 3.17 |
| 1.083 | 2.27 | 4.083 | 5.44 | 7.083 | 5.44 | 10.08 | 1.81 |
| 1.167 | 2.27 | 4.167 | 5.44 | 7.167 | 5.44 | 10.17 | 1.81 |
| 1.250 | 2.27 | 4.250 | 5.44 | 7.250 | 5.44 | 10.25 | 1.81 |
| 1.333 | 2.27 | 4.333 | 5.44 | 7.333 | 5.44 | 10.33 | 1.81 |
| 1.417 | 2.27 | 4.417 | 5.44 | 7.417 | 5.44 | 10.42 | 1.81 |
| 1.500 | 2.27 | 4.500 | 5.44 | 7.500 | 5.44 | 10.50 | 1.81 |
| | | | | | | | |

| 1.91/ 2 2.000 2 2.083 2 2.167 2 2.250 2 2.333 2 2.417 2 2.500 2 | 2.7 5.000 7.2 | 7,7830 | 11.08 | | | |
|--|--|---|--|--|--|--|
| ADD HYD (0121) 1 + 2 = 3 | 0.72 0.225 NOT INCLUDE BASEFLO I (ha) = 0.87 I Imp(%) = 67.00 IMPERVIOUS 67.00 I = 1.00 76.16 76.16 0.013 AS TRANSFORMED TO | 0.00 84.29 bir. Conn.(%)= ERVIOUS (i) 0.29 1.00 2.00 40.00 0.290 5.0 MIN. TIME ST | EP. | | | |
| 0.750 2 | TRANSFORM TIME RAJOR (hr TIME RAJOR) (27 3.088 mm/s) (27 3.088 mm/s) (27 3.167 mm/s) (27 3.167 mm/s) (27 3.167 mm/s) (27 3.167 mm/s) (27 3.167 mm/s) (27 3.167 mm/s) (27 3.168 mm/s) (27 3.683 mm/s) (27 3.683 mm/s) (27 3.683 mm/s) (27 3.683 mm/s) (27 3.683 mm/s) (27 3.683 mm/s) (27 3.683 mm/s) (27 3.683 mm/s) (27 3.683 mm/s) (27 3.684 mm/s) (27 4.083 mm/s) (27 4.083 mm/s) (27 4.083 mm/s) (27 4.084 mm/s) | 7.26 1 6.933 7.26 1 6.917 7.26 1 7.000 7.26 1 7.083 5.44 1 7.167 5.44 | 9.75 3.17 9.83 3.17 9.92 3.17 10.00 3.17 10.08 1.81 10.17 1.81 | | | |
| 2.333 2 2.417 2 2.500 2 | .72 5.66/ 43.54 .72 5.750 43.54 .72 5.833 119.72 .72 5.917 119.72 .72 6.000 119.72 | 9.000 3.17 | 10.92 1.81 11.08 1.81 11.08 1.81 11.1.7 1.81 11.25 1.81 11.42 1.81 11.42 1.81 11.50 1.81 11.55 1.81 11.55 1.81 11.55 1.81 11.55 1.81 11.55 1.81 11.57 1.81 11.67 1.81 11.67 1.81 11.75 1.81 11.75 1.81 | | | |
| Unit Hýd. peak (cms) = 0.31 0.15 PEAK FLOW (cms) = 0.24 0.04 0.284 (iii) TIME TO PEAK (hrs) = 6.00 6.00 6.00 6.00 RINOFF VOLUME (mm) = 89.70 66.45 85.05 TOTAL RAINFALL (mm) = 90.79 90.70 90.70 RINOFF COEFICIENT = 0.99 0.73 0.94 ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN° = 89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. | | | | | | |
| Surface Area (ha) Dep. Storage (mm) Average Slope (%) Length (m): Mannings n | = 0.90 = 1.00 = 1.00 = 86.02 = 0.013 | 0.21 1.00 2.00 40.00 0.290 | _ | | | |
| 0.750 2 0.833 2 0.917 2 1.000 2 1.003 2 1.165 2 1.150 2 1.503 2 1.503 2 1.503 2 1.503 2 2.503 2 2.503 2 2.503 2 2.503 2 2.503 2 2.503 2 2.503 2 2.500 2 2.500 2 | AIN TIME RAIN TIME TIM | 1 6,750 7,26 6,833 7,26 7,000 7,26 7,003 5,44 7,157 5,44 7,157 5,44 7,533 5,44 7,533 5,44 7,500 5,44 7,583 5,44 7,583 5,44 7,583 5,44 7,583 5,44 7,583 5,44 7,583 5,44 1,783 5,4 | 9.75 3.17 9.92 3.17 9.92 3.17 9.92 3.17 10.00 3.17 10.00 3.17 10.00 1.81 10.52 1.81 10.52 1.81 10.52 1.81 10.53 1.81 10.56 1.81 10.67 1.81 10.67 1.81 10.75 1.81 10.75 1.81 10.75 1.81 10.75 1.81 11.075 1.81 11 | | | |

| Max.Eff.Inten.(mm/h over (mi Storage Coeff. (mi Unit Hyd. Tpeak (mi Unit Hyd. peak (cn | ns)= 0.19 ns)= 6.00 nm)= 89.70 nm)= 90.70 = 0.99 COEFF. IS SMALL | 7.26 7.26 7.26 7.26 7.26 7.26 7.26 10.88 | 7.417 (7.500) | *TOT, 0.6 82 990 | 10. 42 10. 50 10. 58 10. 67 10. 67 10. 67 10. 75 10. 83 10. 92 11. 00 11. 00 11. 10 11. 125 11. 43 11. 43 11. 45 11. 45 11. 45 11. 45 11. 83 11. 92 12. 00 | 1.81 1.81 1.81 1.81 1.81 1.81 1.81 1.81 |
|--|---|--|--|--|---|---|
| | (ha) = (rotal lmp(%) = IMPERVIO (na) = 0.72 (nm) = 1.00 (m) = 77.46 (na) = 0.013 (mas transform) | US PERV 0 1 2 40 0. | /IOUS (i) 0.18 1.00 2.00 0.00 .290 | | | |
| TIME hrs 0.083 0.167 0.250 0.333 0.500 0.500 0.503 0.667 0.750 0.833 1.167 1.250 1.333 1.157 1.500 1.583 1.667 1.750 1.583 | RAIN TIME mm/hr hrs 2.27 3.083 2.27 3.167 2.27 3.250 2.27 3.333 2.27 3.350 2.27 3.600 2.27 3.600 2.27 4.083 2.27 4.250 2.27 4.833 2.27 4.833 2.27 4.833 | 3.63 3.63 3.63 3.63 3.63 3.63 3.63 3.63 | 6.333 1 6.417 1 6.583 1 6.6583 6.667 6.833 6.917 7.000 7.083 7.167 7.250 7.333 7.167 7.500 7.5667 | 6.33 6.33 6.33 7.26 7.26 7.26 7.26 7.26 7.26 5.44 5.44 5.44 | 9.23 9.42 9.50 9.58 9.67 9.75 9.83 9.92 10.00 10.17 10.25 10.33 10.42 10.50 10.58 10.67 10.75 | RAIN mm/hr 3.17 3.17 3.17 3.17 3.17 3.17 3.17 3.17 |
| 2.583 2.667 2.750 2.833 2.917 3.000 | 2.72 5.583 2.72 5.667 2.72 5.750 2.72 5.833 2.72 5.917 2.72 6.000 | 43.54 43.54 43.54 119.72 119.72 119.72 | 8.583 8.667 8.750 8.833 8.917 9.000 | 3.17 3.17 3.17 3.17 3.17 3.17 | 11.58 11.67 11.75 11.83 11.92 12.00 | 1.81 1.81 1.81 1.81 1.81 1.81 |
| Max.Eff.Inten.(mm/h over (mi Storage Coeff. (mi Unit Hyd. Tpeak (mi Unit Hyd. peak (mi Unit Hyd. peak (mi TIME TO PEAK (mi RUNOFF VOLUME (mi RUNOFF VOLUME (mi RUNOFF COEFFICIENT ***** WARNING: STORAGE (C) = 89.0 (ii) TIME STEP (D) THAN THE STOO (iii) PEAK FLOW DOO | 1s)= 0.31 1s)= 0.30 's)= 6.00 1m)= 89.70 1m)= 90.70 0.99 | 0 6 6 90 0 ER THAN TI | 0.19 (11) 0.00 0.15 0.05 5.00 5.45 0.70 0.73 | 85 90 | 351 (iii) .00 .28 | |
| CALIB STANDHYD (201021) A ID= 1 DT= 5.0 min 1 | | | ir. Conn.(| %)= 8! | 5.00 | |
| Surface Area († Dep. Storage (n Average Slope (Length Mannings n | IMPERVIO 0.40 m) = 1.00 %) = 1.00 m) = 55.98 = 0.013 | 0 1 2 40 0. | /IOUS (i)).07 L.00 2.00).00 .290 | ME STEI | ٠. | |
| | RAIN TIME mm/hr hrs 2.27 3.083 2.27 3.167 2.27 3.283 2.27 3.410 2.27 3.883 2.27 3.853 2.27 3.853 2.27 3.853 2.27 4.003 2.27 4.003 2.27 4.003 2.27 4.003 2.27 4.003 2.27 4.003 2.27 4.003 2.27 4.003 2.27 4.003 2.27 4.003 2.27 4.003 2.27 5.003 | ANSFORMED RATH 1 | HYETOGRAP TIME 6.083 1 6.083 1 6.250 1 6.25 | H | TIME 9.08 9.08 9.17 9.25 9.33 9.42 9.50 9.50 9.50 9.50 9.50 9.65 9.83 10.10 10.25 10.08 10.17 10.67 10.67 10.78 10.18 11.10 11.108 11.11 11.158 | RAINTENNA NA |

```
5.00
1.68 (ii)
5.00
0.32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                10.00
5.27 (ii)
10.00
0.16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        90.70
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        *TOTALS*
0.151 (iii)
6.00
86.21
90.70
0.95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^\circ = 89.0 Ia = Dep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                          PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                              0.13
6.00
89.70
90.70
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0.02
6.00
66.45
90.70
0.73
                                   ** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                   (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = Dep. Storage (Above) i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ADD HYD ( 0136) |
1 + 2 = 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AREA
(ha)
0.47
0.47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     QPEAK
(cms)
0.151
0.151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TPEAK
(hrs)
6.00
6.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 R.V.
(mm)
86.21
86.21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ID1= 1 (201021):
+ ID2= 2 (201022):
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ID = 3 ( 0136): 0.94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0.302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    86.21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6.00
NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
                                                   | CALIB | STANDHYD ( 2005) | Area (ha) = 0.28 | Dir. Conn.(%) = 90.00 | Total Imp(%) = 90.00 | Dir. Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%) = 90.00 | Conn.(%)
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0.25

1.00

1.00

43.20

0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0.03
1.00
2.00
                                                                                                 NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      40.00
                                                                                                                                                                                                                                                                                                                                                          NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                              TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.083
1.167
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1.417
                                                                                                                                                                                                                                                                            TIME
6.083
6.167
6.257
6.333
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6.667
6.7583
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7.253
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TIME hrss 9, 08 9, 17 9, 253 9, 450 9, 58 8, 9, 17 9, 675 9, 675 9, 675 10, 68 10, 17 11, 18 11, 12 11, 158 11, 158 11, 158 11, 158 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11, 18 11,
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3.500
3.583
3.667
3.750
3.833
4.000
4.083
4.167
4.250
4.333
4.417
4.500
4.733
4.667
4.750
4.833
4.667
4.750
5.083
5.083
5.083
5.567
5.500
5.583
5.583
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2.27
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2.27
2.72
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2.72
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10.42
10.50
10.58
10.67
10.75
10.83
10.92
11.00
11.17
11.25
11.35
11.42
11.50
11.58
11.58
11.75
11.83
11.75
11.83
11.83
11.92
                                                                                                                                                                                     2.500
2.583
2.667
2.750
2.833
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1.81
1.81
1.81
1.81
1.81
                                                       Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                 119.72
5.00
1.68 (ii)
5.00
0.32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         102.72
10.00
5.27 (ii)
10.00
0.16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Max.Eff.Inten.(mm/hr)=
over (min)=
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    119.72 102.72
5.00 5.00
1.44 (ii) 4.42 (ii)
5.00 5.00
0.33 0.23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           *TOTALS*
0.151 (iii)
6.00
86.21
                                                          PEAK FLOW
TIME TO PEAK
RUNOFF VOLUME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  *TOTALS*
0.092 (iii)
6.00
87.36
90.70
0.96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                       PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                              0.08
6.00
89.70
90.70
0.99
   ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                   (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^\circ = 89.0 Ia = Dep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CALIB | STANDHYD (200111) | ID= 1 DT= 5.0 min |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Area (ha)= 0.10
Total Imp(%)= 89.50 Dir. Conn.(%)= 89.50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Surface Area (ha)= 0.09 0.01 0.01 0.00 1.00 1.00 1.00 Average Slope (%)= 1.00 1.00 2.00 Length Mannings n = 0.013 0.290
      | CALIB | STANDHYD ( 20121) | Area (ha)= 1.11 | Total Imp(%)= 56.00 | Dir. Conn.(%)= 56.00 | IMPERVIOUS | PERVIOUS (i)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                             IMPERVIOUS

0.62

1.00

1.00

86.02

0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PERVIOUS (i)
0.49
1.00
2.00
40.00
0.290
                                                       Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                               (ha)=
(mm)=
(%)=
(m)=
=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TIME
hrs
3.083
3.167
3.250
3.333
3.417
3.500
3.583
3.667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TIME hrs 0.083 0.0617 0.500 0.500 0.6750 0.500 0.683 0.617 1.000 0.683 0.667 1.000 0.683 0.667 1.000 0.750 0.833 0.667 0.750 0.833 0.667 0.750 0.833 0.667 0.750 0.833 0.667 0.750 0.833 0.667 0.750 0.833 0.667 0.750 0.833 0.667 0.750 0.833 0.667 0.750 0.833 0.667 0.750 0.833 0.667 0.750 0.833 0.667 0.750 0.833 0.667 0.750 0.833 0.667 0.750 0.833 0.750 0.833 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0
                                                                                                 NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                          HYETOGR
TIME
hrs
6.083
6.167
6.250
6.333
6.417
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over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
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0.033 (iii)
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TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
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6.00
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90.70
0.73
                                                   Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
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5.00
2.17 (ii)
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0.31
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10.00
9.80 (ii)
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0.11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          **** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        *TOTALS*
0.312 (iii)
6.00
79.46
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                                                       PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                              0.21
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***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

1.81 1.81 1.81 1.81 1.81

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ID = 3 ( 0142): 0.21 0.069
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CALIB
STANDHYD (200121)
ID= 1 DT= 5.0 min
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Total Imp(%)= 87.00 Dir. Conn.(%)= 87.00
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                                                                                                                                                                                                                                                                                       IMPERVIOUS
0.10
1.00
1.00
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Length
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(mm)=
(%)=
(m)=
                                                                                NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                             TIME
hrs
3.083
3.167
3.250
3.333
3.417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
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over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
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over (min)
Storage Coeff. (min)=
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5.28 (ii)
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0.036 (iii)
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0.96
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0.031 (iii)
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TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
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6.00
66.45
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                                      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^\circ = 89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0   Ia=\text{bep}. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
           ADD HYD ( 0142) |
1 + 2 = 3 |
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                                                                                                                                                                                                                                                                                                                                                                    TIME hrs 0.083 0.0417 0.250 0.167 0.250 0.417 0.250 0.417 0.500 0.417 0.500 0.417 0.500 0.417 0.500 0.500 0.667 0.500 0.667 0.750 0.500 0.833 0.667 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.750 0.
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7.417
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7.417
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\Vo2\voin.dat
Output filename: C:\Users\caef070146\AppData\Local\Civica\WF$\S0564c49-8c07-4086-8157-8729fb3caba3\664943fC
Summary filename: C:\Users\caef070146\AppData\Local\Civica\WF$\S0564c49-8c07-4086-8157-8729fb3caba3\664943fC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DATE: 05-18-2022
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TIME: 12:51:01
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ata\Local\Temp\
a3a89910-d519-48ad-be84-5b44b6daecc3\9894cldc
Comments: 50-Yr,12-hr SCS, City of Barrie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ptotal=101.70 mm
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RAIN
mm/hr
4.07
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4.07
4.07
6.10
6.10
6.10
8.14
12.20
48.82
134.24
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mm/hr
18.31 |
18.31 |
8.14 |
6.10 |
6.10 |
6.10 |
6.10 |
3.56 |
3.56 |
3.56 |
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3.00
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hrs
9.25
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10.25
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10.75
11.00
11.25
11.50
11.75
12.00
                                      Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                       119.72 1.5.00
1.14 (ii)
5.00
0.34
                                                                                                                                                                                                                                                                                                                                                                                                        102.72
5.00
i) 4.61 (ii)
5.00
0.22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                *TOTALS*
0.042 (iii)
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86.43
90.70
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89.70
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66.45
90.70
0.73
                                      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^\circ = 89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Area (ha)= 0.80 Total Imp(\%)= 85.00 Dir. Conn.(\%)= 85.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      IMPERVIOUS 0.68 0.12 1.00 1.00 1.00 2.00 73.03 40.00 0.013 0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (ha)=
(mm)=
(%)=
(m)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Surface Area
Dep. Storage
Average Slope
Length
Mannings n
        ADD HYD ( 0145) |
1 + 2 = 3 |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ---- TRANSFORMED HYETOGRAPH ---- | TIME RAIN | TIME RAIN | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME |
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                                      NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.
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over (min)
storage Coeff. (min)=
unit Hyd. Tpeak (min)=
unit Hyd. peak (min)=
TIME TO PEAK (hrs)=
RUNOFF VOLUNE (mm)=
RUNOFF VOLUNE (mm)=
RUNOFF COEFFICIENT =
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           *TOTALS*
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CN° = 89.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                               WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
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12.20 | 8.533
12.20 | 8.533
12.20 | 8.533
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over (min)-
storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
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TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^\circ=89.0. Ia = bep. Storage (Above) (ii) TIME STEP (OT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                   ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CALIB
STANDHYD ( 20041)
ID= 1 DT= 5.0 min
                                                                                                                           (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\pm}=89.0 Ia = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STRAGE COEFFICIENT. (iii) PEAK FLOW DDES NOT INCLUDE BASEFLOW IF ANY.
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10.00 10.08 10.17 10.25 10.32 10.50 10.50 10.58 10.67 10.75 11.00 11.08 11.17 11.25 11.33 11.42 11.58 11.67 11.83 11.92

TOTALS 0.257 (iii) 6.00 98.06 101.70 0.96

RAIN mm/hr 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.31 | 18.

RATNA mm/hr 18.31 18.31 18.31 18.31 18.31 18.31 18.31 18.31 18.31 6.10 6 TIME hrs 9.08 9.17 9.25 9.33 9.452 9.55 9.567 9.675 9.675 9.675 9.675 10.08 10.17 10.25 10.58 10.17 10.75 11.05 11.15 11 RAIN mm/hr 3.566 3.566 3.566 3.566 3.566 3.566 3.566 3.566 3.566 3.566 3.562 3

11.33 11.42 11.50 11.58 11.67 11.75 11.83 11.92 12.00

TOTALS 0.172 (iii) 6.00 97.58 101.70 0.96

TIME hrs 9.08 9.17 9.25 9.50 9.50 9.50 9.50 9.50 9.67 9.75 10.08 10.17 10.25 10.50 10.58

2.03 2.03 2.03 2.03 2.03 2.03 2.03 2.03

```
3.000 3.05 | 6.000 134.24 | 9.000 3.56 | 12.00 2.03
                                                 Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                      134.24
5.00
1.47 (ii)
5.00
0.33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         117.80
5.00
4.44 (ii)
5.00
0.23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    *TOTALS*
0.128 (iii)
6.00
98.06
101.70
0.96
                                                    PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                         0.12
6.00
100.70
101.70
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0.01
6.00
76.77
101.70
0.75
***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
   Area (ha)= 0.36 
Total Imp(\%)= 85.00 Dir. Conn.(\%)= 85.00
                                                                                                                                                                                                                                                                                                                                           IMPERVIOUS

0.31

1.00

1.00

48.99

0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PERVIOUS (i)
0.05
1.00
2.00
40.00
0.290
                                                 Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                  (ha)=
(mm)=
(%)=
(m)=
                                                                                                     NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                     TIME hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of the hrs of
                                                                                                                                                                                                                                                                                RAIN mmm 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,544 2,5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TIME hrss 9.08 9.17 9.25 9.420 9.58 9.58 9.58 9.58 9.58 10.00 10.00 10.17 10.17 10.45 10.45 10.50 10.50 11.16 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.17 11.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                      134.24
5.00
1.48 (ii)
5.00
0.33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            117.80
5.00
4.91 (ii)
5.00
0.22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    *TOTALS*
                                                       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
   | CALIB
| STANDHYD ( 20062)
|ID= 1 DT= 5.0 min |
                                                                                                                                                                                                                                                                Area (ha)= 0.73 Total Imp(\%)= 80.00 Dir. Conn.(\%)= 80.00
                                                                                                                                                                                                                                                                                                                                  IMPERVIOUS

0.58

1.00

1.00

69.76

0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PERVIOUS (i)
0.15
1.00
2.00
40.00
0.290
                                                                                                                                                                                                                                                      (ha)=
(mm)=
(%)=
(m)=
=
                                                    Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                  NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                            TIME hrss no. 0.833 no. 667 no. 500 no. 583 no. 667 no. 500 no. 583 no. 667 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no. 500 no
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TIME hrss 9 .08 1 .08 1 .09 .08 1 .09 .08 1 .09 .08 1 .09 .09 .58 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 1 .00 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                            134.24
5.00
1.83 (ii)
5.00
0.32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               117.80
10.00
5.77 (ii)
10.00
0.15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 *TOTALS*
0.260 (iii)
6.00
95.91
101.70
0.94
                                                       PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                         0.22
6.00
100.70
101.70
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0.04
6.00
76.77
101.70
0.75
                                          ** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                    (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^\circ = 89.0 Ia = Dep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
```

| PEAK FLOW (TIME TO PEAK (RUNOFF VOLUME TOTAL RAINFALL RUNOFF COEFFICIEN | cms)= hrs)= (mm)= (mm)= T = | 0.11 6.00 100.70 101.70 0.99 | 10 | 0.02 6.00 76.77 01.70 0.75 | 97 101 | 131 (iii) 5.00 7.11 70 | |
|--|--|---|-------------------------------------|--|--|---------------------------------|------------------------------|
| **** WARNING: STORAGE | | | | TIME STEP! | | | |
| (i) CN PROCEDUR | E SELECTE | D FOR PE | RVIOUS I | LOSSES: | | | |
| (i) CN PROCEDUR CN* = 89 (ii) TIME STEP (THAN THE ST (iii) PEAK FLOW D | .0 Ia DT) SHOUL | = Dep. S _D BE SMA | torage LLER OR | (Above) EQUAL | | | |
| THAN THE ST (iii) PEAK FLOW D | ORAGE COE OES NOT 1 | EFFICIENT ENCLUDE B | ASEFLOW | IF ANY. | | | |
| | | | | | | | |
| CALIB STANDHYD (20052) ID= 1 DT= 5.0 min | Area Total In | (ha)= np(%)= 7 | 0.29 8.00 I | Dir. Conn. | . (%)= 7 | 8.00 | |
| Surface Area Dep. Storage Average Slope Length Mannings n | (ha)= (mm)= (%)= (m)= = | 0.23 1.00 1.00 43.97 0.013 | | RVIOUS (i) 0.06 1.00 2.00 40.00 0.290 |) | | |
| NOTE: RAINFA | | | | 5.0 MIN. T | TIME STE | Р. | |
| | | TDA | NCTORME | NVETOCR/ | . DU | | |
| TIME hrs | RAIN mm/hr | TIME | RAIN mm/hr | HYETOGRA TIME hrs | RAIN mm/hr | TIME hrs | RAIN |
| 0.083 0.167 | 2.54 2.54 2.54 | hrs 3.083 3.167 | 4.07 | D HYETOGRA; TIME 6.083 6.167 6.583 6.167 6.583 6.6583 6.6677 6.5083 6.6677 7.083 7.167 7.083 7.167 7.383 7.167 7.383 7.467 7.583 7.6683 8.883 | RAIN mm/hr 18.31 18.31 18.31 18.31 18.31 18.31 18.31 8.14 | 9.08 9.17 9.25 | mm/hr 3.56 3.56 |
| 0.250 0.333 0.417 | 2.54 | 3.250 | 4.07 | 6.250 | 18.31 18.31 | 9.25 9.33 9.42 | |
| 0.500 | 2.54 | 3.333 3.417 3.500 3.583 | 4.07 | 6.417 | 18.31 18.31 | 9.42 9.50 | 3.56 3.56 3.56 3.56 |
| 0.583 0.667 | 2.54 | 3.583 | 4.07 | 6.583 | 8.14 | 9.58 9.67 | 3.56 3.56 3.56 |
| 0.750 0.833 0.917 1.000 | 2.54 2.54 2.54 2.54 2.54 2.54 2.54 2.54 | 3.667 3.750 3.833 | 4.07 | 6.833 | 8.14 8.14 8.14 8.14 8.14 | 9.67 9.75 9.83 | |
| | 2.54 | 3.917 4.000 4.083 | 4.07 | 7.000 | 8.14 | 9.92 10.00 | 3.56 3.56 2.03 |
| 1.167 1.250 | 2.54 | 4.167 | 6.10 | 7.167 | 6.10 6.10 6.10 | 10.17 | 2.03 2.03 2.03 |
| 1.167 1.250 1.333 1.417 | 2.54 | 4.083 4.167 4.250 4.333 4.417 | 6.10 6.10 | 7.333 7.417 | 6.10 | 10.33 | 2.03 |
| 1.500 1.583 1.667 | 2.54 | 4.500 4.583 | 6.10 8.14 | 7.500 7.583 | 6.10 | 10.50 | 2.03 |
| 1.667 1.750 1.833 | 2.54 | 4.667 4.750 4.833 | 8.14 | 7.667 | 6.10 6.10 6.10 | 10.67 | 2.03 2.03 2.03 |
| 1.917 2.000 | 2.54 | 4.917 5.000 | 8.14 8.14 | 7.917 | 6.10 | 10.92 11.00 | 2.03 |
| 2.083 2.167 | 3.05 | 5.083 5.167 5.250 | 12.20 | 8.083 8.167 8.250 | 3.56 3.56 3.56 | 11.08 11.17 11.25 | 2.03 |
| 2.250 2.333 2.417 | 3 05 1 | 5.250 5.333 5.417 | 12.20 12.20 | 8.250 8.333 | 3.56 3.56 3.56 | 11.25 11.33 11.42 | 2.03 2.03 2.03 |
| 2.417 2.500 2.583 | 3.05 | 5.417 5.500 5.583 | 12.20 12.20 | 8.250 8.333 8.417 8.500 8.583 8.667 | 3.56 | 11.42 11.50 | 2.03 2.03 2.03 |
| 2.667 | 3.05 3.05 3.05 | | 48.82 | 8.500 8.583 8.667 | 3.56 3.56 3.56 | 11.50 11.58 11.67 | 2 03 |
| 2.750 2.833 2.917 | 3.05 3.05 3.05 | 5.750 | 48.82 134.24 134.24 134.24 | 8.750 8.833 | 3.56 | 11.75 11.83 11.92 | 2.03 2.03 2.03 |
| 3.000 | | | | 9.000 | 3.56 3.56 | 12.00 | 2.03 |
| Max.Eff.Inten.(mm | /hr)= min) | 134.24 | 1 | 17.80 10.00 | | | |
| Max.Eff.Inten.(mm over (Storage Coeff. (Unit Hyd. Tpeak (Unit Hyd. peak (| min)= min)= cms)= | 134.24 5.00 1.39 5.00 0.33 | (ii) | 5.52 (ii) 10.00 0.16 | | ALS* | |
| PEAK FLOW (TIME TO PEAK RUNOFF VOLUME TOTAL RAINFALL RUNOFF COEFFICIEN | cms)= hrs)= | 0.08 | | 0.02 | 0 | 103 (iii) | |
| RUNOFF VOLUME TOTAL RAINFALL | (mm)= (mm)= | 100.70 101.70 | 10 | 6.00 76.77 01.70 | 95 101 | 70 94 | |
| | | | | 0.75 | | .94 | |
| **** WARNING: STORAGE | COEFF. 1 | IS SMALLE | R THAN | TIME STEP! | | | |
| | | | | | | | |
| | | | | | | | |
| CALTR | | | | | | | |
| CALIB STANDHYD (20061) ID= 1 DT= 5.0 min | Area Total In | (ha)= np(%)= 8 | 0.65 5.00 | Dir. Conn. | . (%)= 8 | 35.00 | |
| | | | | RVTOUS (i) |) | | |
| Surface Area Dep. Storage Average Slope Length | (ha)= (mm)= | 0.55 1.00 | | 0.10 | | | |
| Average Slope Length Mannings n | (%)= (m)= | 1.00 65.83 0.013 | | 2.00 40.00 0.290 | | | |
| NOTE: RAINFA | _ | | | | TIME STR | P. | |
| | | | | | | | |
| | | TRA | NSFORME |) HYETOGRA | APH | | |

| Mannings n | = | 0.013 | | 0.290 | | | |
|---|--|--|---|---|--|---|---|
| | RAINFALL WAS | | | | | | |
| | TIME 8.1 hrs mm/h 1 hrs mm/h 2 hr | TRA N THES N THES 1 | NSFORMER RAIN mm/hr 4.07 4.07 4.07 4.07 4.07 4.07 4.07 4.07 | HYETOCRA TIME 6.083 6.167 6.231 6.313 6.303 6.631 6.583 6.675 6.750 6.831 7.000 7.083 7.167 7.333 7.167 7.333 7.670 8.083 7.833 8.667 8.333 | RAIN RAIN 18.31 18.31 18.31 18.31 18.31 18.31 18.31 18.31 18.31 18.31 18.31 18.31 6.10 | TIME hrs 9.08 9.17 9.25 9.58 9.67 9.58 9.67 9.58 9.67 10.00 10.08 10.08 10.05 10.05 10.65 10.65 10.65 11.68 | RAIN / 18 / 18 / 18 / 18 / 18 / 18 / 18 / 1 |
| Max.Eff.Inten.(mm/hr) = 134.24 117.80 over (min) 5.00 10.00 Storage Coeff. (min) 5.00 10.00 Storage Coeff. (min) 5.00 10.00 Unit Hyd. peak (min) 3.00 10.00 Unit Hyd. peak (ms) 3.00 10.00 Unit Hyd. peak (ms) 6.03 0.32 0.16 PEAK FLOW (cms) = 0.21 0.03 0.335 (iii) TIME TO PEAK (hrs) 6.00 6.00 6.00 6.00 RUNOFF VOLUME (mm) 100.70 76.77 97.11 TOTAL RAINFALL (mm) 107.70 10.75 101.70 UNOFF COEFFICIENT = 0.99 0.75 0.95 ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN° = 89.0 1 a = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. | | | | | | | |
| CALIB STANDHYD (200 ID= 1 DT= 5.0 m | 072) Area nin Total | (ha)= Imp(%)= 8 | 0.64 4.00 | Dir. Conn | . (%)= 8 | 4.00 | |

(ha)= 0.54 0.10 (mm)= 1.00 1.00 (%)= 1.00 2.00

Surface Area Dep. Storage Average Slope

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Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                         65.32
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                                                                                                                                                                                                                                                                                                L WAS TRANSFORMED TO 5.0 MIN.

--- TRANSFORMED HYETOG

RAIN | TIME RAIN | TIME
RMIN | TIME RAIN | TIME
RMIN | TIME RAIN | TIME
RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME RMIN | TIME
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TIME IN 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1 18 6 . 165 1
                                                                                                                                                                                             TIME hrs 0.083 0.167 0.250 0.257 0.250 0.313 0.417 0.500 0.583 0.917 1.000 1.083 1.1667 1.750 1.583 1.917 2.250 2.003 2.167 2.250 2.333 2.417
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over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
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over (min)
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Unit Hyd. Tpeak (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. Peak (ms)=
PEAK FLOW (CmS)=
PEAK FLOW (CmS)=
TIME TO PEAK (hrs)=
TOTAL RAINFALL (mm)=
TOTAL RAINFALL (mm)=
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   ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | CALIB | STANDHYD ( 20071) | Area (ha)= 0.58 | Total Imp(%)= 85.00 | Dir. Conn.(%)= 85.00 | IMPERVIOUS | PERVIOUS (i)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                           TRANSFORMED HYETOGRAPH
ME RAIN | TIME
rs mm/hr | hrs m
83 4.07 6.083 18
67 4.07 6.167 6.185
50 4.07 6.250 18
33 4.07 6.333 34
17 4.07 6.417 18
00 4.07 6.583 8
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RAIN | TIME mm/hr | hrs 18.31 | 9.08 18.31 | 9.17 18.31 | 9.25 18.31 | 9.33 18.31 | 9.34 18.31 | 9.50 8.14 | 9.58
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                                                                                                         NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                           ---- TRANSFORMED HYETOGRAPH ----
TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         *TOTALS*
0.142 (iii)
6.00
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                                                    Max.Eff.Inten.(mm/hr)-
over (min)-
storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
PEAK FLOW (cms)=
TIME FO PEAK (hrs)=
TIME FO PEAK (hrs)=
RUNOFF COEFFICIENT =
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                134.24
5.00
1.75 (ii)
5.00
0.32
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10.00
5.59 (ii)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   *TOTALS*
0.225 (iii)
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                                                    * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CALIB
STANDHYD (200812)
ID= 1 DT= 5.0 min
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Area (ha)= 0.38 Total Imp(\%)= 70.00 Dir. Conn.(\%)= 70.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IMPERVIOUS PERVIOUS (i)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Surface Area
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Length
Mannings n
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(mm)=
(%)=
(m)=
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1.00 1.00
1.00 2.00
50.33 40.00
0.013 0.290
NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                           (ha)= IMPERVIOUS (1)

(ha)= 1.00 1.00

(mm)= 1.00 1.00

(%)= 1.00 2.00

(m)= 51.64 40.00

= 0.013 0.290
                                                        Surface Area
Dep. Storage
Average Slope
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Mannings n
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| 2.667 3.05 5.667 48.82 8.667 3.56 11.67 2 2.750 3.05 5.750 48.82 8.750 3.56 11.75 2 2.833 3.05 5.833 134.24 8.833 3.56 11.83 2 2.917 3.05 5.917 134.24 8.917 3.56 11.92 2 |
|--|
| 2.917 3.05 5.917 134.24 8.917 3.56 11.92 2 3.00 3.05 6.000 134.24 9.000 3.56 12.00 2 Max.Eff.Inten.(mm/hr)= 134.24 117.80 5.00 5.00 5.00 Storage Coeff. (min)= 0.91 (ii) 4.44 (ii) 5.00 5.00 5.00 5.00 Unit Hyd. Tpeak (min)= 0.91 (ii) 4.44 (ii) 5.00 5.00 5.00 5.00 Unit Hyd. peak (cms)= 0.34 0.23 **TOTALS** PEAK FLOW (cms)= 0.02 0.00 0.026 (iii) 7.00 6.00 6.00 6.00 6.00 6.00 6.00 6.00 |
| ADD HYD (0110) |
| STANDHYD (200822) |
| TIME RAIN TIME R |
| 3.000 3.05 6.000 134.24 9.000 3.56 12.00 2 MAX.EFF.INTEN.(mm/hr)= 134.24 117.80 |
| + ID2= 2 (200822): 0.39 0.127 6.00 90.88 ID = 3 (0111): 0.46 0.153 6.00 91.75 NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY. |
| CALIB STANDHYD (20102) Area |
| NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. |
| |

2.03 2.03 2.03 2.03 2.03

RAIN mm/hr 3.566 3.556 3

2.03

| 2.667 3.05 5.667 48.82 8.667 3.56 11.67 2.03 | Storage Coeff. (min)= |
|--|-----------------------|
| ****** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) C. N. PROCEDIUS SLECTED FOR PENYIOUS (ABOVE) (TI) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFF. CIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASSELOW IF AMY. ***CALIB | ADD HYD (0121) |
| Max.EFF.Inten.(mm/hr) | PEAK FLOW |

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(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
               CALIB
STANDHYD (201021)
ID= 1 DT= 5.0 min
                                                                                                                                                                                                                                                                                                                                                                                                                     Area (ha)= 0.47 Total Imp(\%)= 85.00 Dir. Conn.(\%)= 85.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IMPERVIOUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PERVIOUS (i)
                                                                                   Surface Area
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                                                                                                                                                                 NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
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over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      134.24
5.00
1.60 (ii)
5.00
0.32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               117.80
10.00
5.03 (ii)
10.00
0.16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        *TOTALS*
0.170 (iii)
6.00
97.11
101.70
0.95
                                                                                   PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0.15
6.00
100.70
101.70
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0.02
6.00
76.77
101.70
0.75
***** WARNING: STORAGE COFFE. IS SMALLER THAN TIME STEP!
                                                                                   (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = bep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                   NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
          CALIB
STANDHYD ( 2005)
ID= 1 DT= 5.0 min
                                                                                                                                                                                                                                                                                                                                                                                                                     Area (ha)= 0.28 Total Imp(\%)= 90.00 Dir. Conn.(\%)= 90.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IMPERVIOUS PERVIOUS (i)
                                                                                   Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0.25
1.00
1.00
43.20
0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0.03
1.00
2.00
40.00
0.290
                                                                                                                                                           NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TRANSFORMED HYETOGRAPH
ME RAIN | 'ITME | 675 mm/hr | 'hrs mr
83 4.07 | 6.083 18.
67 4.07 | 6.250 18.
103 4.07 | 6.250 18.
103 4.07 | 6.331 18.
104 0.07 | 6.331 18.
105 4.07 | 6.303 18.
106 4.07 | 6.500 18.
107 | 6.667 8.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MSFORMED HTELLOW RAIN ' TIME mm/hr' ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's ' hr's '
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                                                                             Max.Eff.Inten.(mm/hr) = over (min) = over (min) = storage (coeff. (min) = unit Hyd. Tpeak (min) = unit Hyd. Tpeak (min) = peak FLOW (cms) = peak FLOW (cms) = TIME TO PEAK (hrs) = RUNOFF VOLUME (mm) = RUNOFF COEFFICIENT = RUNOFF COEFFICIENT = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min) = storage (min
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      134.24
5.00
1.37
5.00
0.33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          117.80
5.00
4.22
5.00
0.24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   *TOTALS*
0.103 (iii)
6.00
98.30
101.70
0.97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0.09
6.00
100.70
101.70
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0.01
6.00
76.77
101.70
0.75
***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^\circ=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
```

| CALIB STANDHYI ID= 1 DT= | (201022) 5.0 min | | (ha)= mp(%)= 8 | | Dir. Con | | 85.00 | |
|-----------------------------------|---|--|---|--|--|--|--|---|
| Dep. Avera Lengt | ce Area Storage ige Slope ih ngs n | (ha)= (mm)= (%)= (m)= = | IMPERVIO 0.40 1.00 1.00 55.98 0.013 | JS PE | RVIOUS (0.07 1.00 2.00 40.00 0.290 | i) | | |
| 1 | IOTE: RAIN | FALL WAS T | RANSFORMI | ED TO | 5.0 MIN. | TIME ST | EP. | |
| | TIMM | Smin/hr Name 3.083 3.167 3.253 3.333 3.417 3.500 3.583 3.667 3.753 4.000 4.083 4.000 4.183 4.167 4.250 4.883 4.813 5.000 5.333 5.167 5.333 5.167 5.333 5.391 5.300 5.333 5.391 5.300 5.333 5.391 5.300 5.333 5.391 5.391 | 4.07 4.07 4.07 4.07 4.07 4.07 4.07 4.07 | D HYETOGI | 18.31 18.31 18.31 18.31 18.31 18.31 18.31 8.14 8.14 8.14 8.14 8.14 8.14 8.14 8.1 | 9 . 33 9 . 43 9 . 50 9 . 50 9 . 50 9 . 67 9 . 67 9 . 67 10 . 60 10 . 10 10 . 12 10 . 10 10 . 1 | RAI mm/h/h mm/s mm/s mm/s mm/s mm/s mm/s mm |
| Max.I | 2.83 2.91 3.00 eff.Inten.(over ge Coeff. Hyd. Tpeak Hyd. peak | 0 3.05 | 5.833 5.917 6.000 134.24 5.00 1.60 | 134.24 | 17 80 | | 11.83 11.92 12.00 | 2.03 2.03 2.03 |
| PEAK TIME RUNOI TOTAI | FLOW TO PEAK F VOLUME RAINFALL F COEFFICI | (cms)= (hrs)= (mm)= (mm)= | 0.15 6.00 100.70 101.70 0.99 | | 5.03 (i 10.00 0.16 0.02 6.00 76.77 01.70 0.75 | *T0 | TALS* .170 (iii 6.00 7.11 1.70 |) |
| (i) (ii) | CN PROCED CN* = TIME STEP THAN THE | GE COEFF. URE SELECT 89.0 IA (DT) SHOU STORAGE CO DOES NOT | ED FOR PI = Dep. S LD BE SM EFFICIEN | ER THAN ERVIOUS Storage ALLER OR | TIME STE LOSSES: (Above) EQUAL | | | |
| II + II | (0136) ! = 3 01= 1 (2010 02= 2 (2010 | A (21): 0 22): 0 | REA QI ha) (i .47 0.: | PEAK cms) 170 170 | TPEAK (hrs) 6.00 | R.V. (mm) 97.11 97.11 | | |
| I |) = 3 (01 | 36): 0 | .94 0. | 340 | 6.00 | 97.11 | | |
| Mann | ngs n | (ha)= (mm)= (%)= (m)= = | 0.013 | | RVIOUS (0.49 1.00 2.00 40.00 0.290 | | | |
| , | UIE: KAIN | FALL WAS T | | | 5.0 MIN. D HYETOGI ' TIME ' hrs 6.083 6.167 6.250 | | | |
| | | | | | | | | |

| NOTE: | RAINFAL | LL WAS TE | RANSFORM | ED TO | 5.0 MIN. | TIME STE | P. | |
|-------|--|---|--|---|---|--|---|---|
| NOTE: | TIME hrs 0.083 0.167 0.250 0.333 0.417 0.500 0.583 0.667 0.750 0.833 0.917 | RAIN mm/hr 2.54 2.54 2.54 2.54 2.54 2.54 2.54 2.54 | TIME hrs 3.083 3.167 3.250 3.333 3.417 3.500 3.583 3.667 3.750 3.833 | ANSFORME RAIN mm/hr 4.07 4.07 4.07 4.07 4.07 4.07 4.07 4.07 | 6.250 6.333 6.417 6.500 6.583 6.667 6.750 6.833 6.917 | RAPH RAIN mm/hr 18.31 18.31 18.31 18.31 18.31 18.31 48.14 8.14 8.14 | TIME hrs 9.08 9.17 9.25 9.33 9.42 9.50 9.58 9.67 9.75 9.83 9.92 | RAIN mm/hr 3.56 3.56 3.56 3.56 3.56 3.56 3.56 |
| | | | | 4.07 | 6.083 | | | |
| | 0.250 | 2.54 | 3.250 | 4.07 | 6.250 | 18.31 | 9.25 | 3.56 |
| | 0.333 | 2.54 | | | 6.333 | 18 31 | 9 33 | 3.56 |
| | 0.417 | 2.54 | 3.417 | 4.07 | 6.417 | 18.31 | 9.42 | 3.56 |
| | 0.500 | 2.54 | 3.500 | 4.07 | 6.500 | 8 14 | 9.50 | 3.56 |
| | 0.667 | 2.54 | 3.667 | 4.07 | 6.667 | 8.14 | 9.67 | 3.56 |
| | 0.750 | 2.54 | 3.750 | 4.07 | 6.750 | 8 14 | 9 75 | 3.56 |
| | 0.833 | 2.54 | 3.833 | 4.07 | 6.833 | 8.14 | 9.83 | 3.56 |
| | 1.000 | 2.54 | 4.000 | 4.07 | 7.000 | 8.14 | 10.00 | 3.56 |
| | 1.083 | 2.54 | 4.083 | 4.07 6.10 | 7.083 | 8.14 6.10 | 10.08 | 2.03 |
| | 1.167 | 2.54 | 4.167 | 6.10 | 7.167 | 6.10 | 10.17 | 2.03 |
| | 1.250 | 2.54 2.54 2.54 2.54 2.54 | 4.250 | 6.10 | 7.250 | 6.10 | 10.25 | 2.03 |
| | 1.333 | 2.54 | 4.333 | 6.10 6.10 | 7.333 | 6.10 | 10.33 | 2.03 |
| | 1.500 | 2.54 | 4.500 | 6.10 | 7.500 | 6.10 | 10.50 | 2.03 |
| | 1.583 | 2.54 2.54 2.54 | 4.583 | 8.14 | 7.583 | 6.10 | 10.58 | 2.03 |
| | 1.667 | 2.54 | 4.667 | 8.14 8.14 | 7.667 | 6.10 | 10.67 | 2.03 |
| | 1.750 | 2.54 | 4.750 | 8.14 | 7.750 | 6.10 | 10.75 | 2.03 |
| | 1.833 1.917 | 2.54 2.54 2.54 | 4.917 | 8.14 8.14 | 7.833 | 6.10 | 10.92 | 2.03 |
| | 2.000 | 2.54 | | 8.14 | 8.000 | 6 10 | 11.00 | 2.03 |
| | 2.083 | 3.05 | 5.083 | 12.20 | 8.083 | 3.56 3.56 3.56 3.56 | | 2.03 |
| | 2.167 2.250 2.333 | 3.05 | 5.167 5.250 5.333 | 12.20 12.20 | 8.167 8.250 | 3.56 | 11.17 | 2.03 |
| | 2.333 | 3.05 | 5.333 | 12.20 | 8.333 | 3.56 | 11.25 11.33 | 2.03 |
| | 2.417 | 3.05 | 5.417 | 12.20 | 8.417 | 3.56 | 11.42 | 2.03 |
| | 2.500 | 3.05 | 5.500 | 12.20 48.82 | 8.500 | 3.56 3.56 3.56 | 11.50 11.58 | 2.03 |
| | 2.565 | 3.05 | 5.667 | 48.82 | | 3.56 | 11.67 | 2.03 |
| | 2.750 | 3.05 | 5.750 | 48.82 | 8.750 | 3.56 | 11.75 | 2.03 |
| | 2.833 | 3.05 | 5.833 | 134.24 | 8.833 | 3.56 | 11.83 | 2.03 |
| | 2.917 3.000 | 3.05 | | 134.24 134.24 | | 3.56 | | 2.03 |
| | 3.000 | 3.03 | 0.000 | 134.24 | 9.000 | 3.30 | 12.00 | 2.03 |

134.24 5.00 2.07 (ii) 5.00 0.31 Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)= 117.80 10.00 9.30 (ii) 10.00 0.12 *TOTALS*
0.356 (iii)
6.00
90.16
101.70
0.89 PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT = 0.23 6.00 100.70 101.70 0.99 0.12 6.00 76.77 101.70 0.75

WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

 CN* = 89.0 Ia = Dep. Storage (Above)

 i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL

 THAN THE STORAGE COEFFCIENT.

 (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB STANDHYD (200111) ID= 1 DT= 5.0 min | Area Total | (ha)= 0.10 Imp(%)= 89.50 | | 89.50 |
|---|--------------------------------|---|---|-------|
| Surface Area Dep. Storage Average Slope Length | (ha)= (mm)= (%)= (m)= | IMPERVIOUS 0.09 1.00 1.00 25.82 | PERVIOUS (i) 0.01 1.00 2.00 40.00 | |

| TIME RAIN TIME R | 0.333 |
|--|--|
| Ohre mm/hr Ohre mm/hr Ohre mm/hr Ohre mm/hr Ohre mm/hr Ohre mm/hr Ohre mm/hr Ohre mm/hr Ohre mm/hr Ohre mm/hr Ohre mm/hr Ohre Ohr | 0.667 2.54 3.667 4.07 6.667 8.14 9.67 3.56 |

13.50 13.50 13.50 13.50 13.50 54.00 54.00 54.00 148.50 148.50 8.083 8.167 8.250 8.333 8.417 8.500 8.583 8.667 8.750 8.833 8.917 9.000 5.167 5.250 5.333 3.94 3.94 3.94 3.94 3.94 3.94 3.94 3.94 2.167 2.250 2.333 2.417 2.500 2.583 2.667 2.750 2.833 2.917 3.000 5.333 5.417 5.500 5.583 5.667 5.750 5.833 5.917 6.000 11.33 11.42 11.50 11.58 11.67 11.75 11.83 11.92 12.00 TIME: 12:51:03 USER: Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)= 148.50 5.00 1.81 (ii) 5.00 0.32 132.61 10.00 5.10 (ii) 10.00 0.16 *TOTALS*
0.321 (iii)
6.00
107.82
112.50
0.96 0.28 6.00 111.50 112.50 0.99 PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT = 0.04 6.00 87.00 112.50 0.77 READ STORM Filename: C:\Users\caef070146\AppD ata\\tocal\Temp\ a3a8b910-d519-48ad-be84-5b44b6daecc3\l3bf36c4 Comments: 100-Yr,12-hr SCS, City of Barrie Ptotal=112.50 mm RAIN | mm/hr | 4.50 | 4.50 | 4.50 | 4.50 | 6.75 | 6.75 | 6.75 | 9.00 | 9.00 | 9.00 | 13.50 | 13.50 | 54.00 | RAIN | mm/hr | 2.81 | 2.81 | 2.81 | 2.81 | 2.81 | 2.81 | 2.81 | 2.81 | 3.37 | 3.37 | 3.37 | 3.37 | TIME hrs 0.25 0.50 0.75 1.00 1.25 1.75 2.00 2.25 2.50 2.75 3.00 TIME hrs 3.25 3.50 3.75 4.00 4.25 4.50 5.25 5.50 5.75 6.00 TIME hrs 6.25 6.50 6.75 7.00 7.25 7.50 7.75 8.00 8.25 8.75 9.00 RAIN mm/hr 20.25 20.25 9.00 9.00 6.75 6.75 6.75 3.94 3.94 3.94 ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! 9.25 9.50 9.75 10.00 10.25 10.50 11.25 11.50 11.75 12.00 mm/hi 3.94 3.94 3.94 2.25 2.25 2.25 2.25 2.25 2.25 2.25 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CM* = 89.0 Ia = Dep. Storage (Above)

(ii) TIME STEP (CT) SHOULD BE SMALLER OR EQUAL

THAN THE STORAGE COEFFICIENT.

(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. IMPERVIOUS 0.62 1.00 1.00 68.31 0.013 PERVIOUS (i) 0.08 1.00 2.00 40.00 0.290 Surface Area Dep. Storage Average Slope Length Mannings n CALIB STANDHYD (20022) ID= 1 DT= 5.0 min Area (ha)= 0.80 Total Imp(%)= 85.00 Dir. Conn.(%)= 85.00 NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. IMPERVIOUS 0.68 1.00 1.00 73.03 0.013 PERVIOUS (i) 0.12 1.00 2.00 40.00 0.290 Surface Area Dep. Storage Average Slope Length (ha)= (mm)= (%)= (m)= RAIN | mm/hr | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | TIME hrs 3.083 3.167 3.250 3.333 3.417 TIME hrs 6.083 6.167 6.250 6.167 6.250 6.331 6.650 6.500 6.831 7.200 6.750 6.750 7.250 7.250 7.250 7.250 8.083 8.167 7.863 8.167 8.331 7.417 7.563 8.083 8.167 8.800 8.563 8.417 TIME hrs 0.083 0.167 0.250 0.083 0.167 0.250 0.250 0.333 0.667 0.500 0.833 0.667 0.750 0.833 0.667 1.080 0.750 0.833 0.917 0.250 0.833 0.917 0.250 0.2 TIME hrss 9.08 9.17 9.25 9.33 9.42 9.50 9.58 9.67 9.75 9.83 9.92 10.00 10.08 10.16 10.35 10.42 10.50 10.58 10.68 11.08 11.17 11.25 11.13 11.42 11.57 11.57 engtn annings n NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. TRANSFORMED HYETOGRAPH 3.500 3.583 3.667 3.753 3.917 4.003 4.167 4.250 4.333 4.417 4.500 4.583 4.917 5.000 5.167 5.083 5.167 5.333 5.167 5.500 5.583 5.665 20.25 9.00 9.00 9.00 9.00 9.00 6.75 6.75 6.75 6.75 6.75 6.75 6.75 3.94 3.94 3.94 RAIN mn/hr 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 20, 25 | 2 TIME 0.083 0.167 0.250 0.333 0.417 0.500 0.750 0.750 0.750 0.833 0.917 1.000 1.083 1.167 1.250 1.333 1.417 1.503 1.583 1.670 1.750 1 TIME 3.083 3.167 3.250 3.333 3.417 3.500 3.583 3.750 3.833 4.167 4.250 4.250 4.250 4.250 4.250 4.417 4.583 4.417 4.583 4.667 4.833 4.917 5.000 TIME hrs 6.083 6.167 6.250 6.333 6.917 6.500 7.083 7.250 7.333 7.667 7.583 7.667 7.7583 7.667 7.7583 7.697 7.833 7.891 8.000 TIME hrss 9.08 9.17 9.25 9.33 9.50 9.58 9.67 9.75 10.08 10.15 10.50 10.50 10.67 10.75 10.83 10.95 10.83 10.95 10.83 10.95 10.83 10.95 10.83 10.95 11.00 3.94 | 11.75 3.94 | 11.83 3.94 | 11.92 3.94 | 12.00 Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= 5.00 5.00 0.24 *TOTALS* 0.175 (iii) 6.00 109.05 112.50 0.97 0.16 6.00 111.50 112.50 0.99 0.02 6.00 87.00 112.50 0.77 Max.Eff.Inten.(mm/h)
over (min)
Storage Coeff. (min)
Unit Hyd. Tpeak (min)
Unit Hyd. peak (cms)
PEAK FLOW (cms)=
TIME TO PEAK (mm)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT = 132.61 5.00 4.59 (ii) 5.00 0.23 WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! *TOTALS* 0.285 (iii) 6.00 108.80 112.50 0.97 0.26 6.00 111.50 112.50 0.99 0.03 6.00 87.00 112.50 0.77 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN° = 89.0 Ia = Dep. Storage (Above)

ITAM STEP (DT) SHOULD BE SMALLER OR EQUAL

THAN THE STORAGE COEFFICIENT.

(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN* = 89.0 Ia = Dep. Storage (Above)

ii) TIME STEP (DT) SMOULD BE SMALLER OR EQUAL

THAN THE STORAGE COEFFCIENT.

(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. CALIB | STANDHYD (20032) | ID= 1 DT= 5.0 min Area (ha)= 0.47Total Imp(%)= 87.00 Dir. Conn.(%)= 87.00IMPERVIOUS PERVIOUS (i)
0.41 0.06
1.00 1.00 2.00
1.00 2.00
55.98 40.00
0.013 0.290 Surface Area (ha)=
Dep. Storage (mm)=
Average Slope (%)=
Length (m)= CALIB
STANDHYD (20031) | Area (ha)= 0.43
ID= 1DT= 5.0 min | Total Imp(%)= 90.00 Dir. Conn.(%)= 90.00 NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. IMPERVIOUS 0.39 1.00 1.00 53.54 0.013 PERVIOUS (i) (ha)= (mm)= (%)= (m)= 0.04 1.00 2.00 40.00 0.290 Dep. Storage Average Slope Length Mannings n TRANSFORMED HYETOGRAPH NSFORMED HTELOUR.
RAIN! TIME
mm/mt | 6 6.167
4.500 6.250
4.500 6.250
4.500 6.417
4.500 6.6303
4.500 6.6417
4.500 6.650
4.500 6.6750
4.500 6.6750
4.500 6.750
4.500 6.833
4.500 6.6750
4.500 7.000
6.751 7.000
6.752 7.1560
6.753 7.7500
9.000 7.7633
9.000 7.7633
9.000 7.7633
9.000 7.7637
9.000 7.7637
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9.000 8.000
13.500 8.8030
13.500 8.8030
13.500 8.8350
13.500 8.8530
13.500 8.8530
54.000 8.5830
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54.000 8.5830
54.000 8.5830
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54.000 8.5830
54.000 8.5830 RAIN mm/hr 20.25 | 20.25 | 20.25 | TIME hrs 0.083 0.0617 0.500 0.500 0.6750 0.500 0.683 0.617 1.000 0.683 0.667 1.000 0.750 0.750 0.833 0.600 0.750 0.833 0.600 0.750 0.833 0.600 0.750 0.833 0.600 0.750 0.833 0.667 0.750 0.833 0.667 0.750 0.833 0.667 0.750 0 TIME hrs 3.083 3.417 3.250 3.333 3.417 3.500 3.583 3.417 4.000 4.083 4.407 4.250 4.250 4.250 5.253 3.500 5.583 5.517 5.500 5.583 5.517 5.750 5.583 5.517 5.750 5.833 5.917 6.750 5.833 5.917 6.750 6.000 TIME hrss 9.08 9.17 9.253 9.452 9.507 9.755 9.507 9.757 9.757 9.757 10.00 10.508 10.175 10.458 10.675 10.675 10.675 11.68 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.58 11.69 11.6 NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. HYETOGRAPH
TITME
6.0 197
6.0 197
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6.250
6.417
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7.003
7.003
7.7.167
7.7.333
7.4.17
10.7.550
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10.7.59 RAIN hrs
0.087
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0.333
0.417
0.500
0.750
0.750
0.833
0.917
1.000
1.083
1.167
1.250
1.583
1.417
1.500
1.833
1.917
2.200
2.083
2.167
2.250
2.333
2.417 mm/hr
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3 . 377 hrs 3.083 3.167 3.250 3.333 3.417 3.583 3.750 3.867 3.753 4.083 4.1250 4.333 4.457 4.500 4.583 4.917 5.000 5.083 5.1250 5.333 5.250 5.333 5.417 mm,/hr | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 4.50 | 1.50 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 2.25 2.25 2.25 2.25 2.25 2.25 2.25 2.25 2.25 2.25 2.25 2.25 2.417 2.500 2.583 2.667 2.750 2.833 2.917 3.000 5.417 5.500 5.583 5.667 5.750 5.833 5.917 6.000 11.42 11.50 11.58 11.67 11.75 11.83 11.92 12.00 Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= 148.50 5.00 1.54 5.00 0.33 132.61 5.00 4.62 (ii) 5.00 0.22 (ii) *TOTALS* 0.191 (iii) 6.00 108.31 112.50 0.96 0.17 6.00 111.50 112.50 0.99 0.02 6.00 87.00 112.50 0.77 PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT = Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= 148.50 132.61 5.00 5.00 1.50 (ii) 4.23 (ii)

Output filename: C:\Users\caef070146\AppData\Local\Civica\VH5\50564c49-8c07-4086-8157-8729fb3caba3\901f06fc Summary filename: C:\Users\caef070146\AppData\Local\Civica\VH5\50564c49-8c07-4086-8157-8729fb3caba3\901f06fc

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^{\circ}=89.0$ Ia = Dep. Storage (Above) (ii) TIME STEP (OT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT, (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

| 3.00 | 3.37 | 6.000 | 148.50 9.000 | 3.94 12.00 |
|---|---|--|--|---|
| Max.Eff.Inten.(over Storage Coeff. Unit Hyd. Tpeak Unit Hyd. peak | (min) (min)= (min)= | 148.50 5.00 1.41 5.00 0.33 | 132.61 5.00 (ii) 4.26 (ii) 5.00 0.23 | |
| PEAK FLOW TIME TO PEAK RUNOFF VOLUME TOTAL RAINFALL RUNOFF COEFFICI | (cms)= (hrs)= (mm)= (mm)= ENT = | 0.13 6.00 111.50 112.50 0.99 | 0.01 6.00 87.00 112.50 0.77 | *TOTALS* 0.142 (iii) 6.00 108.80 112.50 0.97 |

**** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^{\circ}=89.0$ Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Surface Area Dep. Storage Average Slope Length Mannings n

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

| TRANSFORMED HYETOGRAPH | | | | | | | | | |
|------------------------|----------------------|-------|--------|---------|--------------|-------|-------|--|--|
| TIME | RATN | TTME | RATN | I' TTMF | RAIN | TIME | RATN | | |
| hrs | mm/hr | hrs | mm/hr | ' hrs | mm/hr | hrs | mm/hr | | |
| 0.083 | | 3.083 | 4.50 | 6.083 | 20.25 | 9.08 | 3.94 | | |
| | 2.81 2.81 | 3.167 | 4.50 | 6.167 | 20.25 | 9.00 | 3.94 | | |
| 0.167 | | | | | | | 3.94 | | |
| 0.250 | 2.81 | 3.250 | 4.50 | 6.250 | 20.25 | 9.25 | 3.94 | | |
| 0.333 | 2.81 | 3.333 | 4.50 | 6.333 | 20.25 | 9.33 | 3.94 | | |
| 0.417 | 2.81 | 3.417 | 4.50 | 6.417 | 20.25 | 9.42 | 3.94 | | |
| 0.500 | 2.81 | 3.500 | 4.50 | 6.500 | 20.25 | 9.50 | 3.94 | | |
| 0.583 | 2.81 | 3.583 | 4.50 | 6.583 | 9.00 | 9.58 | 3.94 | | |
| 0.667 | 2.81 | 3.667 | 4.50 | 6.667 | 9.00 | 9.67 | 3.94 | | |
| 0.750 | 2.81 | 3.750 | 4.50 | 6.750 | 9.00 | 9.75 | 3.94 | | |
| 0.833 | 2.81 | 3.833 | 4.50 | 6.833 | 9.00 | 9.83 | 3.94 | | |
| 0.917 | 2.81 | 3.917 | 4.50 | 6.917 | 9.00 | 9.92 | 3.94 | | |
| 1.000 | 2.81 | 4.000 | 4.50 | 7.000 | 9.00 | 10.00 | 3.94 | | |
| 1.083 | 2.81 | 4.083 | 6.75 | 7.083 | 6.75 | 10.08 | 2.25 | | |
| 1.167 | 2.81 | 4.167 | 6.75 | 7.167 | 6.75 | 10.17 | 2.25 | | |
| 1.250 | 2.81 | 4.250 | 6.75 | 7.250 | 6.75 | 10.25 | 2.25 | | |
| 1.333 | 2.81 | 4.333 | 6.75 | 7.333 | 6.75 | 10.33 | 2.25 | | |
| 1.417 | 2.81 | 4.417 | 6.75 | 7.417 | 6.75 | 10.42 | 2.25 | | |
| 1.500 | 2.81 | 4.500 | 6.75 | 7.500 | 6.75 | 10.50 | 2.25 | | |
| 1.583 | 2.81 | 4.583 | 9.00 | 7.583 | 6.75 | 10.58 | 2.25 | | |
| 1.667 | 2.81 | 4.667 | 9.00 | 7.667 | 6.75 | 10.67 | 2.25 | | |
| 1.750 | 2.81 | 4.750 | 9.00 | 7.750 | 6.75 | 10.75 | 2.25 | | |
| 1.833 | 2.81 | 4.833 | 9.00 | 7.833 | 6.75 | 10.83 | 2.25 | | |
| 1.917 | 2.81 | 4.917 | 9.00 | 7.917 | 6.75 | 10.92 | 2.25 | | |
| 2.000 | 2.81 | 5.000 | 9.00 | 8.000 | 6.75 | 11.00 | 2.25 | | |
| 2.083 | 3.37 | 5.083 | 13.50 | 8.083 | 3.94 | 11.08 | 2.25 | | |
| 2.167 | 3.37 3.37 3.37 | 5.167 | 13.50 | 8.167 | 3.94 | 11.17 | 2.25 | | |
| 2.250 | 3.37 | 5.250 | 13.50 | 8.250 | 3.94 | 11.25 | 2.25 | | |
| 2.333 | 3.37 | 5.333 | 13.50 | 8.333 | 3.94 3.94 | 11.33 | 2.25 | | |
| 2.417 | 3.37 | 5.417 | 13.50 | 8.417 | 3.94 | 11.42 | 2.25 | | |
| 2.500 | 3.37 | 5.500 | 13.50 | 8.500 | 3.94 | 11.50 | 2.25 | | |
| 2.583 | 3.37 | 5.583 | 54.00 | 8.583 | 3.94 | 11.58 | 2.25 | | |
| 2.667 | 3.37 | 5.667 | 54.00 | 8.667 | 3.94 | 11.67 | 2.25 | | |
| 2.750 | 3.37 | 5.750 | 54.00 | 8.750 | 3.94 | 11.75 | 2.25 | | |
| 2.833 | 3.37 | 5.833 | 148.50 | 8.833 | 3.94 | 11.83 | 2.25 | | |
| 2.917 | 3.37 | 5.917 | 148.50 | 8.917 | 3.94 | 11.92 | 2.25 | | |
| 3.000 | 3.37 | 6.000 | 148.50 | 9.000 | 3.94 | 12.00 | 2.25 | | |
| | | | | | | | | | |

| Max.Eff.Inten.(m over | m/hr)= (min) | 148.50 5.00 | 132.61 10.00 | | |
|------------------------------------|-----------------|----------------|-----------------|------------------------|----|
| | (min)= | 1.33 | | (ii) | |
| | (cms)= | 0.33 | 0.16 | | |
| PEAK FLOW | (cms)= | 0.09 | 0.02 | *TOTALS* 0.115 (iii | i) |
| TIME TO PEAK RUNOFF VOLUME | (hrs)= (mm)= | 6.00 111.50 | 6.00 87.00 | 6.00 106.10 | |
| TOTAL RAINFALL RUNOFF COEFFICIE | (mm)= NT = | 112.50 0.99 | 112.50 0.77 | 112.50 0.94 | |

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^{\circ}=89.0$ Ia = Dep. Storage (Above) (i) TIME STEP (OT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (ii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| (III) PEAK FLOW | DOES NOT | INCLUDE BASI | EFLOW IF ANT. | |
|---|-------------------------------------|--|--|-------|
| CALIB STANDHYD (20062) ID= 1 DT= 5.0 min | Area Total | (ha)= 0.1 Imp(%)= 80.0 | | 80.00 |
| Surface Area Dep. Storage Average Slope Length Mannings n | (ha)= (mm)= (%)= (m)= = | IMPERVIOUS 0.58 1.00 1.00 69.76 0.013 | PERVIOUS (i) 0.15 1.00 2.00 40.00 0.290 | |
| NOTE: RAIN | FALL WAS | TRANSFORMED ' | TO 5.0 MIN. TIME | STEP. |

| Surface Are Dep. Storag Average Slo Length Mannings n | | a)= 0 n)= 1 6)= 1 n)= 48 | .31 | ERVIOUS (i) 0.05 1.00 2.00 40.00 0.290 |) | | |
|---|--|--|--|--|--|---|--|
| - | | WAS TRANSF | | | TIME STE | Р. | |
| Max. Fff. Int | 0.250 0.333 0.417 0.500 0.583 0.0.500 0.583 0.0.667 0.750 0.750 0.750 0.1500 1.1650 1.333 1.1650 1.3417 1.583 1.1650 1.3417 1.583 1.1650 1.3417 1.583 1.667 2.06 | RAIN TIMPMEN ME RAIN RAIN RAIN RAIN RAIN RAIN RAIN RAIN | 6. 250 6. 333 6. 417 6. 500 6. 586 6. 867 6. 683 6. 833 6. 417 7. 008 7. 167 7. 083 7. 167 7. 500 7. 583 7. 417 7. 500 7. 583 7. 417 7. 633 7. 417 8. 303 8. 167 8. 383 8. 167 8. 833 8. 857 8. 833 8. 917 9. 000 | RAIN mm/hr 20.25 20. | TIME hrs 9.08 9.17 9.25 9.33 9.42 9.50 9.58 9.67 9.75 9.83 9.92 10.00 10.08 10.17 | 3.94 3.94 3.94 3.94 3.94 3.94 3.94 2.25 |
| Max.Eff.Int Storage Coe Unit Hyd. 1 Unit Hyd. p | ten.(mm/hi over (min eff. (min peak (min peak (cm | r)= 148 1) 5 1)= 1 1)= 5 5)= 0 | .00 .42 (ii) .00 .33 | 5.00 4.71 (ii) 5.00 0.22 |) | | |
| PEAK FLOW TIME TO PEA RUNOFF VOLU TOTAL RAINE RUNOFF COEF | (Cms AK (hrs JME (mr FALL (mr | s)= 0 s)= 6 n)= 111 n)= 112 = 0 | .13 .00 .50 .50 | 0.02 6.00 87.00 112.50 0.77 | 6 107 112 | 146 (iii) .00 | |

(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB | STANDHYD (20052) |ID= 1 DT= 5.0 min Area (ha)= 0.29 Total Imp(%)= 78.00 Dir. Conn.(%)= 78.00 IMPERVIOUS PERVIOUS (i)

| TIME RAIN hrs mm/hr 0.083 2.81 0.167 2.81 0.250 2.81 0.410 2.81 0.500 2.81 0.667 2.81 0.750 2.81 1.0833 2.81 1.1500 2.81 1.151 2.81 1.152 2.81 1.153 2.81 1.153 2.81 1.153 2.81 1.153 2.81 1.153 2.81 1.153 2.81 1.153 2.81 1.153 2.81 1.153 2.81 | TIME RAIN hrs mm/, 1.083 4.50 3.157 4.50 3.157 4.50 3.157 4.50 3.500 4.50 3.500 4.50 3.500 4.50 3.500 4.50 3.667 4.50 3.617 4.50 4.000 4.00 4.081 6.75 4.000 6.75 4.333 6.75 4.330 6.75 4.330 6.75 4.340 6.75 4.350 6.75 4.350 9.00 4.687 9.00 | 6.083 20.25 6.250 20.25 6.333 0.20.25 6.467 20.25 6.649 9.00 6.6503 9.00 6.6503 9.00 6.6750 9.00 6.6833 9.00 6.750 9.00 7.000 9.00 7.000 9.00 7.000 6.75 7.167 6.75 7.167 6.75 7.167 6.75 7.168 6.75 7.167 6.75 7.167 6.75 7.167 6.75 7.167 6.75 | hrs mm/hr 9.08 3.94 9.17 3.94 9.18 3.94 9.17 3.94 9.18 3.94 9.19 3.94 9.50 3.94 9.58 3.94 9.58 3.94 9.58 3.94 10.00 2.95 10.17 2.25 10.12 2.25 10.10 2.25 10.58 2.25 |
|---|--|--|---|
| 0.500 2.81 0.583 2.81 0.667 2.81 0.750 2.81 0.853 2.81 0.017 2.81 1.083 2.81 1.167 2.81 1.250 2.81 1.333 2.81 1.417 2.81 1.417 2.81 1.583 2.81 1.590 2.81 | 3.500 4.50 3.583 4.50 3.660 4.50 3.660 4.50 3.660 4.50 3.617 4.50 4.50 4.000 4.50 4.083 6.75 4.250 6.75 4.250 6.75 4.250 6.75 4.250 6.75 4.250 6.75 4.250 6.75 4.250 6.75 4.250 6.75 4.250 6.75 4.250 6.75 4.250 6.75 5.250 13.50 5.500 13.50 | 6.500 20.25 6.583 9.00 6.667 9.00 6.750 9.00 6.833 9.00 7.000 9.00 7.000 9.00 7.083 6.75 7.167 6.75 7.250 6.75 7.333 6.75 7.500 6.75 7.500 6.75 7.566 6.75 7.667 6.75 | 9.50 3.94 9.58 3.94 9.67 3.94 9.75 3.94 9.83 3.94 10.00 3.94 10.08 2.25 10.17 2.25 10.25 2.25 10.33 2.25 10.50 2.25 10.50 2.25 10.67 2.25 10.67 2.25 |
| f.Inten.(mm/hr)= | | 32.61 | |

| Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= | 148.50 5.00 1.76 (ii) 5.00 0.32 | 132.61 10.00 5.54 (ii) 10.00 0.16 | |
|--|---|---|---|
| PEAK FLOW (CMS)= TIME TO PEAK (hrs)= RUNOFF VOLUME (mm)= TOTAL RAINFALL (mm)= RUNOFF COEFFICIENT = | 0.24 6.00 111.50 112.50 0.99 | 0.05 6.00 87.00 112.50 0.77 | *TOTALS* 0.289 (iii) 6.00 106.60 112.50 0.95 |

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^{\circ}=89.0$. Ia = Dep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB STANDHYD (20061) | Area | (ha)= | 0.65 | | |
|----------------------------|-------|---------|-------|----------------|-------|
| ID= 1 DT= 5.0 min | Total | Imp(%)= | 85.00 | Dir. Conn.(%)= | 85.00 |
| | | | | | |
| | | IMPERVI | | PERVIOUS (i) | |
| Surface Area | (ha)= | 0.5 | 5 | 0.10 | |
| Dep. Storage | (mm)= | 1.0 | Ó | 1.00 | |
| Average Slope | (%)= | 1.0 | 0 | 2.00 | |
| Lenath | (m)= | 65.8 | 3 | 40.00 | |
| Mannings n | ` ′= | 0.01 | 3 | 0.290 | |

| | | TRA | NSFORME | D HYETOGR | APH | | |
|-------|---------------|----------------|---------------|----------------|-----------------|------|---------------|
| TIME | RAIN mm/hr | TIME hrs | RAIN mm/hr | TIME | RAIN mm/hr | TIME | RAIN mm/hr |
| 0.083 | 2.81 | 3.083 | 4.50 | 6.083 | 20.25 | 9.08 | 3.94 |
| 0.167 | 2.81 | 3.167 | 4.50 | 6.167 | 20.25 | 9.17 | 3.94 |
| 0.250 | 2.81 | 3.250 3.333 | 4.50 4.50 | 6.250 6.333 | 20.25 20.25 | 9.25 | 3.94 3.94 |
| 0.333 | 2.01 | 1 3.333 | 4.30 | 0.333 | 20.23 | 5.33 | 3.54 |

| 0.417 2.81 3.417 4.50 6.417 20.25 9.42 3.94 0.500 2.81 3.500 4.50 6.500 20.25 9.50 3.94 0.583 2.81 3.583 4.50 6.583 9.00 9.58 3.94 0.666 2.81 3.660 4.50 6.650 20.25 9.58 3.94 0.667 2.81 3.660 4.50 6.650 3.00 9.56 3.34 0.667 2.81 3.660 4.50 6.650 3.00 9.56 3.34 0.910 2.81 3.81 3.683 4.50 6.6830 9.00 9.583 3.94 0.910 2.81 3.81 4.660 6.660 9.00 9.00 9.00 3.34 0.910 2.81 3.81 4.03 6.75 17.083 6.75 10.08 2.25 1.167 2.81 4.167 6.75 7.167 6.75 10.08 2.25 1.167 2.81 4.167 6.75 7.167 6.75 10.03 2.25 1.1437 2.81 4.437 6.75 7.7437 6.75 10.17 2.25 1.1437 2.81 4.437 6.75 7.7437 6.75 10.03 2.25 1.160 2.81 4.660 9.00 7.667 6.75 10.05 2.25 1.160 7.281 4.660 9.00 7.667 6.75 10.05 2.25 1.160 7.281 4.660 9.00 7.667 6.75 10.07 2.25 1.1637 2.81 4.837 9.00 7.667 6.75 10.07 2.25 1.1837 2.81 4.837 9.00 7.767 6.75 10.07 2.25 1.1837 2.81 4.837 9.00 7.780 6.75 10.07 2.25 1.1837 2.81 4.837 9.00 7.780 6.75 10.07 2.25 2.000 2.81 5.00 9.00 8.00 8.83 3.34 11.00 2.25 2.000 2.81 5.00 9.00 8.00 8.83 3.34 11.00 2.25 2.2687 3.37 5.583 9.00 9.00 8.83 3.34 11.00 2.25 2.2687 3.37 5.583 9.400 8.837 3.34 11.00 2.25 2.2687 3.37 5.583 9.400 8.833 3.34 11.00 2.25 2.2687 3.37 5.583 9.400 8.833 3.34 11.10 2.25 2.2687 3.37 5.583 9.400 8.833 3.34 11.10 2.25 2.2687 3.37 5.583 9.400 8.833 3.34 11.10 2.25 2.2687 3.37 5.583 9.400 8.833 3.34 11.10 2.25 2.2687 3.37 5.583 9.400 8.833 3.34 11.10 2.25 2.2687 3.37 5.583 9.400 8.833 3.34 11.10 2.25 2.2687 3.37 5.583 9.400 8.833 3.34 11.10 2.25 2.2687 3.37 5.583 9.400 8.833 3.34 11.10 2.25 2.2687 3.37 5.583 9.400 8.833 3.34 11.10 2.25 2.2687 3.37 5.583 9.400 8.833 3.34 11.10 2.25 2.2600 2.27 2.28 2.28 2.28 2.28 2.28 2.28 2.28 | 1.083 2.81 4.083 6.75 7.083 6.75 10.08 2 |
|---|--|
| 0.417 2.81 3.417 4.50 6.417 20.25 9.42 3.94 0.500 2.81 3.500 4.50 6.500 20.25 9.50 3.94 0.583 2.81 3.583 4.50 6.583 9.00 9.58 3.94 0.667 2.81 3.683 4.50 6.667 9.00 9.58 3.94 0.667 2.81 3.670 4.50 6.667 9.00 9.68 3.94 0.633 2.81 3.833 4.50 6.833 9.00 9.83 3.94 0.833 2.81 3.833 4.50 6.833 9.00 9.83 3.94 0.917 2.81 3.917 4.50 6.817 9.00 9.20 9.83 3.94 0.917 2.81 3.917 4.50 6.917 9.00 9.20 3.94 | 1.083 2.81 4.083 6.75 7.083 6.75 10.08 2 |
| 1.750 2.81 4.750 9.00 7.750 6.75 10.75 2.25 1.833 2.81 4.833 9.00 7.833 6.75 10.83 2.25 1.917 2.81 4.917 9.00 7.917 6.75 10.92 2.25 2.000 2.81 5.000 9.00 8.000 6.75 11.00 2.25 2.083 3.37 5.083 13.50 8.083 3.94 11.00 2.25 2.167 3.37 5.167 13.50 8.163 3.94 11.17 2.25 2.250 3.37 5.250 13.50 8.253 3.94 11.27 2.25 2.303 3.37 5.250 13.50 8.303 3.94 11.27 2.25 2.303 3.37 5.250 13.50 8.303 3.94 11.25 2.25 2.303 3.37 5.500 13.50 8.303 3.94 11.25 2.25 2.500 3.37 5.500 13.50 8.303 3.94 11.52 2.25 2.500 3.37 5.500 13.50 8.303 3.94 11.52 2.25 2.583 3.37 5.583 54.00 8.833 3.94 11.58 2.25 2.585 2.667 3.37 5.583 54.00 8.687 3.94 11.75 2.25 2.250 3.37 5.583 54.00 8.833 3.94 11.58 2.25 2.667 3.37 5.667 54.00 8.667 3.94 11.67 2.25 2.750 3.37 5.750 54.00 8.687 3.94 11.75 2.25 2.253 3.37 5.833 48.50 8.833 3.94 11.52 2.25 2.917 3.37 5.917 148.50 8.833 3.94 11.28 2.25 2.917 3.37 5.917 148.50 8.833 3.94 11.22 2.25 3.000 3.37 6.000 148.50 8.917 3.94 11.92 2.25 3.000 3.37 6.000 148.50 8.917 3.94 11.92 2.25 3.000 3.37 6.000 148.50 9.000 3.94 11.00 2.25 MMAX.EFf.Inten.(mm/hr)= 1.85.00 132.61 | 2,417 3,37 5,417 13,50 8,417 3,94 11.42 2,500 3,37 5,500 13,50 8,500 3,94 11.50 2,2583 3,37 5,583 54,00 8,583 3,94 11.58 2,2667 3,37 5,667 54,00 8,667 3,94 11.67 2,2533 3,37 5,750 54,00 8,673 3,94 11.75 2,2833 3,37 5,750 54,00 8,750 3,94 11.75 2,2833 3,37 5,750 54,00 8,750 3,94 11.75 2,2917 3,37 5,931 48,50 8,833 3,94 11.88 2,2917 3,37 5,931 48,50 8,937 3,94 11.92 2,917 3,37 5,917 48,50 8,917 3,94 11.92 2,917 3,37 5,900 3,94 12.00 2,917 3,94 12.00 2,917 3,94 12.00 2,917 3,917 3,94 |
| ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: (CN° = 89.0 I la = Dep. Storage (Above) (ii) THAN THE STORAGE ROBER SELECTED FOR PERVIOUS LOSSES: (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. CALIB CALIB CALIB LO-1 DT= 5.0 min Total Imp(%) = 81.00 Dir. Conn.(%) = 81.00 | CALIB STANDHYD (20091) Area (ha) = 0.40 Dir. Conn.(%) = 77.00 10 |
| Surface Area (ha) = 0.51 | TIME RAIN TIME RAIN TIME
RAIN mm/hr 3.94 3.94 3.94 3.94 3.94 3.94 3.94 2.25 2.25 2.25 2.25 2.25

Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= 132.61 10.00 5.53 (ii) 10.00 0.16 148.50 5.00 1.47 (ii) 5.00 0.33 *TOTALS* 0.157 (iii) 6.00 105.86 112.50 0.94 PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT = 0.13 6.00 111.50 112.50 0.99 0.03 6.00 87.00 112.50 0.77 ** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN° = 89.0 Ia = Dep. Storage (Above)

ITIME STEP (DT) SHOULD BE SMALLER OR EQUAL

THAN THE STORAGE COEFFICIENT.

THAN THE STORAGE TO TINCLUDE BASEFLOW IF ANY. CALIB STANDHYD (200812) ID= 1 DT= 5.0 min Area (ha)= 0.38 Total Imp(%)= 70.00 Dir. Conn.(%)= 70.00 PERVIOUS (i) 0.11 1.00 2.00 40.00 0.290 IMPERVIOUS 0.27 1.00 1.00 50.33 0.013 Surface Area Dep. Storage Average Slope Length Mannings n NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. TRANSFORMED HYETOGRAPH RAIN | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TI RAIN mm/hr 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 200.25 | 2 TIME hrs 0.083 0.063 0.050 0.0 TIME hrs 3.083 3.417 3.250 3.8417 3.250 3.8417 3.500 4.083 3.917 4.250 4.084 4.000 4.083 3.917 4.250 5.083 5.517 5.250 5.833 5.417 5.250 5.833 5.417 5.250 5.833 5.417 5.250 5.833 5.417 5.250 6.000 TIME hrss 9.08 9.17 9.253 9.508 9.67 9.508 9.675 9.83 10.008 110.15 10.567 110.568 111.158 111.588 111.75 111.588 111.75 Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)= 148.50 132.61 5.00 10.00 1.44 (ii) 6.14 (ii) 5.00 10.00 0.33 0.15 *TOTALS* 0.147 (iii) PEAK FLOW (cms)= 0.11 0.04 CN* = 89.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. | ADD HYD (0110)| | 1 + 2 = 3 | AREA (ha) 0.07 0.38 QPEAK (cms) 0.028 0.147 TPEAK R.V. (hrs) (mm) 6.00 107.57 6.00 104.14 ID1= 1 (200811): + ID2= 2 (200812): ID = 3 (0110): 0.45 0.175 6.00 104.68 NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY. | CALIB | STANDHYD (200822) |ID= 1 DT= 5.0 min Area (ha)= 0.39 Total Imp(%)= 59.00 Dir. Conn.(%)= 59.00 IMPERVIOUS 0.23 1.00 1.00 50.99 0.013 PERVIOUS (i) 0.16 1.00 2.00 40.00 0.290 (ha)= (mm)= (%)= (m)= = Surface Area Dep. Storage Average Slope Length Mannings n NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. MSFORMED HTELOUR
RAIN | TIME
mm/hr | 6 6.187
4.500 | 6.250
4.500 | 6.250
4.500 | 6.333
4.500 | 6.417
4.500 | 6.633
4.500 | 6.633
4.500 | 6.675
4.500 | 6.675
4.500 | 6.675
4.500 | 6.675
4.500 | 6.750
4.500 | 7.000
4.500 | 7.000
4.500 | 7.000
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4.000 | 7.000
4.000 | 7.000 RAIN mm/hr 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 20. 25 | 2 TIME hrs 0.083 0.167 0.250 0.250 0.41 0.250 0.451 0.250 0.451 0.250 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.500 0.451 0.451 0.500 0.45 TIME hrs 3.083 3.417 3.250 3.833 3.417 3.500 3.583 3.417 4.000 4.083 4.400 4.083 4.417 4.500 4.583 4.417 5.500 5.083 5.517 5.500 5.583 5.417 5.550 5.583 5.917 5.750 5.7 mm/hr 2.81 2.81 2.81 Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= 148.50 5.00 1.46 5.00 0.33 132.61 10.00 8.35 (ii) 10.00 0.12 (ii) *TOTALS* 0.142 (iii) 6.00 101.44 112.50 0.90 PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT = 0.09 6.00 111.50 112.50 0.99 0.05 6.00 87.00 112.50 0.77

| 1 | TIME TO PE RUNOFF VOL TOTAL RAIN RUNOFF COE | UME (| rs)= mm)= mm)= = | 6.00 111.50 112.50 0.99 | 1 | 6.00 87.00 12.50 0.77 | 104 112 | 5.00 4.14 2.50 0.93 | |
|--------------------|--|-----------------------------|------------------------------|--|--------------------------------------|---|----------------------------------|--|--|
| **** | WARNING: | STORAGE | COEFF. | IS SMALL | | | 1 | | |
| | (i) CN P | ROCEDURE | SELECTI | ED FOR P | ERVIOUS | LOSSES: | | | |
| | CN* (ii) TIME THAN | STEP (D | T) SHOU | LD BE SM | ALLER OR | EQUAL | | | |
| | (iii) PEAK | FLOW DO | ES NOT | INCLUDE | BASEFLOW | IF ANY. | | | |
| | | | | | | | | | |
| CAL STAI ID= | IB NDHYD (200 1 DT= 5.0 | 811) min | Area Total I | (ha)= np(%)= | 0.07 84.00 | Dir. Conn | .(%)= 8 | 34.00 | |
| | Surface Ar | ea (| ha)= | 0.06 1.00 | US PE | RVIOUS (i 0.01 |) | | |
| 1 | Surface Ar Dep. Stora Average Sl | ge (i | mm)= (%)= | 1.00 | | 1.00 | | | |
| | Lengtĥ Mannings n | | (m)= = | 21.60 0.013 | i | 40.00 0.290 | | | |
| | NOTE: | RAINFAL | L WAS TI | RANSFORM | ED TO | 5.0 MIN. | TIME ST | EP. | |
| | | | | TD | ANCTORME | D HYETOCE | ADU | | |
| | | TIME | RAIN mm/hr | TIME | RAIN mm/hr | D HYETOGR | RAIN mm/hr | TIME hrs | RAIN mm/hr |
| | | hrs 0.083 0.167 | 2.81 | 3 083 | mm/hr 4.50 4.50 4.50 | 6.083 | mm/hr 20.25 20.25 20.25 | hrs 9.08 9.17 | mm/hr 3.94 3.94 |
| | | 0.250 | 2.81 | 3.167 3.250 3.333 | 4 50 | 6.333 | 20 25 | 9.33 | 3.94 |
| | | 0.417 | 2.81 | 3.417 3.500 | 4.50 4.50 | 6.417 | 20.25 | 9.42 9.50 | 3.94 3.94 |
| | | 0.583 0.667 | 2.81 2.81 2.81 2.81 | 3.583 3.667 | 4.50 4.50 | 6.583 6.667 | 9.00 | 9.58 9.67 | 3.94 3.94 |
| | | 0.750 | 2.81 | 3.750 | 4.50 4.50 | 6.750 | 9.00 | 9.75 9.83 | 3.94 |
| | | 0.917 1.000 1.083 | 2.81 2.81 2.81 | 3.917 4.000 | 4.50 | 6.917 7.000 | 9.00 9.00 | 9.92 10.00 10.08 | 3.94 3.94 |
| | | 1.167 | 2.81 2.81 2.81 | 4.083 4.167 4.250 4.333 | 4.50 6.75 6.75 6.75 6.75 | 7.000 7.083 7.167 7.250 7.333 | 6.75 6.75 6.75 6.75 | 10.08 10.17 10.25 10.33 10.42 10.50 10.58 10.67 10.75 10.83 | 2.25 2.25 2.25 2.25 2.25 |
| | | 1.333 | 2.81 | 4.333 | 6.75 | 7.333 | 6.75 6.75 6.75 | 10.33 | 2.25 2.25 2.25 |
| | | 1.500 1.583 1.667 | 2.81 2.81 2.81 2.81 | 4.417 4.500 4.583 4.667 | 6.75 6.75 9.00 9.00 | 7.417 7.500 7.583 7.667 | 6.75 6.75 6.75 | 10.50 10.58 | 2.25 2.25 2.25 |
| | | 1.750 | 2.81 | | 9.00 9.00 | 7.667 7.750 | 6.75 6.75 | 10.67 10.75 | 2.25 |
| | | 1.833 1.917 2.000 | 2.81 2.81 2.81 | 4.833 4.917 | 9.00 9.00 9.00 | 7.750 7.833 7.917 8.000 | 6.75 6.75 6.75 6.75 | 10.83 10.92 11.00 | 2.25 2.25 2.25 2.25 2.25 2.25 |
| | | 2.083 | 2.81 3.37 | 5.000 5.083 5.167 | 9.00 13.50 13.50 | 1 8.083 | 3.94 3.94 | 11.08 | 2.25 |
| | | 2.250 | 3.37 3.37 3.37 | 5.250 | 13.50 13.50 | 8.167 8.250 8.333 | 3.94 3.94 | 11.17 11.25 11.33 | 2.25 2.25 2.25 |
| | | 2.417 | 3.37 | 5.417 | 13.50 13.50 | 8.417 | 3.94 3.94 | 11.42 11.50 | 2.25 |
| | | 2.583 | 3.37 3.37 | 5.583 5.667 | 54.00 54.00 | 8.583 8.667 | 3.94 3.94 | 11.58 11.67 | 2.25 |
| | | 2.750 2.833 2.917 | 3.37 3.37 3.37 | 5.750 5.833 5.917 | 54.00 148.50 148.50 | 8.750 8.833 8.917 | 3.94 3.94 | 11.75 11.83 | 2.25 2.25 2.25 2.25 |
| | | 2.917 3.000 | 3.37 3.37 | 5.917 6.000 | 148.50 148.50 | 8.917 9.000 | 3.94 3.94 | | 2.25 |
| 1 | Max.Eff.In | ten.(mm/ | hr)= | 148.50 | 1 | 32.61 | | | |
| | Storage Co Unit Hyd. Unit Hyd. | over (m eff. (m | in)= | 5.00 0.87 5.00 | (ii) | 5.00 4.26 (ii 5.00 |) | | |
| i | Unit Hyd. | peak (c | ms)= | 0.34 | | 0.23 | | ΓALS* | |
| | PEAK FLOW TIME TO PE | AK (h | ms)= rs)= | 0.02 5.92 | | 0.00 | 0 | .028 (iii) |) |
| ! | RUNOFF VOL TOTAL RAIN | UME (I FALL (I | mm)= mm)= | 111.50 112.50 | 1 | 6.00 87.00 12.50 | 10: 11: | 7.57 2.50 | |
| | RUNOFF COE | FFICIENT | = | 0.99 | | 0.77 | (| 0.96 | |
| **** | WARNING: | | | | | | 1 | | |
| | (I) CN P | ROCEDURE | SELECTI | ED FUK P | EKATO02 | LUSSES: | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| **** | WARNING: | STORAGE | COEFF. | IS SMALL | ER THAN | TIME STEP | 1 | | |
| | (i) CN P | POCEDURE | SEI ECTI | EN END D | EDVITOUS | necec. | | | |
| | CN* (ii) TIME | = 89. STEP (D THE STO | O Ia T) SHOU | = Dep. | Storage ALLER OR | (Above) EQUAL | | | |
| | THAN (iii) PEAK | THE STO FLOW DO | RAGE COI | EFFICIEN INCLUDE | T. BASEFLOW | IF ANY. | | | |

| CALIB STANDHYD (200821) ID= 1 DT= 5.0 min | Area Total | (ha)= Imp(%)= | 0.07 83.00 | Dir. Conn.(%)= | 83.00 |
|---|-------------------------------------|---|---------------|--|-------|
| Surface Area Dep. Storage Average Slope Length Mannings n | (ha)= (mm)= (%)= (m)= = | IMPERVIO 0.00 1.00 1.00 21.60 0.01 | 6 0 0 | PERVIOUS (i) 0.01 1.00 2.00 40.00 0.290 | |

| Mannings n | | = | 0.013 | | 0.290 | | | |
|-------------------------|----------------|---------------|----------------|----------------|---|--------------|-------------------|--------------|
| NOTE: | RAINFAL | L WAS TR | ANSFORME | D TO | 5.0 MIN. | TIME STE | P. | |
| | | | | | | | | |
| | TIME | RAIN | | DATN | D HYETOGR | RAIN | | RAIN |
| | hrs | mm/hr | hrs | mm/hr | ' hrs | mm/hr | hrs | mm/hr |
| | 0.083 | 2.81 | | 4.50 | 6.083 | 20.25 | 9.08 | 3.94 |
| | 0.167 | 2.81 | 3.167 3.250 | 4.50 | | 20.25 | 9.17 9.25 | 3.94 3.94 |
| | 0.333 | | 3.333 | 4.50 | 6.333 | 20 25 I | 9 33 | 3.94 |
| | 0.417 | 2.81 | 3.417 | 4.50 | | 20.25 | 9.42 | 3.94 |
| | 0.500 0.583 | 2.81 | 3.500 3.583 | 4.50 | 6.500 | 9.00 | 9.50 | 3.94 3.94 |
| | 0.667 | 2.81 | 3.667 | 4.50 | 6.667 | 9.00 | 9.67 | 3.94 |
| | 0.750 | 2.81 | | 4.50 | 6.750 | 9.00 | | 3.94 |
| | 0.833 | 2.81 | 3.833 3.917 | 4.50 | 6.833 | 9.00 | 9.83 9.92 | 3.94 3.94 |
| | 1.000 | 2.81 i | 4.000 | 4.50 | 7.000 | 9.00 i | 10.00 | 3.94 |
| | 1.083 | 2.81 | 4.083 | 6.75 | 7.083 | 6.75 | 10.08 10.17 | 2.25 |
| | 1.250 | 2.81 | 4.250 | 6.75 | 7.250 | 6.75 l | 10.25 | 2.25 |
| | 1.333 | 2.81 | 4.333 | 6.75 | 7.333 | 6.75 | 10.33 | 2.25 |
| | 1.417 | 2.81 | 4.417 4.500 | 6.75 | 7.417 | 6.75 | 10.42 10.50 | 2.25 |
| | 1.583 | 2.81 | 4.583 | 9.00 | 7.583 | 6.75 İ | 10.58 | 2.25 |
| | 1.667 1.750 | 2.81 | 4.667 4.750 | 9.00 | 7.667 | 6.75 | | 2.25 |
| | 1.833 | 2.81 | 4.833 | 9.00 | 7.833 | 6.75 | 10.73 | 2.25 |
| | 1.917 | 2.81 | 4.917 | 9.00 | | 6.75 | 10.92 | 2.25 |
| | 2.000 | 2.81 | 5.000 | 13.50 | | 6.75 3.94 | 11.00 11.08 | 2.25 |
| | 2.167 | 3.37 I | 5.167 | 13.50 | 8.167 8.250 | 3.94 İ | 11.17 | 2.25 |
| | 2.250 | 3.37 | 5.250 | 13.50 13.50 | 8.250 | 3.94 | 11.25 11.33 | 2.25 |
| | 2.417 | 3.37 | 5.417 | 13.50 | 8.417 8.500 | 3.94 | 11.42 | 2.25 |
| | 2.500 | 3.37 | 5.500 | 13.50 | 8.500 | 3.94 | 11.50 | 2.25 |
| | 2.583 | 3.37 | 5.583 5.667 | 54.00 | 8.667 | 3.94 | 11.58 11.67 | 2.25 |
| | 2.750 | 3.37 İ | 5.750 | 54.00 | 8.750 | 3.94 | 11.75 | 2.25 |
| | 2.833 2.917 | 3.37 | 5.833 5.917 | 148.50 | 8.417 8.500 8.583 8.667 8.750 8.833 8.917 | 3.94 | 11.83 11.92 | 2.25 |
| | 3.000 | 3.37 | 6.000 | 148.50 | 9.000 | 3.94 | 12.00 | 2.25 |
| Max.Eff.In | | | 148.50 | 1 | 32.61 | | | |
| Storage Co | over (m | iin)= | 5.00 0.87 | (ii) | 5.00 4.36 (ii |) | | |
| Unit Hyd. | Tpeak (m | nin)= | 5.00 | | 5.00 | | | |
| Unit Hyd. | | | 0.34 | | 0.23 | | ALS* | |
| PEAK FLOW TIME TO PE | | ms)= irs)= | 0.02 5.92 | | 0.00 6.00 | | 028 (iii) 5.00 | |
| RUNOFF VOL | UME (| mm)= | 111.50 | | 87.00 | 107 | .32 | |
| TOTAL RAIN | FALL (| mm)= | 112.50 | 1 | 12.50 | 112 | 1.50 | |
| RUNOFF COE | | | 0.99 | | 0.77 | | 0.95 | |
| *** WARNING: | STORAGE | COEFF. I | S SMALLE | R THAN | TIME STEP | ! | | |

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^\circ=89.0$ I a Dep. Storage (Above) (ii) TIME STEP (OT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
\begin{vmatrix} ADD & HYD & ( & 0111) \\ 1 & + & 2 & = & 3 \end{vmatrix}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TPEAK
(hrs)
6.00
6.00
                                                                                            ID1= 1 (200821):
+ ID2= 2 (200822):
                                                                                                                        ID = 3 ( 0111):
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0.171
                                                                              NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
                                                                                                                                                                                                                                                                                                                                                                   Area (ha)= 0.47
Total Imp(%)= 74.00 Dir. Conn.(%)= 74.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IMPERVIOUS
0.35
1.00
1.00
55.98
0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PERVIOUS (i)
0.12
1.00
2.00
                                                                              Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              40.00
0.290
                                                                                                                                          NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RM, In H 4 500 4 500 4 500 4 500 4 500 4 500 4 500 4 500 4 500 4 500 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 755 6 7
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                                                                                                                                                                                                                                                                                                                                                                                               Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       148.50
5.00
1.54 (ii)
5.00
0.33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             132.61
10.00
5.87 (ii)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              10.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  *TOTALS*
0.183 (iii)
6.00
105.13
112.50
0.93
                                                                              PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0.14
6.00
111.50
112.50
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0.04
6.00
87.00
112.50
0.77
         ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
\left| \begin{array}{ccc} ADD & HYD & ( & 0121) \\ 1 & + & 2 & = & 3 \end{array} \right|
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        R.V.
(mm)
107.08
105.13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AREA
(ha)
0.25
0.47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                QPEAK
(cms)
0.101
0.183
                                                                                       ID1= 1 ( 20101):
+ ID2= 2 ( 20102):
                                                                                                                        ID = 3 ( 0121):
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0.72 0.284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              6.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            105.81
                                                                         NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
                                                                                                                                                                                                                                                                                                                                                                        Area (ha)= 0.87 Total Imp(\%)= 67.00 Dir. Conn.(\%)= 67.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IMPERVIOUS

0.58

1.00

1.00

76.16

0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PERVIOUS (i)
0.29
1.00
2.00
40.00
0.290
                                                                                   Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                          (ha)=
(mm)=
(%)=
(m)=
=
                                                                                                                                          NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TRANSFORMED HYETOGRAPH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HYETOGR
TIME
6.083
6.167
6.250
6.333
6.417
6.500
6.583
6.667
6.750
6.833
6.900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      mm/hr
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6 .75 6
6 .75 6
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7.75 6
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1,08

9,08

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9,58

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2.81
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2.81
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4.083
4.167
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4.417
4.583
4.917
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6.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7.000
7.083
7.167
7.250
7.333
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7.503
7.667
7.750
8.083
8.167
8.250
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8.583
8.667
8.750
8.833
8.667
8.750
8.750
8.750
8.750
                                                                     Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       148.50
5.00
1.85 (ii)
5.00
0.32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           132.61
10.00
6.81 (ii)
10.00
0.14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  *TOTALS*
0.331 (iii)
6.00
103.41
112.50
0.92
                                                                                   PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0.24
6.00
111.50
112.50
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0.09
                                                                                                WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                              (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0   Ta=bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
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CN* = 89.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. | CALIB | STANDHYD (20101)| |ID= 1 DT= 5.0 min | Area (ha)= 0.25 Total Imp(%)= 82.00 Dir. Conn.(%)= 82.00 IMPERVIOUS 0.20 1.00 1.00 40.82 0.013 PERVIOUS (i) 0.05 1.00 2.00 40.00 0.290 Surface Area Dep. Storage Average Slope Length Mannings n (ha)= (mm)= (%)= (m)= = NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. RANSFORMED TO 5.0 MIN. TIME STE

--- TRANSFORMED HYETOGRAPH --| TIME RAIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME RMIN | 'ITME TIME 9.08 9.17 9.33 9.50 9.50 9.67 9.67 9.83 9.67 9.83 10.00 10.25 10.58 10.67 10.75 hrss (0.183) (0.167) (0.250) (0.183) (0.167) (0.250) (0.183) (0.417) (0.500) (.81 .81 .81 .81 11.33 11.42 11.50 11.58 11.67 11.75 11.83 11.92 12.00 2.25 2.25 2.25 2.25 2.25 2.25 Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= 148.50 5.00 1.27 (ii) 5.00 0.33 132.61 5.00 4.87 (ii) 5.00 0.22 *TOTALS*
0.101 (iii)
6.00
107.08
112.50
0.95 PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT = 0.08 6.00 111.50 112.50 0.99 0.02 6.00 87.00 112.50 0.77 **** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN° = 89.0 Ia = Dep. Storage (Above)

(i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL

THAN THE STORAGE COEFFICIENT.

(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB STANDHYD (20112) ID= 1 DT= 5.0 min | Area Total | (ha)= Imp(%)= | 0.90 80.00 | Dir. Con | n.(%)= | 80.00 |
|---|-------------------------------------|--|------------------|--|--------|-------|
| Surface Area Dep. Storage Average Slope Length Mannings n | (ha)= (mm)= (%)= (m)= = | IMPERVI 0.7 1.0 1.0 77.4 0.01 | 2 0 0 6 | PERVIOUS (0.18 1.00 2.00 40.00 0.290 | i) | |

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

| NOTE. | KAINFA | ILL WAS IF | MNSFURM | ED 10 . | O.O MIN. | IIME SIE | .r. | |
|--|----------------|----------------|------------------|-----------|--|----------|--|--------------|
| | | | TR | ANSFORME | HYETOGR | ΔРН | | |
| | TIME | RAIN | TIME | RAIN | ' TIME | RAIN | TIME | RAIN |
| | hrs | mm/hr | hrs | mm/hr | l' hrs | mm/hr | hrs | |
| | 0.083 | 2.81 | 3.083 | 4.50 | 6.083 | 20.25 | 9.08 | 3.94 |
| | 0.167 | 2.81 | | 4.50 | 6.167 | 20.25 | 9.17 | 3.94 |
| | 0.250 | 2.81 | 3.250 | 4.50 | 6.333 | 20.25 | 9.25 9.33 | 3.94 3.94 |
| | 0.417 | 2 81 | 3 417 | 4.50 | 6 417 | 20.25 | 9 42 | 3.94 |
| | 0.500 | 2.81 | 3.500 | 4.50 | 6.500 | 20.25 | 9.50 | 3.94 |
| | 0.583 | 2.81 | 3.583 | 4.50 | 6.583 | 9.00 | 9.58 | 3.94 |
| | 0.667 | 2.81 | 3.667 | 4.50 | 6.667 | 9.00 | 9.67 | 3.94 |
| | 0.750 | 2.81 | 2 022 | 4.50 | 6.750 | 9.00 | 9.75 | 3.94 3.94 |
| | 0.917 | 2.81 | 3.917 | 4.50 | 6.917 | 9.00 | 9.92 | 3.94 |
| | 1.000 | 2.81 | 4.000 | 4.50 | 7.000 | 9.00 | 10.00 | 3.94 |
| | 1.083 | 2.81 | 4.083 | 6.75 | 7.083 | 6.75 | 10.08 | 2.25 |
| | 1.167 | 2.81 | 4.167 | 6.75 | 7.167 | 6.75 | 10.17 | 2.25 |
| | 1.250 | 2.81 | 4.250 | 6.75 | 7.250 | 6.75 | 10.25 | 2.25 |
| | 1.417 | 2.81 | 4.417 | 6.75 | 7.417 | 6.75 | 10.42 | 2.25 |
| | 1.500 | 2.81 | 4.500 | 6.75 | 7.500 | 6.75 | 10.50 | 2.25 |
| | 1.583 | 2.81 | 4.583 | 9.00 | 7.583 | 6.75 | 10.58 | 2.25 |
| | 1.667 1.750 | 2.81 | 4.667 | 9.00 | 7.667 | 6.75 | 10.6/ | 2.25 |
| | 1.833 | 2.81 | 4.730 | 9.00 | 7 833 | 6.75 | 9.33 9.42 9.50 9.58 9.67 9.75 9.83 9.92 10.00 10.08 10.17 10.25 10.50 10.58 10.67 10.83 | 2.25 |
| | 1.917 | 2.81 | 4.91/ | 9.00 | 7.917 | 6.75 | 10.92 | 2.25 |
| | 2.000 | 2.81 | 5.000 | 9.00 | 8.000 | 6.75 | 10.75 10.83 10.92 11.00 11.08 11.17 11.25 11.33 | 2.25 |
| | 2.083 | 3.37 | 5.083 5.167 | 13.50 | 8.083 | 3.94 | 11.08 | 2.25 |
| | 2.107 | 3.37 | 5 250 | 13.50 | 8 250 | 3 94 | 11.1/ | 2.25 |
| | 2.250 | 3.37 | 5.250 | 13.50 | 8.333 | 3.94 | 11.33 | 2.25 |
| | 2.417 | 3.37 | 5.417 | 13.50 | 8.417 | 3.94 | 11.42 | 2.25 |
| | 2.500 | 3.37 | 5.500 | 13.50 | 8.500 | 3.94 | 11.50 | 2.25 |
| | 2.583 | 3.3/ | 5.583 | 54.00 | 8.583 | 3.94 | 11.58 | 2.25 |
| | 2.750 | 3.37 | 5.667 | 54.00 | 8.750 | 3.94 | 11.75 | 2.25 |
| | 2.833 | 3.37 | 5.833 | 148.50 | 8.833 | 3.94 | 11.83 | 2.25 |
| | 2.917 | 3.37 | 5.917 | 148.50 | 8.917 | 3.94 | 11.92 | 2.25 |
| | 3.000 | 3.37 | 6.000 | 148.50 | 9.000 | 3.94 | 11.33 11.42 11.50 11.58 11.67 11.75 11.83 11.92 12.00 | 2.25 |
| Max.Eff.In Storage Co Unit Hyd. Unit Hyd. | ten.(mm | /hr)= | 148.50 | 15 | 32.61 | | | |
| | over (| min) | 5.00 | | 10.00 | | | |
| Storage Co | eff. (| min)= | 1.87 | (ii) | 5.65 (ii |) | | |
| Unit Hyd. | Tpeak (| m1n)= | 5.00 | 1 | 10.00 | | | |
| Unit Hyu. | реак (| Cms)= | 0.32 | | 0.15 | *TOT | ALS* | |
| PEAK FLOW | (| cms)= hrs)= | 0.30 | | 0.06 | 0. | 356 (iii) |) |
| TIME TO PE | AK (| (hrs)= | 6.00 | | 6.00 | | .00 | |
| RUNOFF VOL | | (mm)= (mm)= | 111.50 112.50 | 1. | 37.00 | | .60 .50 | |
| RUNOFF COE | | | 0.99 | 1. | 0.06 6.00 37.00 12.50 0.77 | | 1.50 | |
| | | | | | | | | |
| *** WARNING: | STORAGE | COEFF. 1 | S SMALLI | ER THAN T | TIME STEP | ! | | |
| (i) CN P | ROCEDUR | ESELECTE | D FOR PI | ERVIOUS L | OSSES: | | | |
| | | I 0 To | | | | | | |

- (1) CN PROCEDURE SELECTED FOR PENVIOUS LOSSES:

 CN° = 89.0 Ia = Dep. Storage (Above)

 (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL

 THAN THE STORAGE COEFFICIENT.

 (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Area (ha)= 1.11 Total Imp(%)= 81.00 Dir. Conn.(%)= 81.00 IMPERVIOUS PERVIOUS (i)

```
(ha)=
(mm)=
(%)=
(m)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0.90
1.00
1.00
86.02
0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0.21
1.00
2.00
40.00
0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RAIN
mm/hr
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3.94
3.94
3.94
3.94
3.94
3.94
2.25
2.25
2.25
2.25
2.25
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                                                                                                                                                         NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TRANSFORMED HYETOGRAPH
ME RAIN | TIME | Firs mm/hr | Rain | Time | Firs mm/hr | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain | Rain |
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over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   148.50 132.61
5.00 5.00
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5.00 0.33 0.22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   *TOTALS*
0.190 (iii)
6.00
107.82
112.50
0.96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0.16
6.00
111.50
112.50
0.99
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TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0.03
6.00
87.00
112.50
0.77
                                                                            | Max.Eff.Inten.(mm/h) = | 148.50 | 132.61 | ver (min) | 5.00 | 10.00 | ver (min) | 5.00 | 10.00 | ver (min) | 1.99 (ii) 5.68 (ii) | vii Hyd. Tpeak (min) = | 5.00 | 10.00 | 10.00 | ver (min) | 5.00 | 10.00 | 10.00 | ver (min) | 5.00 | 10.00 | 10.00 | ver (min) | 5.00 | 10.00 | 10.00 | ver (min) | 5.00 | 10.00 | 10.00 | ver (min) | 7.00 | 10.00 | 10.00 | ver (min) | 7.00 | 10.00 | 10.00 | ver (min) | 7.00 | 0.37 | 0.07 | ver (min) | 7.00 | 0.00 | ver (min) | 111.50 | 7.00 | ver (min) | 111.50 | 112.50 | 112.50 | ver (min) | 112.50 | 112.50 | ver (min) | 112.50 | 112.50 | ver (min) | 112.50 | 112.50 | ver (min) | 112.50 | 112.50 | ver (min) | 112.50 | 112.50 | ver (min) | 112.50 | 112.50 | ver (min) | 112.50 | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.50 | ver (min) | 112.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        *TOTALS*
0.440 (iii)
6.00
106.84
112.50
0.95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                         WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                      IMPERVIOUS PERVIOUS (i)
0.40 0.07
1.00 1.00
1.00 2.00
55.98 40.00
0.013 0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Surface Area (ha) = 
Dep. Storage (mm) = 
Average Slope (%) = 
Length (m) = 
Mannings n =
              | CALIB | STANDHYD (201021) | Area (ha)= 0.47 | ID= 1 DT= 5.0 min | Total Imp(%)= 85.00 | Dir. Conn.(%)= 85.00 | TMPERUTUIS | PERUTUIS (i)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                    Surface Area
Dep. Storage (mm) =
Average Slope
Length
Mannings n (m) =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETOGRAPH --- TRANSFORMED HYETO
                                                                                                                                                    NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2.81 | 3.083 | 4.50 | 2.81 | 3.167 | 4.50 | 2.81 | 3.167 | 4.50 | 2.81 | 3.250 | 4.50 | 4.50 | 2.81 | 3.333 | 4.50 | 2.81 | 3.333 | 4.50 | 2.81 | 3.607 | 4.50 | 2.81 | 3.607 | 4.50 | 2.81 | 3.607 | 4.50 | 2.81 | 3.750 | 4.50 | 2.81 | 3.833 | 4.50 | 2.81 | 3.833 | 4.50 | 2.81 | 3.833 | 4.50 | 2.81 | 3.833 | 4.50 | 2.81 | 4.087 | 6.75 | 2.81 | 4.087 | 6.75 | 2.81 | 4.087 | 6.75 | 2.81 | 4.233 | 6.75 | 2.81 | 4.417 | 6.75 | 2.81 | 4.667 | 9.00 | 2.81 | 4.667 | 9.00 | 2.81 | 4.667 | 9.00 | 2.81 | 4.667 | 9.00 | 2.81 | 4.667 | 9.00 | 2.81 | 4.667 | 9.00 | 3.37 | 5.5083 | 3.50 | 3.37 | 5.5083 | 3.50 | 3.37 | 5.5083 | 3.50 | 3.37 | 5.5083 | 3.50 | 3.37 | 5.567 | 5.400 | 3.37 | 5.583 | 3.400 | 3.37 | 5.583 | 3.400 | 3.37 | 5.583 | 3.400 | 3.37 | 5.583 | 3.400 | 3.37 | 5.583 | 3.400 | 3.37 | 5.583 | 3.48 | 50 | 3.37 | 5.583 | 3.48 | 50 | 3.37 | 5.583 | 3.48 | 50 | 3.37 | 5.583 | 3.48 | 50 | 3.37 | 5.583 | 3.48 | 50 | 3.37 | 5.583 | 3.48 | 50 | 3.37 | 5.583 | 3.48 | 50 | 3.37 | 5.583 | 3.48 | 50 | 3.37 | 5.583 | 3.48 | 50 | 3.37 | 5.583 | 3.48 | 50 | 3.37 | 5.583 | 3.48 | 50 | 3.37 | 5.583 | 3.48 | 50 | 3.37 | 5.583 | 3.48 | 50 | 3.37 | 5.583 | 3.48 | 50 | 3.37 | 5.583 | 3.48 | 50 | 3.37 | 5.583 | 3.48 | 50 | 3.37 | 5.583 | 3.48 | 50 | 3.37 | 5.583 | 3.48 | 50 | 3.37 | 5.583 | 3.48 | 50 | 3.37 | 5.583 | 3.48 | 50 | 3.37 | 5.583 | 3.48 | 50 | 3.37 | 5.583 | 3.48 | 50 | 3.37 | 5.583 | 3.48 | 50 | 3.37 | 5.583 | 3.48 | 50 | 3.37 | 5.583 | 3.48 | 50 | 3.37 | 5.583 | 3.38 | 3.30 | 3.30 | 3.37 | 5.583 | 3.38 | 3.30 | 3.37 | 5.583 | 3.37 | 5.583 | 3.37 | 5.590 | 3.37 | 5.583 | 3.38 | 3.30 | 3.37 | 5.583 | 3.37 | 5.590 | 3.37 | 5.583 | 3.37 | 5.590 | 3.37 | 5.583 | 3.38 | 3.30 | 3.37 | 5.583 | 3.37 | 5.590 | 3.37 | 5.583 | 3.37 | 5.590 | 3.37 | 5.583 | 3.37 | 5.590 | 3.37 | 5.583 | 3.37 | 5.590 | 3.37 | 5.590 | 3.37 | 5.590 | 3.37 | 5.590 | 3.37 | 5.590 | 3.37 | 5.590 | 3.37 | 5.590 | 3.37 | 5.590 | 3.37 | 5.590 | 3.37 | 5.590 | 3.37 | 5.590 | 3.37 | 5.590 | 3.37 | 5.590 | 3.37 | 5.590 | 3.37 | 5.590 | 3.37 | 5.590 | 3.37 | 5.59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3.417 4.50 | 6.417

3.500 4.50 | 6.500

3.583 4.50 | 6.500

3.833 4.50 | 6.667

3.833 4.50 | 6.833

3.917 4.50 6.75

4.000 4.50 | 7.000

4.083 6.75 | 7.083

4.167 6.75 | 7.150

4.250 6.75 | 7.150

4.250 6.75 | 7.250

4.317 6.75 | 7.330

4.167 6.75 | 7.330

4.167 8.75 | 7.330

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4.167 8.75 | 7.330

4.167 8.75 | 7.330

4.167 8.75 | 7.330

4.167 9.00 | 7.500

4.1683 9.00 | 7.500

4.1683 9.00 | 7.500

4.1683 9.00 | 7.500

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0.190 (iii)
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107.82
112.50
0.96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         *TOTALS*
0.114 (iii)
6.00
109.04
112.50
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                                                                            * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                            (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

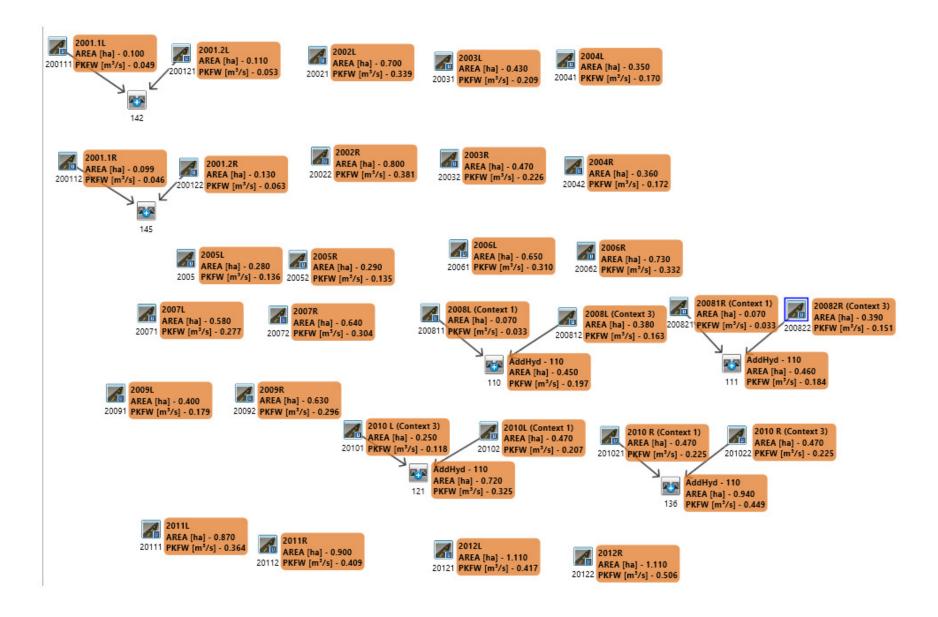
CN° = 89.0 Ia = Dep. Storage (Above)
(i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUIT THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
| ADD HYD ( 0136) | 1 + 2 = 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | CALIB | STANDHYD ( 20121) | Area (ha) = 1.11 | Total Imp(%) = 56.00 | Dir. Conn.(%) = 56.00 | IMPERVIOUS | PERVIOUS (i)
                                                                                                                                                                                                                                                                                                                                                                                                                                                         0.94 0.380
                                                                                                                        ID = 3 ( 0136):
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6.00 107.82
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| CALIB | STANDHYD ( 2005) | Area (ha)= 0.28 | STANDHYD ( 2005) | Total Imp(%)= 90.00 | Dir. Conn. (%)= 90.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Surface Area
Dep. Storage
Average Slope
Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mannings n
                                                                                      | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Total | Tota
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RAIN mm/hr 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 9.00 | 9.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TIME
hrs
3.083
3.167
3.250
3.333
3.417
3.500
3.583
3.667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HYETOGR
TIME
| hrs
| 6.083
| 6.167
| 6.250
| 6.333
| 6.417
| 6.500
| 6.583
| 6.667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                      ---- TRANSFORMED HYETOGRAPH ----
TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN
```

| 0.750 2.81 3.750 4.50 6.750 9.00 9.75 3.94 0.833 2.81 3.833 4.50 6.833 9.00 9.83 3.94 0.917 2.81 3.833 4.50 6.833 9.00 9.83 3.94 1.000 2.81 4.000 4.50 7.000 9.00 9.00 9.23 3.94 1.003 2.81 4.083 6.75 7.083 6.75 10.00 2.25 1.166 2.81 4.168 6.75 7.083 6.75 10.00 2.25 1.167 2.88 4.168 6.75 7.785 6.75 10.17 2.23 1.169 2.81 4.169 6.75 7.187 6.75 10.15 2.25 1.169 2.81 4.169 6.75 7.180 6.75 10.15 2.25 1.169 2.81 4.417 6.75 7.333 6.75 10.15 2.25 1.500 2.81 4.400 6.75 7.780 6.75 10.42 2.25 1.583 2.81 4.500 6.75 7.583 6.75 10.50 2.55 1.667 2.81 4.467 9.00 7.667 6.75 10.62 2.25 1.833 2.81 4.583 9.00 7.583 6.75 10.50 2.25 1.833 2.81 4.833 9.00 7.783 6.75 10.50 2.25 1.831 2.81 4.1667 9.00 7.667 6.75 10.76 2.25 1.831 2.81 4.937 9.00 7.783 6.75 10.33 2.25 1.833 2.81 4.833 9.00 7.783 6.75 10.32 2.25 1.833 2.81 4.833 9.00 7.783 6.75 10.73 2.25 2.2000 2.81 5.000 9.00 8.000 6.75 11.00 2.25 2.083 3.37 5.083 13.50 8.083 3.94 11.08 2.25 2.255 2.250 3.37 5.167 13.50 8.167 3.94 11.17 2.25 2.250 3.37 5.500 13.50 8.253 3.94 11.10 2.25 2.253 3.33 3.37 5.583 3.30 8.88 3.39 11.16 2.25 2.583 3.37 5.583 3.35 5.88 3.39 3.94 11.52 2.25 2.833 3.37 5.583 3.40 8.88 3.39 3.94 11.52 2.25 2.583 3.37 5.583 3.40 8.88 3.39 3.94 11.60 2.25 2.833 3.37 5.583 3.40 8.88 3.39 3.94 11.60 2.25 2.833 3.37 5.583 3.40 8.88 3.39 3.94 11.60 2.25 2.583 3.37 5.583 3.40 8.88 3.39 3.94 11.60 2.25 2.583 3.37 5.583 3.40 8.88 3.39 3.94 11.60 2.25 2.583 3.37 5.583 3.40 8.88 3.39 3.94 11.60 2.25 2.833 3.37 5.583 3.40 8.88 3.39 3.94 11.50 2.25 2.833 3.37 5.583 3.40 8.88 3.39 3.94 11.50 2.25 2.833 3.37 5.583 3.40 8.88 3.39 3.94 11.50 2.25 2.833 3.37 5.833 3 | |
|--|--|
| ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CM PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN = 89.0 Ta = Dep. SSOTORAGE (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFCICENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. | |
| Surface Area (ha)= 0.09 0.01 Dep. Storage (mm)= 1.00 1.00 Average Slope (%)= 1.00 2.00 Length (m)= 25.82 40.00 Mannings n = 0.013 0.290 NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. | |
| TIME RAIN TIME R | |
| 2.083 3.37 5.083 13.50 8.083 3.94 11.08 2.25 2.167 3.37 5.167 13.50 8.083 3.94 11.08 2.25 2.250 3.37 5.167 13.50 8.250 3.94 11.17 2.25 2.25 2.250 3.37 5.250 13.50 8.250 3.94 11.25 2.25 2.25 2.417 3.37 5.417 13.50 8.343 3.94 11.33 2.25 2.25 2.417 3.37 5.457 13.50 8.343 3.94 11.50 2.25 2.25 2.25 2.25 2.25 2.25 2.25 2 | |
| S.00 | |
| (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN° = 89.0 I Ta = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SWLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. | |
| ADD HYD (0142) AREA QPEAK TPEAK R.V. 1 + 2 = 3 AREA QPEAK TPEAK R.V. 101 = 1 (200111): 0.10 0.041 6.00 108.92 102 = 2 (200121): 0.11 0.045 6.00 108.30 108.30 109.30 | |
| STANDHYD (200112) Area (ha)= 0.10 Dir. Conn.(%)= 79.00 Total Imp(%)= 79.00 Dir. Conn.(%)= 79.00 Dir. C | |
| TIME RAIN TIME R | |

| **** WARNING: S | 1.583 1.667 1.750 1.750 1.750 1.833 1.750 1.833 1.833 1.833 1.67 1.833 1 | 0 = 0.04 0 = 6.00 0 = 111.50 0 = 112.50 = 0.99 | 9.00 9.00 9.00 9.00 13.50 13.50 13.50 13.50 13.50 13.50 148.50 148.50 148.50 148.50 | 32.61 5.00 3.76 (ii) 5.00 0.25 0.00 6.00 87.00 12.50 0.77 | 3.94 3. | 10.75 10.83 10.92 11.08 11.08 11.17 11.17 11.32 11.42 11.58 11.67 11.83 11.67 11.83 11.20 | 2.25 2.25 2.25 2.25 2.25 2.25 2.25 2.25 |
|--|--|--|--|--|--|---|---|
| CALIB STANDHYD (200: ID= 1 DT= 5.0 r Surface Are Dep. Stora Average Sic Length Mannings n | 121) Arrinin To | ea (ha)= tal Imp(%)= IMPERVIO 0.10 | 0.11 87.00 pus PE | Dir. Conn. RVIOUS (i) 0.01 1.00 2.00 40.00 0.290 | | | |
| | 0.087 0.287 0.250 0.333 0.417 0.500 0.500 0.667 0.750 0.7833 0.917 1.083 1.083 1.250 1.333 1.417 1.583 1.667 1.750 1.833 1.667 1.750 | RAIN TIME TI | mm/hr 4 .50 4 .50 4 .50 4 .50 4 .50 4 .50 4 .50 4 .50 4 .50 6 .75 6 .75 6 .75 6 .75 9 .00 9 .00 | 6.167 6.250 6.333 | mm/hr 20.25 20.25 20.25 20.25 20.25 20.25 9.00 9.00 9.00 9.00 | 9.17 9.25 9.33 9.42 9.50 | RAIN mm/hr 3.94 3.94 3.94 3.94 3.94 3.94 3.94 3.94 |
| | 1.917 | 2.81 4.750 2.81 4.833 2.81 4.917 2.81 5.000 3.37 5.083 3.37 5.250 3.37 5.417 3.37 5.417 3.37 5.583 3.37 5.583 3.37 5.583 3.37 5.683 3.37 5.883 3.37 5.883 3.37 5.883 3.37 5.883 3.37 5.883 3. | 9.00 9.00 9.00 13.50 13.50 13.50 13.50 13.50 54.00 54.00 148.50 148.50 | 7.750 7.833 7.917 8.000 8.083 8.167 8.250 8.333 8.417 8.500 8.583 8.6750 8.750 8.833 8.833 8.917 9.000 | 6.75 6.75 6.75 6.75 3.94 3.94 3.94 3.94 3.94 3.94 3.94 3.94 3.94 3.94 3.94 3.94 3.94 3.94 | 11.00 11.08 11.17 11.25 11.33 | 2.25 2.25 2.25 2.25 2.25 2.25 2.25 2.25 |
| Max.Eff.Ini Storage Co Unit Hyd. 1 Unit Hyd. 1 Unit Hyd. 1 PEAK ELOW TIME TO PEA RUNOFF VOLI TOTAL RAINI RUNOFF COEI ***** WARNING: 1 (i) CN PE (ii) TIME (iii) PEAK | over (min, eff. (min, peak (min, peak (min, peak (min, peak (ms, min, min, min, min, min, min, min, min | 0 15.00 0 9 0.99 1 5.00 0 0.34 0 0 0.34 0 0 0 0.35 0 0 0 0 0.35 0 0 0 0 0 0.35 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | i (ii) | 5.00 4.84 (ii) 5.00 0.22 0.01 6.00 87.00 12.50 0.77 TIME STEP! | *TOT. 0. 6 106 112 0 | | |
| | ea (ha ge (mm ope (% (m) | IMPERVIO)= 0.11)= 1.00)= 1.00)= 29.44 = 0.013 | DUS PE | RVIOUS (1) 0.02 1.00 2.00 40.00 0.290 | | | |
| | 1.000 1.083 1.167 1.250 1.333 1.417 1.500 1.583 1.667 1.750 1.833 1.917 2.000 2.083 | NAS TRANSFORM Table | 4.50 6.75 6.75 6.75 6.75 6.75 6.75 9.00 9.00 9.00 9.00 | 7.000 7.083 7.167 7.250 7.333 7.417 7.500 | 9.00 6.75 6.75 6.75 6.75 6.75 | 10.00 10.08 10.17 10.25 10.33 | RAIN mm/hr 3.94 3.94 3.94 3.94 3.94 3.94 3.94 3.94 |

| 2.417 3.3 2.500 3.3 2.583 3.3 2.663 3.3 2.750 3.3 2.833 3.3 2.917 3.3 3.000 3.3 | 7 5.417 13.50 7 5.500 13.50 7 5.583 54.00 7 5.667 54.00 7 5.750 54.00 7 5.833 148.50 7 5.917 148.50 7 6.000 148.50 | 8.417 | 11.42 | 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 |
|--|---|--|---|---------------------------------------|
| Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= | 5.00 1.05 (ii) 5.00 0.34 | 5.00 4.23 (ii) 5.00 0.24 | OTALS* | |
| PEAK FLOW (CMS)= TIME TO PEAK (hrs)= RUNOFF VOLUME (mm)= TOTAL RAINFALL (mm)= RUNOFF COEFFICIENT = | 0.05 6.00 111.50 112.50 0.99 | 0.01 (6.00 87.00 10 | 0.053 (iii) 6.00 08.06 12.50 0.96 | |
| ***** WARNING: STORAGE COEFF (i) CN PROCEDURE SELE CN* = 89.0 (ii) TIME STEP (DT) SH THAN THE STORAGE (iii) PEAK FLOW DOES NO | CTED FOR PERVIOUS Ia = Dep. Storage OULD BE SMALLER O COEFFICIENT. | LOSSES: (Above) R EQUAL | | |
| ADD HYD (0145) 1 + 2 = 3 | AREA QPEAK (ha) (cms) 0.10 0.040 0.13 0.053 | TPEAK R.V. (hrs) (mm) 6.00 106.33 6.00 108.06 | | |
| ID = 3 (0145): NOTE: PEAK FLOWS DO NO | 0.23 0.092 | 6.00 107.31 | | |
| FINISH | | | | |
| | | | | |



```
5.30 | 1.833
7.98 | 1.917
7.98 | 2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9.01 | 2.833 | 3.46 | 3.83 | 2.26
6.97 | 2.917 | 3.17 | 3.92 | 2.15
6.97 | 3.000 | 3.17 | 4.00 | 2.15
                                                    I SSSSS U U A L
I SS U U AAAA L
I SS U U AAAAA L
I SS U U AAAA L
I SS U U A A L
I SSSS UUUUU A A L
                                                                                                                                                                                                               (v 6.1.2002)
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (ii)
                                 w
*TOTALS*
0.164 (iii)
1.33
33.47
36.98
0.90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0.16
1.33
35.98
36.98
0.97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                    ***** DETAILED OUTPUT *****
                                                                                                                                                                                                                                                                                                                                                                                                                                                          (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^\circ = 89.0 Ia = Dep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
        Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\VO2\voin.dat
Output filename: C:\User$\caef070146\Appoata\Loca\\civica\\H5\50564c49-8c07-4086-8157-8729fb3caba3\82eecb13
summary filename: C:\User$\caef070146\Appoata\Loca\\civica\\H5\50564c49-8c07-4086-8157-8729fb3caba3\82eecb13
 DATE: 05-18-2022
                                                                                                                                                             TIME: 12:44:41
                                                                                                                                                                                                                                                                                                                                                                                                                                            | CALIB | STANDHYD ( 20021) | Area (ha)= 0.70 | | ID= 1 DT= 5.0 min | Total Imp(%)= 89.00 Dir. Conn.(%)= 89.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Surface Area
Dep. Storage
Average Slope
Length
Mannings n
          ** SIMULATION : Run 01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               --- TRANSFORMED HYETOGRAPH
mm/hr | hrs mm/hr | hrs mm/hr | hrs mm/hr | hrs mr |
2.47 | 1.083 | 18.78 | 2.083 | 5
2.47 | 1.167 | 18.78 | 2.167 | 5
2.82 | 1.250 | 83.11 | 2.250 | 4
3.31 | 1.417 | 24.75 | 2.417 | 4
3.31 | 1.437 | 24.75 | 2.417 | 4
4.05 | 1.563 | 13.01 | 2.633 | 3
4.05 | 1.5667 | 13.01 | 2.633 | 3
5.30 | 1.750 | 3.01 | 2.750 | 3
5.30 | 1.833 | 9.01 | 2.833 | 3
7.98 | 2.000 | 6.97 | 3.000 | 3
                                                                                    Filename: C:\Users\caef070146\AppD
ata\Local\Temp\
11403a02-80e0-48b3-97a8-b203216ba841\f7e451a6
Comments: 2-year, 4 hr-chicago, City of Barrie
               READ STORM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RAIN
mm/hr
5.73
5.73
4.89
4.28
4.28
3.82
3.82
3.46
3.17
3.17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RAIN
mm/hr
2.93
2.72
2.72
2.55
2.55
2.39
2.39
2.26
                                                                                  RAIN | TIME RAIN | TIME mm/hr | hrs mm/hr | hrs mm/hr | hrs 2.47 | 1.17 | 18.78 | 2.17 | 2.62 | 1.33 | 83.11 | 2.33 | 3.31 | 1.50 | 24.75 | 2.50 | 4.05 | 1.67 | 13.01 | 2.67 | 5.30 | 1.83 | 9.01 | 2.83 | 7.98 | 2.00 | 6.97 | 3.00
                                                              TIME
hrs
0.17
0.33
0.50
0.67
                                                                                                                                                                                                               RAIN | TIME
                                                                                                                                                                                                                                                                         mm/h
2.93
2.72
2.55
2.39
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               83.11
5.00
2.19 (ii)
5.00
0.31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               41.24
10.00
5.79 (ii)
10.00
0.15
   | CALIB | | STANDHYD ( 20022) | | ID= 1 DT= 5.0 min |
                                                                                   Area (ha) = 0.80
Total Imp(\%) = 85.00 Dir. Conn.(\%) = 85.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                *TOTALS*
0.149 (iii)
1.33
34.14
36.98
0.92
                                                                                                        IMPERVIOUS (1) 0.68 0.12 1.00 1.00 1.00 2.00 73.03 40.00 0.013 0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                          PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0.14
1.33
35.98
36.98
0.97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0.01
1.42
19.22
36.98
0.52
                                                                                 (ha)=
(mm)=
(%)=
(m)=
=
                   Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                           ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                 NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                         (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \mathbb{CN}^p=89.0 Ia = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                 TRANSFORMED HYETOGRAPH
TIME RAIN 'TIME
hrs mm/hr' hrs m
1.037 18.78 2.0867 5.
1.038 18.78 2.2887 5.
1.250 83.11 2.250 4.
1.250 83.11 2.250 4.
1.251 83.11 2.250 4.
1.252 83.11 2.250 4.
1.253 83.11 2.333 4.
1.417 24.75 2.417 4.
1.500 24.75 2.500 4.
1.583 13.01 2.583 1.
1.667 13.01 2.667 1.
1.750 9.01 2.750 1.
                                                           TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
                                                                                                                                                                                                                                          TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
                                                                                        RAIN
mm/hr
2.47
2.47
2.82
2.82
3.31
3.31
4.05
5.30
                                                                                                                                                                                                                                                                         RAI
mm/h
2.93
2.72
2.72
2.55
2.55
                                                                                                                                                                                                               mm/hr
5.73
5.73
4.89
4.28
4.28
4.28
3.82
3.82
3.46
                                                                                                                                                                                                                                                                                                                                                                                                                                            Surface Area (ha)= 0.39 PERVIOUS (i)
                    Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                          RUNOFF VOLUME (mm) =
TOTAL RAINFALL (mm) =
RUNOFF COEFFICIENT =
                                                                                (mm)=
(%)=
(m)=
=
                                                                                                                                                                      1.00
2.00
40.00
0.290
                                                                                                                      1.00
1.00
53.54
0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 35.98
36.98
0.97
                                                                                                                                                                                                                                                                                                                                                                                                                                              **** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                 NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                          (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = Dep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                     RAIN | TIME
mm/hr | hrs
2.47 | 1.083
2.47 | 1.167
2.82 | 1.250
2.82 | 1.333
3.31 | 1.417
3.31 | 1.500
4.05 | 1.583
4.05 | 1.667
5.30 | 1.750
5.30 | 1.833
7.98 | 1.97
7.98 | 2.000
                                                                                                                                                                      ) HYETOGR

' TIME

' hrs

2.083

2.167

2.250

2.333

2.417

2.500

2.583

2.667

2.750

2.833

2.917

3.000
                                                          TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                               RAIN
mm/hr
18.78
18.78
83.11
83.11
24.75
24.75
13.01
13.01
9.01
6.97
6.97
                                                                                                                                                                                                             RAIN
mm/hr
5.73
4.89
4.28
4.28
3.82
3.82
3.46
3.17
3.17
                                                                                                                                                                                                                                          TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                         mm/h
2.93
2.72
2.72
2.55
2.55
2.39
2.26
2.26
2.15
                                                                                                                                                                                                                                                                                                                                                                                                                                          | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Dep. Storage
Average Slope
Length
Mannings n
                  Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                      83.11
5.00
1.89 (ii)
5.00
0.32
                                                                                                                                                                      41.24
10.00
5.34 (ii)
10.00
0.16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HYETOGR
TIME
hrs
2.083
2.167
2.250
2.333
2.417
2.500
2.583
2.667
2.750
2.833
2.917
3.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TIME
hrs
1.083
1.167
1.250
1.333
1.417
1.500
1.583
1.667
1.750
1.750
1.833
1.917
2.000
                                                                                                                                                                                                                         *TOTALS*
0.092 (iii)
1.33
34.30
36.98
0.93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RAIN
mm/hr
2.93
2.93
2.72
2.72
2.55
2.55
2.39
2.39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RAIN | mm/hr | 2.47 | 2.47 | 2.82 | 3.31 | 4.05 | 4.05 | 5.30 | 5.30 | 7.98 | 7.98 |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RAIN
mm/hr
5.73
5.73
4.89
4.28
4.28
3.82
3.82
3.46
3.17
3.17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                   PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                      0.09
1.33
35.98
36.98
0.97
                                                                                                                                                                      0.00
1.42
19.22
36.98
0.52
         *** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                83.11
5.00
1.78 (ii)
5.00
0.32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               41.24
10.00
5.38 (ii)
10.00
0.16
   *TOTALS*
0.075 (iii)
1.33
34.13
36.98
0.92
                                                                                                | IMPERVIOUS | PERVIOUS (i) |
= | 0.41 | 0.06 |
= | 1.00 | 1.00 |
= | 1.00 | 2.00 |
= | 55.98 | 40.00 |
= | 0.013 | 0.290 |
                                                                                                                                                                                                                                                                                                                                                                                                                                                           PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0.07
1.33
35.98
36.98
0.97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0.00
1.42
19.22
36.98
0.52
                                                                         (ha)=
(mm)=
(%)=
(m)=
=
                   Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                        * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                  NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                          (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                              ANSFORMED HYETOG

RAIN ' TIME

mm/hr ' hrs

18.78 | 2.083

18.78 | 2.167

83.11 | 2.250

83.11 | 2.333

24.75 | 2.417

24.75 | 2.500

13.01 | 2.583

13.01 | 2.583

13.01 | 2.667

9.01 | 2.750

9.01 | 2.833

6.97 | 3.000
                                                                                                                    TIME
hrs
1.083
1.167
1.250
1.333
1.417
                                                                                        RAIN
mm/hr
2.47
2.47
2.82
2.82
3.31
4.05
4.05
4.05
5.30
7.98
7.98
                                                                                                                                                                              TIME
hrs
2.083
2.167
2.250
2.333
2.417
                                                                                                                                                                                                              RAIN
mm/hr
5.73
5.73
4.89
4.28
4.28
3.82
3.82
3.46
3.46
3.17
3.17
                                                           TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                          TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                         RAIM
mm/hi
2.93
2.72
2.72
2.55
2.55
2.39
2.39
2.26
                                                                                                                                                                                                                                                                                                                                                                                                                                           CALIB
| STANDHYD ( 20042)
|ID= 1 DT= 5.0 min
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Area (ha)= 0.36
Total Imp(%)= 85.00 Dir. Conn.(%)= 85.00
                                                                                                                   1.417
1.500
1.583
1.667
1.750
1.833
1.917
2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TMPERVIOUS PERVIOUS (i)
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (ha)=
(mm)=
(%)=
(m)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0.31
1.00
1.00
48.99
0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0.05
1.00
2.00
40.00
0.290
                                                                                                                       83.11
5.00
1.94
5.00
0.31
                    Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                                       41.24
10.00
5.83 (ii)
10.00
0.15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                             (ii)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ---- TRANSFORMED HYETOGRAPH ----
TIME RAIN | TIME RAIN | TIME RAIN | TIME
hrs mm/hr | hrs mm/hr | hrs mm/hr | hrs
0.083 2.47 | 1.083 18.78 | 2.083 5.73 | 3.08
                                                                                                                                                                                                                         *TOTALS*
0.099 (iii)
1.33
                   PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
                                                                                                                           0.09
```

```
18.78 | 2.167

83.11 | 2.250

83.11 | 2.333

24.75 | 2.417

24.75 | 2.500

13.01 | 2.667

9.01 | 2.750

9.01 | 2.833

6.97 | 2.917

6.97 | 3.000
                                                                                                  0.167
0.250
0.333
0.417
                                                                                                                                             2.47 | 1.167
2.82 | 1.250
2.82 | 1.333
3.31 | 1.417
3.31 | 1.500
4.05 | 1.583
4.05 | 1.675
5.30 | 1.750
5.30 | 1.833
7.98 | 1.917
7.98 | 2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2.72
2.72
2.55
2.55
2.39
2.26
2.26
2.15
2.15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4.28 |
4.28 |
3.82 |
3.82 |
3.46 |
3.46 |
3.17 |
                                                                                                                                                                                                                                                                                                                                                                                                                3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                  0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                       83.11
5.00
1.79 (ii)
5.00
0.32
                                                                                                                                                                                                                                                                                           41.24
10.00
5.94 (ii)
10.00
0.15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  --- TRANSFORMED HYETOGRAPH
TIME RAIN | TIME
hrs mm/hr | hrs m
1.083 18.78 | 2.083 | 5
1.67 18.78 | 2.167 | 5
1.250 83.11 | 2.250 | 4
1.333 83.11 | 2.337 | 4
1.437 | 24.75 | 2.50 | 4
1.447 | 24.75 | 2.50 | 4
1.450 | 24.75 | 2.50 | 4
1.583 | 13.01 | 2.583 | 3
1.667 | 13.01 | 2.667 | 3
1.667 | 13.01 | 2.667 | 3
1.750 | 9.01 | 2.750 | 3
1.833 | 9.01 | 2.833 | 3
1.697 | 2.917 | 3
1.833 | 9.01 | 2.833 | 3
1.697 | 2.917 | 3
1.837 | 3.000 | 3
                                                                                                                                                                                                                                                                                                                                                                                *TOTALS*
0.075 (iii)
1.33
33.46
36.98
0.90
                            PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                         0.07
1.33
35.98
36.98
0.97
                                                                                                                                                                                                                                                                                             0.00
1.42
19.22
36.98
0.52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RAIN | TIME*
mm/hr | 1.083
2.47 | 1.083
2.47 | 1.167
2.82 | 1.250
2.82 | 1.333
3.31 | 1.417
3.31 | 1.500
4.05 | 1.667
5.30 | 1.750
5.30 | 1.750
5.30 | 1.833
7.98 | 1.917
7.98 | 2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            mm/hr
5.73 |
5.73 |
4.89 |
4.89 |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               mm/hr
2.93
2.93
2.72
2.72
2.55
2.55
2.39
2.39
2.26
2.26
2.15
2.15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4.89
4.28
4.28
3.82
3.82
3.46
3.46
3.17
3.17
 ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                              (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^\phi=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    83.11
5.00
2.22 (ii)
5.00
0.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        41.24
10.00
6.99 (ii)
10.00
0.14
                                                                                                                                          Area (ha)= 0.29 Total Imp(\%)= 78.00 Dir. Conn.(\%)= 78.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             *TOTALS*
0.144 (iii)
1.33
32.63
36.98
0.88
                              PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0.13
1.33
35.98
36.98
0.97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0.01
1.42
19.22
36.98
0.52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                     NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^\circ = 89.0 Ia = Dep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                              TRANSFORMED HYETOGRAR ME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN 
                                                                                                                                                                                                   TIME
hrs
1.083
1.167
1.250
1.333
1.417
1.500
1.583
1.667
1.750
1.833
1.917
2.000
                                                                                                TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                     mm/hr
2.47
2.47
2.82
2.82
3.31
3.31
4.05
4.05
5.30
7.98
7.98
                                                                                                                                                                                                                                                                                                                                                                   mm/hi
5.73
5.73
4.89
4.89
4.28
4.28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      mm/h
2.93
2.72
2.72
2.55
2.55
2.39
2.26
2.26
2.15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3.82
3.82
3.46
3.46
3.17
3.17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IMPERVIOUS PERVIOUS (i)
0.55 0.10
1.00 1.00
1.00 2.00
65.83 40.00
0.013 0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                         83.11
5.00
1.68 (ii)
5.00
0.32
                          Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                           32.82
15.00
13.73 (ii)
15.00
0.08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                *TOTALS*
0.054 (iii)
1.33
32.27
36.98
0.87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TIME
hrs
1.083
1.167
1.250
1.333
1.417
1.500
1.583
1.667
1.750
1.833
1.917
2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RAIN
mm/hr
18.78
18.78
83.11
24.75
24.75
13.01
13.01
9.01
9.01
6.97
6.97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TIME hrs 2.083 2.167 2.250 2.333 2.417 2.500 2.583 2.667 2.750 2.833 3.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RAIN
mm/hr
5.73
5.73
4.89
4.28
4.28
3.82
3.82
3.46
3.17
3.17
                              PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                          0.05
1.33
35.98
36.98
0.97
                                                                                                                                                                                                                                                                                           0.00
1.50
19.22
36.98
0.52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 mm/hr
2.47
2.47
2.82
2.82
3.31
4.05
4.05
5.30
7.98
7.98
                         * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                          (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \mathbb{C}^{N^2}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                            Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TIME hrs 1.083 1.167 1.250 1.333 1.417 1.500 1.583 1.667 1.750 1.833 1.917 2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TIME hrs
2.083
2.167
2.250
2.333
2.417
2.500
2.583
2.667
2.750
2.833
2.917
3.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RAIN
mm/hr
2.93
2.93
2.72
2.55
2.55
2.39
2.39
2.26
2.26
2.15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RAIN
mm/hr
2.47
2.47
2.82
2.82
3.31
4.05
4.05
5.30
5.30
7.98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RAIN
mm/hr
18.78
18.78
83.11
24.75
24.75
13.01
9.01
9.01
9.01
6.97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RAIN
mm/hr
5.73
5.73
4.89
4.28
4.28
3.82
3.82
3.46
3.46
3.17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                            PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                            0.13
1.33
35.98
36.98
0.97
                                                                                                                                                                                                                                                                                               0.01
1.42
19.22
36.98
0.52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                     ** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                            (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^\circ = 89.0 Ia = Dep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       83.11
5.00
2.07 (ii)
5.00
0.31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        41.24
10.00
6.22 (ii)
10.00
0.15
   CALIB STANDHYD ( 20072) | Area (ha)= 0.64 | Total Imp(%)= 84.00 | Dir. Conn.(%)= 84.00 | Total Imp(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)= 84.00 | Conn.(%)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             *TOTALS*
0.120 (iii)
1.33
33.46
36.98
0.90
                                                                                                                                                                                IMPERVIOUS PERVIOUS (i)
0.54 0.10
1.00 1.00
1.00 2.00
65.32 40.00
0.013 0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0.11
1.33
35.98
36.98
0.97
                                                                                                                                      (ha)=
(mm)=
(%)=
(m)=
                              Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                     NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                               RAIN TIME
mm/hr hrs
2.47 1.083
2.47 1.167
2.82 1.250
2.82 1.333
3.31 1.417
3.31 1.500
4.05 1.583
4.05 1.667
5.30 1.833
7.98 1.917
7.98 2.000
                                                                                                                                                                                                                                                    NSFORMED HYETOGE RAIN | TIME mm/hr | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs |
                                                                                                TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                 RAIN
mm/hr
5.73
5.73
4.89
4.28
4.28
3.82
3.82
3.46
3.46
3.17
                                                                                                                                                                                                                                                                                                                                                                                                              TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2.93
2.93
2.72
2.72
2.55
2.55
2.39
2.39
2.26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | CALIB | STANDHYO ( 20092) | Area (ha) = 0.63 | Imp(%) = 81.00 | Dir. Conn.(%) = 81.00 | Total Imp(%) = 81.00 | Dir. Conn.(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) = 81.00 | Total Imp(%) | Total Imp(%) = 81.00 | Total Im
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Dep. Storage
Average Slope
Length
Mannings n
                            Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                       83.11
5.00
2.13 (ii)
5.00
0.31
                                                                                                                                                                                                                                                                                           41.24
10.00
6.41 (ii)
10.00
0.14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         *TOTALS*
0.131 (iii)
1.33
33.30
36.98
0.90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RAIN
mm/hr
5.73
5.73
4.89
4.28
4.28
4.28
3.82
3.82
3.46
3.17
3.17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RAIN
mm/hr
2.93
2.93
2.72
2.75
2.55
2.39
2.39
2.26
2.26
2.15
2.15
                                                                                                                                                                                                                                                                                             0.01
1.42
19.22
36.98
0.52
                              PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                         0.12
1.33
35.98
36.98
0.97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2.82
3.31
3.31
4.05
4.05
5.30
7.98
7.98
***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                            Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       83.11
5.00
2.12
5.00
0.31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        41.24
10.00
6.77 (ii)
10.00
0.14
                                                                                                                                            Area (ha)= 0.58
Total Imp(%)= 85.00 Dir. Conn.(%)= 85.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              *TOTALS*

0.126 (iii)

1.33

32.79

36.98

0.89
                                                                                                                                                                     IMPERVIOUS PERVIOUS (1)
= 0.49 0.09 1.00
= 1.00 1.00
= 1.00 2.00
= 62.18 40.00
= 0.013 0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PEAK FLOW (C
TIME TO PEAK (h
RUNOFF VOLUME (
TOTAL RAINFALL (
RUNOFF COEFFICIENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0.12
1.33
35.98
36.98
0.97
                                Surface Area
Dep. Storage
Average Slope
Length
Mannings n
```

```
24.75
13.01
13.01
9.01
9.01
9.01
6.97
***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1.500
1.583
1.667
1.750
1.833
1.917
2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4.28
3.82
3.82
3.46
3.46
3.17
3.17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2.500
2.583
2.667
2.750
2.833
2.917
3.000
                          (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^+=89.0 Ia = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              83.11
5.00
1.82 (ii)
5.00
0.32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    32.82
15.00
13.87 (ii)
15.00
0.08
   *TOTALS*
0.065 (iii)
1.33
30.94
36.98
0.84
                                                                                                                                                        IMPERVIOUS 0.31 0.09 1.00 1.00 2.00 51.64 40.00 0.013 0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0.06
1.33
35.98
36.98
0.97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0.01
1.50
19.22
36.98
0.52
                            Surface Area (ha)=
Dep. Storage (mm)=
Average Slope
Length (m)=
Mannings n =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \mathbb{CN}^{\mathbb{F}}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUIT. THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                   TRANSFORMED HYETOGRAPH
ME RAIN | TIME | FR. |
S mm/hr | Thrs | mr. |
S 33 18.78 | 2.083 | 5.50 |
S 38 3.11 | 2.250 | 4.3 |
S 38 3.11 | 2.250 | 4.3 |
S 4.75 | 2.417 | 4.4 |
S 2.475 | 2.417 | 4.4 |
S 2.475 | 2.417 | 4.4 |
S 2.475 | 2.417 | 4.4 |
S 2.475 | 2.500 | 4.3 |
S 2.475 | 2.500 | 3.3 |
S 2.475 | 2.500 | 3.3 |
S 2.475 | 2.500 | 3.3 |
S 2.475 | 2.500 | 3.3 |
S 2.475 | 2.500 | 3.3 |
S 2.475 | 2.500 | 3.3 |
S 2.475 | 2.500 | 3.3 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.47
                                                                                                                                                                           TIME hrs
1.083
1.167
1.250
1.333
1.417
1.500
1.583
1.667
1.750
1.833
1.917
2.000
                                                                                       TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.508
0.667
0.750
0.833
0.917
1.000
                                                                                                                                 RAIN
mm/hr
2.47
2.47
2.82
2.82
3.31
4.05
4.05
5.30
5.30
7.98
7.98
                                                                                                                                                                                                                                                                                                                    RAIN
mm/hr
5.73
5.73
4.89
4.28
4.28
3.82
3.46
3.46
3.17
3.17
                                                                                                                                                                                                                                                                                                                                                             3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2.39
2.39
2.26
2.26
2.15
2.15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IMPERVIOUS

0.06

1.00

1.00

21.60

0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PERVIOUS (i)
0.01
1.00
2.00
                          Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                              83.11
5.00
1.85 (ii)
5.00
0.32
                                                                                                                                                                                                                                                        32.82
15.00
13.90 (ii)
15.00
0.08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ) HYETOGR
TIME
hrs
2.083
2.167
2.250
2.333
2.417
2.500
2.583
2.667
2.750
2.750
2.833
2.917
3.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RAIN TIME
mmm/hr
2.47 1.083
2.47 1.167
2.82 1.250
2.82 1.333
3.31 1.417
3.31 1.500
4.05 1.583
4.05 1.667
5.30 1.750
5.30 1.833
7.98 12.000
                                                                                                                                                                           0.32

0.07

1.33

35.98

36.98

0.97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PH ----
RAIN mm/hr 5.73 | 5.73 | 4.89 | 4.28 | 4.28 | 4.28 | 3.82 | 3.82 | 3.46 | 3.17 | 3.17
                                                                                                                                                                                                                                                                                                                                 *TOTALS*
0.074 (iii)
1.33
32.11
36.98
0.87
                          PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RAIN
mm/hr
2.93
2.93
2.72
2.75
2.55
2.39
2.39
2.26
2.15
2.15
                                                                                                                                                                                                                                                        0.01
1.50
19.22
36.98
0.52
                        * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                          (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\pm}=89.0 Ia = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              83.11
5.00
1.10 (ii)
5.00
0.34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    41.24
10.00
5.38 (ii)
10.00
0.16
    *TOTALS*
0.014 (iii)
1.33
33.27
36.98
0.90
                        0.01
1.33
35.98
36.98
0.97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0.00
1.42
19.22
36.98
0.52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \mathbb{CN}^{9}=89.0 Ia = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                         RAIN TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I TIME RAIN 'I 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ADD HYD ( 0110)|
                                                                                                                                                          AREA QPEAK
(ha) (cms)
0.07 0.014
0.38 0.065
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  24.75 | 2.500
13.01 | 2.583
13.01 | 2.667
9.01 | 2.750
9.01 | 2.833
6.97 | 2.917
6.97 | 3.000
                                                                                                                                                                                                                                                         TPEAK
(hrs)
1.33
1.33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3.31
4.05
4.05
5.30
5.30
7.98
7.98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1.500
1.583
1.667
1.750
1.833
1.917
2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4.28
3.82
3.82
3.46
3.46
3.17
3.17
                               ID1= 1 (200811):
+ ID2= 2 (200812):
                                          ID = 3 ( 0110):
                                                                                                                                                                                                                                                                                                   31.30
                                                                                                                                                                                            0.079
                                                                                                                                                                                                                                                        1.33
                             NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
PEAK FLOW (cms)=
PEAK FLOW (cms)=
RINOFF VOLUME (hrs)=
RUNOFF VOLUME (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            83.11
5.00
1.10 (ii)
5.00
0.34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   41.24
10.00
5.50 (ii)
10.00
0.16
                                                                                                                 Area (ha)= 0.39 Total Imp(\%)= 59.00 Dir. Conn.(\%)= 59.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            *TOTALS*
0.014 (iii)
1.33
33.10
36.98
0.90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0.01
1.33
35.98
36.98
0.97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0.00
1.42
19.22
36.98
0.52
                            Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^{\pm}=89.0 Ia = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                   TRANSFORMED HYETOGRAPH
ME RAIN ' TIME
rs mm/hr' ' hrs m
83 18.78 2.083 5
77 18.78 2.167 5
50 83.11 2.250 4
17 24.75 2.417 4
10 24.75 2.500 4
83 13.01 2.583 3
83.11 2.233
                                                                                       TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
                                                                                                                                                                           TIME
hrs
1.083
1.167
                                                                                                                                                                                                                     RAIN | mm/hr | 18.78 | 18.78 | 18.78 | 18.311 | 24.75 | 24.75 | 13.01 | 13.01 | 9.01 | 9.01 | 6.97 | 6.97 | 6.97
                                                                                                                                                                                                                                                                                                                                                           TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                    mm/hr
5.73
5.73
4.89
4.89
4.28
4.28
3.82
3.82
3.46
3.17
3.17
                                                                                                                                 mm/hr
2.47
2.47
2.82
2.82
3.31
4.05
4.05
5.30
5.30
7.98
7.98
                                                                                                                                                                           1.167
1.250
1.333
1.417
1.500
1.583
1.667
1.750
1.833
1.917
2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ADD HYD ( 0111)|
1 + 2 = 3 |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AREA QPEAK (ha) (cms) 0.07 0.014 0.39 0.058
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TPEAK
(hrs)
1.33
1.33
                                                                                       0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                           | 2.667
| 2.750
| 2.833
| 2.917
| 3.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ID1= 1 (200821):
+ ID2= 2 (200822):
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ID = 3 ( 0111):
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0.46 0.072
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1.33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
                        Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                83.11
5.00
1.84 (ii)
5.00
0.32
                                                                                                                                                                                                                                                        32.82
15.00
13.88 (ii)
15.00
0.08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Area (ha)= 0.47
Total Imp(%)= 74.00 Dir. Conn.(%)= 74.00
                                                                                                                                                                                                                                                                                                                                 *TOTALS*
0.058 (iii)
1.33
29.09
36.98
0.79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (ha)= IMPERVIOUS PERVIOUS (i)

(ma)= 1.00 1.00

(%)= 1.00 2.00

(m)= 55.98 40.00

= 0.013 0.290
                            PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                   0.05
1.33
35.98
36.98
0.97
                                                                                                                                                                                                                                                        0.01
1.50
19.22
36.98
0.52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Dep. Storage
Average Slope
Length
Mannings n
                             WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                          (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^\circ = 89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TIME RAIN | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08 | 1.08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HYETOGRAPH
TIME
hrs n
2.083 5
2.167 2.250 4
2.333 4
2.417 4
2.500 4
2.500 4
2.500 4
2.750 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RAIN
mm/hr
5.73 |
5.73 |
4.89 |
4.28
4.28
3.82
3.82
3.46
3.46
3.17
3.17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RAIN
mm/hr
2.93
2.93
2.72
2.75
2.55
2.39
2.39
2.26
2.26
2.15
2.15
   | CALIB
| STANDHYD (200821) | Area (ha)= 0.07
| Total Imp(%)= 83.00 | Dir. Conn.(%)= 83.00
| IMPERVIOUS | PERVIOUS (i)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2.82
3.31
3.31
4.05
4.05
5.30
7.98
7.98
                                                                                                                   Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2.833
2.917
3.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              83.11
5.00
1.94 (ii)
5.00
0.31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    32.82
15.00
13.99 (ii)
15.00
0.08
                                                NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                         RAIN TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               *TOTALS*
0.084 (iii)
1.33
31.61
36.98
0.85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PEAK FLOW (C
TIME TO PEAK (h
RUNOFF VOLUME (
TOTAL RAINFALL (
RUNOFF COEFFICIENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0.08
1.33
35.98
36.98
0.97
```

```
***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^+=89.0 Ia = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                  Area (ha)= 0.25 Total Imp(\%)= 82.00 Dir. Conn.(\%)= 82.00
                                                                                                                                                 IMPERVIOUS
0.20
1.00
1.00
40.82
0.013
                                                                                                                                                                                                                               PERVIOUS (i)
0.05
1.00
2.00
                       Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                              NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                        TRANSFORMED HYETOGRAPH
ME RAIN | TIME | FR. |
S mm/hr | Thrs | mr. |
S 33 18.78 | 2.083 | 5.50 |
S 38 3.11 | 2.250 | 4.3 |
S 38 3.11 | 2.250 | 4.3 |
S 4.75 | 2.417 | 4.4 |
S 2.475 | 2.417 | 4.4 |
S 2.475 | 2.417 | 4.4 |
S 2.475 | 2.417 | 4.4 |
S 2.475 | 2.500 | 4.3 |
S 2.475 | 2.500 | 3.3 |
S 2.475 | 2.500 | 3.3 |
S 2.475 | 2.500 | 3.3 |
S 2.475 | 2.500 | 3.3 |
S 2.475 | 2.500 | 3.3 |
S 2.475 | 2.500 | 3.3 |
S 2.475 | 2.500 | 3.3 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.475 | 3.475 | 3.475 |
S 3.47
                                                                                                                                                                  TIME hrs
1.083
1.167
1.250
1.333
1.417
1.500
1.583
1.667
1.750
1.833
1.917
2.000
                                                                                 TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.508
0.667
0.750
0.833
0.917
1.000
                                                                                                                           RAIN
mm/hr
2.47
2.47
2.82
2.82
3.31
3.31
4.05
4.05
5.30
5.30
7.98
7.98
                                                                                                                                                                                                                                                                                                     RAIN
mm/hr
5.73
5.73
4.89
4.28
4.28
3.82
3.46
3.46
3.17
3.17
                                                                                                                                                                                                                                                                                                                                            3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                        2.39
2.39
2.26
2.26
2.15
2.15
                      Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                        83.11
5.00
1.61 (ii)
5.00
0.32
                                                                                                                                                                                                                                           41.24
10.00
6.14 (ii)
10.00
0.15
                                                                                                                                                                                                                                                                                                                 *TOTALS*
0.051 (iii)
1.33
32.95
36.98
0.89
                       PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                     0.05
1.33
35.98
36.98
0.97
                                                                                                                                                                                                                                            0.00
1.42
19.22
36.98
0.52
                      * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\pm}=89.0 Ia = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
       ADD HYD ( 0121) |
1 + 2 = 3 |
                                     ID = 3 ( 0121):
                                                                                                                                           0.72 0.134
                                                                                                                                                                                                                                        1.33
                         NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
                                                                                                                    Area (ha)= 0.87 Total Imp(\%)= 67.00 Dir. Conn.(\%)= 67.00
                                                                                                               **** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                         (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^\circ=89.0 Ia = bep. Storage (Above) (ii) TIME STEP (bT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
  CALIB | STANDHYD ( 20122) | ID= 1 DT= 5.0 min |
                                                                                                                     Area (ha)= 1.11 Total Imp(\%)= 81.00 Dir. Conn.(\%)= 81.00
                                                                                                                                                    IMPERVIOUS PERVIOUS (i)
                                                                                                               (ha)=
(mm)=
(%)=
(m)=
                         Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                       0.90
1.00
1.00
86.02
0.013
                                                                                                                                                                                                                    0.21
1.00
2.00
40.00
0.290
                                              NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                        TRANSFORMED HYETOGRAPH
ME RAIN ' TIME
rs mm/hr' ' hrs m
83 18.78 2.083 5
77 18.78 2.167 5
50 83.11 2.250 4
17 24.75 2.417 4
10 24.75 2.500 4
83 13.01 2.583 3
83.11 2.233
                                                                                                                                                                  TIME
hrs
1.083
1.167
                                                                                                                                                                                                           RAIN
mm/hr
18.78
18.78
83.11
24.75
24.75
13.01
13.01
9.01
9.01
6.97
6.97
                                                                                 TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.508
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                          TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                     mm/hi
5.73
4.89
4.89
4.28
4.28
3.82
3.82
3.46
3.17
                                                                                                                          mm/hr
2.47
2.47
2.82
2.82
3.31
4.05
4.05
5.30
5.30
7.98
7.98
                                                                                                                                                                  1.167
1.250
1.333
1.417
1.500
1.583
1.667
1.750
1.833
1.917
2.000
                                                                                                                                                                                                                                                  2.667
2.750
2.833
2.917
3.000
                      Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                      83.11
5.00
2.51 (ii)
5.00
0.29
                                                                                                                                                                                                                                           41.24
10.00
7.16 (ii)
10.00
0.14
                                                                                                                                                                                                                                                                                                                 *TOTALS*
0.219 (iii)
1.33
32.80
36.98
0.89
                         PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                         0.20
1.33
35.98
36.98
0.97
                                                                                                                                                                                                                                                 0.02
1.42
                             WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^\circ = 89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
 Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                            NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                            --- TRANSFORMED HYETOGRAPH --- TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN |
```

RAIN mm/hr 18.78 18.78 83.11 24.75 24.75 13.01 13.01 9.01 9.01 6.97 6.97 'TIME hrs 2.083 2.167 2.250 2.333 2.417 2.500 2.583 2.667 2.750 2.833 2.917 3.000 TIME hrs 1.083 1.167 1.250 1.333 1.417 1.500 1.583 1.667 1.750 1.833 1.917 2.000 RAIN mm/hr 5.73 5.73 4.89 4.28 4.28 4.28 3.82 3.82 3.46 3.17 3.17 3.08 3.17 3.25 3.33 3.42 3.50 3.58 3.67 3.75 3.83 3.92 4.00 mm/hr 2.47 2.47 2.82 2.82 3.31 4.05 4.05 5.30 7.98 7.98 hrs 0.083 0.167 0.250 0.333 0.417 0.500 0.583 0.667 0.750 0.833 0.917 Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= 83.11 5.00 2.34 (ii) 5.00 0.30 32.82 15.00 14.38 (ii) 15.00 0.08 *TOTALS* 0.142 (iii) 1.33 30.44 36.98 0.82 PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT = 0.13 1.33 35.98 36.98 0.97 0.02 1.50 19.22 36.98 0.52 WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $\text{CN}^\circ = 89.0$ Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. CALIB Area (ha)= 0.90 1D= 1 DT= 5.0 min | Total Imp(%)= 80.00 Dir. Conn.(%)= 80.00 IMPERVIOUS PERVIOUS (i) Surface Area Dep. Storage Average Slope Length Mannings n 0.72 1.00 1.00 77.46 0.013 0.18 1.00 2.00 40.00 0.290 NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. TIME hrs 2.083 2.167 2.250 2.333 2.417 2.500 2.583 2.667 2.750 2.833 2.917 3.000 RAIN mm/hr 2.47 2.82 2.82 3.31 3.31 4.05 4.05 5.30 7.98 7.98 TIME hrs 1.083 1.167 1.250 1.333 1.417 1.500 1.583 1.667 1.750 1.833 1.917 2.000 RAIN mm/hr 18.78 18.78 83.11 24.75 24.75 13.01 13.01 9.01 9.01 6.97 6.97 TIME hrs 0.083 0.167 0.250 0.333 0.417 0.500 0.583 0.667 0.750 0.833 0.917 1.000 RAIN mm/hr 5.73 5.73 4.89 4.28 4.28 3.82 3.82 3.46 3.17 3.17 TIME hrs 3.08 3.17 3.25 3.33 3.42 3.50 3.58 3.67 3.75 3.83 3.92 4.00 RAIN mm/hr 2.93 2.93 2.72 2.72 2.55 2.39 2.39 2.26 2.15 2.15 Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= 41.24 10.00 7.13 (ii) 10.00 0.14 (ii) *TOTALS* 0.177 (iii) 1.33 32.63 36.98 0.88 0.16 1.33 35.98 36.98 0.97 3.31 4.05 4.05 5.30 5.30 7.98 7.98 1.500 1.583 1.667 1.750 1.833 1.917 2.000 24.75 13.01 13.01 9.01 9.01 6.97 6.97 2.500 2.583 2.667 2.750 2.833 2.917 3.000 4.28 3.82 3.82 3.46 3.46 3.17 3.17 2.55 2.39 2.39 2.26 2.26 2.15 2.15 Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
PEAK FLOW (cms)=
PEAK FLOW (cms)=
RINOFF VOLUME (hrs)=
RUNOFF VOLUME (mm)=
RUNOFF COEFFICIENT = 83.11 5.00 1.94 (ii) 5.00 0.31 41.24 10.00 6.09 (ii) 10.00 0.15 *TOTALS*
0.097 (iii)
1.33
33.46
36.98
0.90 0.09 1.33 35.98 36.98 0.97 0.01 1.42 19.22 36.98 0.52 * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $\text{CN}^{\pm}=89.0$ Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. Area (ha)= 0.47 Total Imp(%)= 85.00 Dir. Conn.(%)= 85.00 Surface Area Dep. Storage Average Slope Length Mannings n NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. TIME hrs 2.083 2.167 2.250 2.333 2.417 2.500 2.583 2.667 2.750 2.833 2.917 3.000 RAIN mm/hr 18.78 18.78 83.11 24.75 24.75 13.01 13.01 9.01 9.01 6.97 6.97 TIME hrs 3.08 3.17 3.25 3.33 3.42 3.50 3.58 3.67 3.75 3.83 3.92 4.00 RAIN mm/hr 2.93 2.93 2.72 2.75 2.55 2.39 2.39 2.26 2.15 2.15 TIME hrs 0.083 0.167 0.250 0.333 0.417 0.500 0.583 0.667 0.750 0.833 0.917 1.000 TIME hrs 1.083 1.167 1.250 1.333 1.417 1.500 1.583 1.667 1.750 1.833 1.917 2.000 RAIN mm/hr 5.73 5.73 4.89 4.28 4.28 3.82 3.82 3.46 3.46 3.17 3.17 mm/hr 2.47 2.47 2.82 2.82 3.31 4.05 4.05 5.30 7.98 7.98 Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)= 41.24 10.00 6.09 (ii) 10.00 0.15 83.11 5.00 1.94 (ii) 5.00 0.31 *TOTALS* 0.097 (iii) 1.33 33.46 36.98 0.90 0.09 1.33 35.98 36.98 0.97 PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT = 0.01 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^{\circ}=89.0$ Ia = Dep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. | ADD HYD (0136)|

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

```
3.31 | 1.500
4.05 | 1.583
4.05 | 1.667
5.30 | 1.750
5.30 | 1.833
7.98 | 1.917
7.98 | 2.000
   1 + 2 = 3
                                                                                                                                                           AREA QPEAK
(ha) (cms)
0.47 0.097
0.47 0.097
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         24.75
13.01
13.01
9.01
9.01
6.97
6.97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2.500
2.583
2.667
2.750
2.833
2.917
3.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3.82
3.82
3.46
3.46
3.17
3.17
                             ID1= 1 (201021):
+ ID2= 2 (201022):
                                                                                                                                            0.94 0.194
                                                                                                                                                                                                                                                           1.33
                                                                                                                                                                                                                                                                                                       33.46
                             NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     83.11
5.00
2.51 (ii)
5.00
0.29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            32.82
15.00
14.56 (ii)
15.00
0.08
   CALIBN
STANDHVO ( 2005) | Area (ha)= 0.28
STANDHVO ( 2005) | Total Imp(%)= 90.00 | Dir. Conn.(%)= 90.00
IMPERVIOUS | PERVIOUS (i)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      *TOTALS*
0.156 (iii)
1.33
28.60
36.98
0.77
                                                                                                                                               IMPERVIOUS (1)
= 0.25 0.03
= 1.00 1.00
= 1.00 2.00
= 43.20 40.00
= 0.013 0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0.14
1.33
35.98
36.98
0.97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0.03
1.50
19.22
36.98
0.52
                          Surface Area
Dep. Storage
Average Slope
Length
Mannings n

(ha)=
(mm)=
(%)=
(m)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \mathbb{CN}^{\mathbb{F}}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUIT. THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                    TRANSFORMED HYETOGRAPH
ME RAIN | TIME | FR. |
S3 18.78 | 2.083 | 5.77 | 18.78 | 2.167 | 5.71 | 18.78 | 2.167 | 5.71 | 18.78 | 2.167 | 5.71 | 18.78 | 2.167 | 5.71 | 18.78 | 2.167 | 5.71 | 18.78 | 2.167 | 2.167 | 4.167 | 18.78 | 2.167 | 4.17 | 2.167 | 4.17 | 2.167 | 4.17 | 2.167 | 4.17 | 2.167 | 4.17 | 2.167 | 4.17 | 2.167 | 4.17 | 2.167 | 4.17 | 2.167 | 4.17 | 2.167 | 4.17 | 2.167 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.17 | 4.
                                                                                                                                                                             TIME hrs
1.083
1.167
1.250
1.333
1.417
1.500
1.583
1.675
1.750
1.833
1.917
2.000
                                                                                        TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                    RAIN
mm/hr
2.47
2.47
2.82
2.82
3.31
3.31
4.05
4.05
5.30
5.30
7.98
7.98
                                                                                                                                                                                                                                                                                                                       RAIN
mm/hr
5.73
5.73
4.89
4.28
4.28
3.82
3.46
3.46
3.17
3.17
                                                                                                                                                                                                                                                                                                                                                                hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2.39
2.39
2.26
2.26
2.15
2.15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IMPERVIOUS

0.09

1.00

1.00

25.82

0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PERVIOUS (i)
0.01
1.00
2.00
                                                                                                                                                                                 83.11 41.24
5.00 10.00
1.66 (ii) 5.11 (ii)
5.00 10.00
0.32 0.16
                          Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TRANSFORMED HYETOGR | HE RAIN | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RAIN TIME
mmm/hr
2.47 1.083
2.47 1.167
2.82 1.250
2.82 1.333
3.31 1.417
3.31 1.500
4.05 1.583
4.05 1.667
5.30 1.750
5.30 1.833
7.98 12.000
                                                                                                                                                                             0.06
1.33
35.98
36.98
0.97
                                                                                                                                                                                                                                                                                                                                    *TOTALS*
0.060 (iii)
1.33
34.30
36.98
0.93
                          PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
                                                                                                                                                                                                                                                       0.00
1.42
19.22
36.98
0.52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RAIN
mm/hr
5.73 |
5.73 |
4.89 |
4.28 |
4.28 |
3.82 |
3.82 |
3.82 |
3.82 |
3.82 |
3.17 |
3.17 |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RAIN
mm/hr
2.93
2.72
2.72
2.55
2.39
2.39
2.26
2.15
2.15
                          * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                          (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\pm}=89.0 Ia = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     83.11
5.00
1.22 (ii)
5.00
0.33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           41.24
5.00
4.75 (ii)
5.00
0.22
    *TOTALS*
0.022 (iii)
1.33
34.21
36.98
0.93
                          PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0.02
1.33
35.99
36.98
0.97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0.00
1.33
19.22
36.98
0.52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN° = 89.0 Ia = Dep. Storage (Above)

(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL

THAN THE STORAGE COEFFICIENT.

(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                        --- TRANSFORMED HYETOGRAPH ----
TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | CALIB
| STANDHYD (200121) | Area (ha)= 0.11
|ID= 1 DT= 5.0 min | Total Imp(%)= 87.00 Dir. Conn.(%)= 87.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        24.75 | 2.500
13.01 | 2.583
13.01 | 2.667
9.01 | 2.750
9.01 | 2.750
9.01 | 2.833
6.97 | 2.917
6.97 | 3.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3.31
4.05
4.05
5.30
5.30
7.98
7.98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1.500
1.583
1.667
1.750
1.833
1.917
2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4.28
3.82
3.82
3.46
3.46
3.17
3.17
                                                                                                                    Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
PEAK FLOW (cms)=
PEAK FLOW (cms)=
RINOFF VOLUME (hrs)=
RUNOFF VOLUME (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           41.24
10.00
6.11 (ii)
10.00
0.15
0.00
1.42
19.22
36.98
0.52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    83.11
5.00
1.22 (ii)
5.00
0.33
                                                  NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                          *TOTALS*
0.020 (iii)
1.33
32.42
36.98
0.88
                                                                                                                                 RAIN | mm/hr | 2.47 | 2.47 | 2.82 | 2.82 | 3.31 | 3.31 | 4.05 | 4.05 | 4.05 | 5.30 | 5.30 | 7.98 | 7.98 |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0.02
1.33
35.98
36.98
0.97
                                                                                        hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                       mm/hr
5.73
5.73
4.89
4.89
4.28
4.28
3.82
3.82
3.46
3.17
3.17
                                                                                                                                                                                                                                                                                                                                                               3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                              mm/hi
2.93
2.72
2.72
2.55
2.55
2.39
2.26
2.26
2.15
2.15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^{\pm}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                            Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                                          83.11
5.00
1.26 (ii)
5.00
0.33
                                                                                                                                                                                                                                                          41.24
10.00
5.14 (ii)
10.00
0.16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   *TOTALS*
0.023 (iii)
1.33
33.78
36.98
0.91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (ha) = IMPERVIOUS (1) 0.02 (mm) = 1.00 1.00 (2.00 (3.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.00 (4.0
                          PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                 0.02
1.33
35.98
36.98
0.97
                                                                                                                                                                                                                                                          0.00
1.42
19.22
36.98
0.52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                  WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                          (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^\circ = 89.0 Ia = Dep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TIME hrs 2.083 2.167 2.250 2.333 2.417 2.500 2.583 2.667 2.750 2.833 2.917 3.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TIME
hrs
1.083
1.1167
1.250
1.333
1.417
1.500
1.583
1.667
1.750
1.833
1.917
2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RAIN
mm/hr
18.78
18.78
83.11
24.75
24.75
13.01
13.01
9.01
9.01
6.97
6.97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RAIN
mm/hr
5.73
5.73
4.89
4.28
4.28
3.82
3.82
3.46
3.46
3.17
3.17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RAIN
mm/hr
2.93
2.72
2.72
2.55
2.39
2.39
2.26
2.26
2.15
2.15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      mm/hr
2.47
2.47
2.82
2.82
3.31
3.31
4.05
4.05
5.30
7.98
7.98
           ADD HYD ( 0142) |
1 + 2 = 3
                                                                                                                                                                                                                                                          TPEAK R.V.
(hrs) (mm)
1.33 34.21
1.33 33.78
                                                                                                                                                           0.21 0.045 1.33 33.99
                          NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     83.11
5.00
1.32 (ii)
5.00
0.33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            41.24
10.00
5.34 (ii)
10.00
0.16
   *TOTALS*
0.027 (iii)
1.33
                                                                                                              (ha)= 0.08 PERVIOUS (1)

(mm)= 1.00 0.02

(%)= 1.00 2.00

(%)= 25.69 40.00

= 0.013 0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0.03
1.33
35.99
36.98
0.97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                            Dep. Storage
Average Slope
Length
Mannings n
                                                NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = Dep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                   --- TRANSFORMED HYETOGRAPH ---
TIME RAIN | TIME RAIN | TIME |
1.083 | 18.78 | 2.088 | 5.73 | 3.08 |
1.167 | 18.78 | 2.167 | 5.73 | 3.17 |
1.250 | 83.11 | 2.250 | 4.89 | 3.25 |
1.333 | 83.11 | 2.333 | 4.89 | 3.31 |
1.417 | 24.75 | 2.417 | 4.28 | 3.42 |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | ADD HYD ( 0145)|
```

```
1 + 2 = 3
                                                                                                                                                  QPEAK
(cms)
0.020
0.027
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                25.64
25.64
108.92
108.92
33.31
33.31
17.99
17.99
12.60
9.82
9.82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3.57
4.07
4.07
4.76
4.76
5.79
7.53
7.53
11.20
11.20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1.167
1.250
1.333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8.12
6.96
6.96
6.12
6.12
5.48
4.97
4.56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4.22
3.93
3.93
3.68
3.68
3.47
3.28
3.28
3.12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
                            ID1= 1 (200112):
+ ID2= 2 (200122):
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1.333
1.417
1.500
1.583
1.667
1.750
1.833
1.917
2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2.333
2.417
2.500
2.583
2.667
2.750
2.833
2.917
3.000
                                                                                                                           0.23
                                                                                                                                                         0.047
                                                                                                                                                                                                    1.33
                                                     PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              108.92
5.00
2.04 (ii)
5.00
0.31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         64.33
10.00
5.77 (ii)
10.00
0.15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                *TOTALS*
0.219 (iii)
1.33
46.63
50.52
0.92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0.20
1.33
49.52
50.52
0.98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0.02
1.42
30.31
50.52
0.60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                    ***** DETAILED OUTPUT *****
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\varphi}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
               Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\V02\Voin.dat
Output filename: C:\Users\caef070146\Appotat\Local\Civica\\H5\S056449-8c07-4086-8157-8729fb3caba3\5ca142d0
summary filename: C:\Users\caef070146\Appotat\Local\Civica\\H5\S056449-8c07-4086-8157-8729fb3caba3\5ca142d0
     DATE: 05-18-2022
                                                                                                                                                                                        TIME: 12:44:41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PERVIOUS (i)
0.08
1.00
2.00
40.00
0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Surface Area
Dep. Storage
Average Slope
Length
Mannings n
               NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RAIN TIME mm/hr hrs 3.57 1.083 3.57 1.167 4.07 1.250 4.07 1.333 4.76 1.417 4.76 1.500 5.79 1.687 7.53 1.750 7.53 1.833 11.20 1.917 11.20 2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RANSFORME
RAIN
mm/hr
25.64
108.92
108.92
133.31
17.99
17.99
12.60
9.82
9.82
                                                                                                     Filename: C:\Users\caef070146\AppD
ata\Local\Temp\
11403a02-80e0-48b3-97a8-b203216ba841\3558f47a
Comments: 5-year, 4 hr-chicago, City of Barrie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RAIN
mm/hr
8.12 |
8.12 |
6.96 |
6.96 |
6.12 |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TIME hrs 2.083 2.167 2.250 2.333 2.417 2.500 2.583 2.667 2.750 2.833 2.917 3.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RAIN
mm/hr
4.22
4.22
3.93
3.68
3.68
3.47
3.28
3.28
3.12
3.12
             Ptotal= 50.52 mm
                                                                                                      RAIN | TIME RAIN | TIME mm/hr | hrs mm/hr | hrs mm/hr | hrs mm/hr | hrs | 1.17 | 25.64 | 2.17 | 4.07 | 1.33 | 108.92 | 2.33 | 4.76 | 1.50 | 33.31 | 2.50 | 5.79 | 1.67 | 17.99 | 2.67 | 7.53 | 1.83 | 12.60 | 2.83 | 11.20 | 2.00 | 9.82 | 3.00
                                                                         TIME
hrs
0.17
0.33
0.50
0.67
0.83
1.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6.12
6.12
5.48
5.48
4.97
4.56
4.56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              108.92
5.00
1.96 (ii)
5.00
0.31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         64.33
10.00
5.19 (ii)
10.00
0.16
        CALIB
STANDHYD ( 20022)
ID= 1 DT= 5.0 min
                                                                                                  Area (ha)= 0.80
Total Imp(%)= 85.00 Dir. Conn.(%)= 85.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                *TOTALS*
0.197 (iii)
1.33
47.40
50.52
0.94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0.19
1.33
49.52
50.52
0.98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0.01
1.42
30.31
50.52
0.60
                                                                                                                           IMPERVIOUS PERVIOUS (i)
                           Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                   0.12
1.00
2.00
40.00
0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                            NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^\circ=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                            ---- TRANSFORMED HYETOGRAPH ----
TIME RAIN | TIME RAIN | ' TIME RAIN | TIME RAIN hrs mm/hr | hrs mm/hr | hrs mm/hr |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 108.92
5.00
1.74 (ii)
5.00
0.32
           CALIB
STANDHYD ( 20031)
ID= 1 DT= 5.0 min
                                                                                                    Area (ha)= 0.43 Total Imp(\%)= 90.00 Dir. Conn.(\%)= 90.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  *TOTALS*
0.131 (iii)
1.33
47.02
50.52
0.93
                                                                                                                              IMPERVIOUS
0.39
1.00
1.00
53.54
0.013
                                                                                                                                                                                          PERVIOUS (i)
0.04
1.00
2.00
40.00
0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                          Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               **** WARNING STORAGE COFFE IS SMALLER THAN ITME STEP!
                                            NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                 TRANSFORMED HYETOGRAPH
TIME RAIN 'TIME RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIME IN THE RAIN 'TIM
                                                                        TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                      RAIN
mm/hr
3.57
3.57
4.07
4.76
4.76
5.79
5.79
7.53
7.53
11.20
                                                                                                                                                                                                                                               RAIN
mm/hr
8.12
8.12
6.96
6.92
6.12
5.48
5.48
4.97
4.56
4.56
                                                                                                                                                                                                                                                                                TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                     4.22
4.22
3.93
3.93
3.68
3.68
3.47
3.28
3.28
3.28
3.12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                           Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                      108.92
5.00
1.70 (ii)
5.00
0.32
                                                                                                                                                                                                   64.33
5.00
4.79 (ii)
5.00
0.22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TRANSFORMED HYETOGRAPH
ME RAIN | THE
ME RAIN | HYETOGRAPH
ME RAIN | HYE
ME RAIN | HYE
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                                                                                                                                                                                                                                                           *TOTALS*
0.124 (iii)
1.33
47.59
50.52
0.94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.508
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TIME
hrs
1.083
1.167
1.250
1.333
1.417
1.500
1.583
1.667
1.750
1.833
1.917
2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RAIN
mm/hr
8.12
8.12
6.96
6.96
6.12
6.12
5.48
5.48
4.97
4.97
4.56
4.56
                           PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                              0.12
1.33
49.52
50.52
0.98
                                                                                                                                                                                                    0.01
1.33
30.31
50.52
0.60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            mm/hr
3.57
3.57
4.07
4.07
4.76
5.79
5.79
7.53
11.20
11.20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          mm/h;
4.22
4.22
3.93
3.68
3.68
3.47
3.47
3.28
3.28
3.12
                              WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                          (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^{\circ}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              108.92
5.00
1.60 (ii)
5.00
0.33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         64.33
5.00
4.83 (ii)
5.00
0.22
          *TOTALS*
0.101 (iii)
1.33
47.40
50.52
0.94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0.09
1.33
49.52
50.52
0.98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0.01
1.33
30.31
50.52
0.60
                                                                                                                         IMPERVIOUS PERVIOUS (i)
0.41 0.06
1.00 1.00
1.00 2.00
                           Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                            0.41
1.00
1.00
55.98
0.013
                                                                                                                                                                                                   40.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                             NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 I a= bep. Storage (Above) (ii) TIME STEP (OT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                          TIME
hrs
2.083
2.167
2.250
2.333
2.417
2.500
2.583
2.667
2.750
2.833
2.917
3.000
                                                                                                                                       TIME
hrs
1.083
1.167
1.250
1.333
1.417
1.500
1.583
1.667
1.750
1.833
1.917
2.000
                                                                                                                                                                      RAIN
mm/hr
25.64
25.64
108.92
108.92
33.31
33.31
17.99
17.99
12.60
9.82
9.82
                                                                                                                                                                                                                                                                                   hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                        hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                 mm/hi
8.12
8.12
6.96
6.96
6.12
6.12
5.48
4.97
4.97
4.56
4.56
                                                                                                                                                                                                                                                                                                                     mm/hi
4.22
4.22
3.93
3.68
3.68
3.47
3.47
3.28
3.28
                                                                                                        mm/hr
3.57
4.07
4.07
4.76
4.76
5.79
7.53
7.53
11.20
11.20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Area (ha)= 0.36
Total Imp(%)= 85.00 Dir. Conn.(%)= 85.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      IMPERVIOUS
0.31
1.00
1.00
48.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PERVIOUS (i)
0.05
1.00
2.00
40.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Surface Area
Dep. Storage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Dep. Storage
Average Slope
Length
```

```
Mannings n
                                                                                                                                                                        0.013
                                                                                                                                                                                                                                             0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           **** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                             NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^\circ=89.0 I a Dep. Storage (Above) (ii) TIME STEP (OT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                 ANSFORMED HYETOG

RAIN | TIM

mm/hr | h

525,64 | 2.083

25,64 | 2.167

108.92 | 2.250

108.92 | 2.350

33.31 | 2.417

33.31 | 2.417

33.31 | 2.500

17.99 | 2.683

17.99 | 2.683

17.99 | 2.683

19.82 | 2.750

12.60 | 2.833

9.82 | 2.917

9.82 | 3.000
                                                                                                                                                                                                                                                        HYETOGR
TIME
hrs
2.083
2.167
2.250
2.333
2.417
                                                                                                                                                                                                                                                                                                        RAIN
mm/hr
8.12
8.12
6.96
6.96
6.12
5.48
4.97
4.97
4.56
4.56
                                                                                                                                                                                                                                                                                                                                                                                             RAIN
mm/hr
4.22
4.22
3.93
3.68
3.68
3.47
3.47
3.28
3.28
                                                                                 TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (ha)= (0.58 (0.15) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10.00) (10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                        Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                                   108.92 64.33
5.00 10.00
1.61 (ii) 5.33 (ii)
5.00 10.00
0.32 0.16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ANSFORMED HYETOGE RAIN) TIME mm/hr hrs. 1 TIME mm/hr hrs. 25.64 2.083 25.64 2.167 108.92 2.250 108.92 2.250 108.92 2.250 108.92 2.250 108.92 2.250 109.92 2.667 12.99 2.667 12.60 2.833 17.99 2.667 12.60 2.833 19.82 2.917 9.82 3.000
                                                                                                                                                                                                                                                                                                                    *TOTALS*
0.099 (iii)
1.33
46.63
50.52
0.92
                      PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                      0.09
1.33
49.52
50.52
0.98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RAIN
mm/hr
3.57
3.57
4.07
4.76
4.76
5.79
5.79
7.53
7.53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RAIN
mm/hr
8.12
8.12
6.96
6.96
6.12
6.12
5.48
5.48
4.97
4.56
4.56
                                                                                                                                                                                                                                               0.01
1.42
30.31
50.52
0.60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4.76 | 1.500
5.79 | 1.583
5.79 | 1.667
7.53 | 1.750
7.53 | 1.833
11.20 | 1.917
11.20 | 2.000
                      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0   Ia=\text{Dep}. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           108.92
5.00
1.99 (ii)
5.00
0.31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       64.33
10.00
6.27
10.00
0.15
 | CALIB
| STANDHYD ( 20052) | Area (ha) = 0.29
| ID= 1 DT= 5.0 min | Total Imp(%) = 78.00 | Dir. Conn.(%) = 78.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              *TOTALS*
0.193 (iii)
1.33
45.67
50.52
0.90
                                                                                                                                           IMPERVIOUS PERVIOUS (i)
= 0.23 0.06
= 1.00 1.00
= 1.00 2.00
= 43.97 40.00
= 0.013 0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0.18
1.33
49.52
50.52
0.98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0.02
1.42
30.31
50.52
0.60
                         Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                (ha)=
(mm)=
(%)=
(m)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                           NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                 --- TRANSFORMED HYETOGRAPH
TIME RAIN | TIME R
Hrs mm/hr | hrs mm
1.083 25.64 | 2.083 8.
1.250 108.92 | 2.250 6.
1.250 108.92 | 2.333 6.
1.250 108.92 | 2.333 6.
1.417 33.31 | 2.503 6.
1.503 31.1 | 2.503 6.
1.503 31.1 | 2.503 6.
1.503 31.2 | 2.683 7.
1.503 31.3 | 2.503 6.
1.503 31.2 | 2.683 7.
1.503 31.2 | 2.683 7.
1.503 31.2 | 2.683 7.
1.503 31.2 | 2.683 7.
1.503 31.2 | 2.69 2.687 7.
1.503 31.2 | 2.69 3.000 4.
2.000 9.82 | 3.000 4.
                                                                                                                                                                                                                                            D HYETOGR
| TIME
| hrs
| 2.083
| 2.167
| 2.250
| 2.333
| 2.417
| 2.500
| 2.583
| 2.667
| 2.750
| 2.833
| 2.917
| 3.000
                                                                                                                   RAIN
mm/hr
3.57
4.07
4.07
4.76
4.76
5.79
5.79
7.53
7.53
11.20
11.20
                                                                                                                                                                                                                                                                                                     RAIN
mm/hr
8.12 |
8.12 |
6.96 |
6.96 |
6.12 |
6.12 |
5.48 |
4.97 |
4.56 |
                                                                                                                                                                                                                                                                                                                                                                                            RAIN
mm/hr
4.22
4.22
3.93
3.68
3.68
3.47
3.47
3.28
3.28
3.12
                                                                                 TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Area (ha)= 0.65
Total Imp(%)= 85.00 Dir. Conn.(%)= 85.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IMPERVIOUS PERVIOUS (i)
0.55 0.10
1.00 1.00
1.00 2.00
65.83 40.00
0.013 0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (ha)=
(mm)=
(%)=
(m)=
=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Dep. Storage
Average Slope
Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mannings n
                      Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                   108.92
5.00
1.51 (ii)
5.00
0.33
                                                                                                                                                                                                                                             64.33
10.00
6.00 (ii)
10.00
0.15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        *TOTALS*
0.076 (iii)
1.33
45.28
50.52
0.90
                        PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                            0.07
1.33
49.52
50.52
0.98
                                                                                                                                                                                                                                                0.01
1.42
30.31
50.52
0.60
                                                                                                                   4.76 | 1.417

4.76 | 1.500

5.79 | 1.583

5.79 | 1.667

7.53 | 1.833

11.20 | 1.917

11.20 | 2.000
                                                                                                                                                                                                                                             2.417
2.500
2.583
2.667
2.750
2.833
2.917
3.000
                                                                                                                                                                                                             33.31
17.99
17.99
12.60
12.60
9.82
9.82
                                                                                                                                                                                                                                                                                                                                                 3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6.12
5.48
5.48
4.97
4.97
4.56
4.56
                                                                                                                                                                                                                                                                                                                                                                                               3.68
3.47
3.47
3.28
3.28
3.12
3.12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IMPERVIOUS 0.49 0.09 1.00 1.00 2.00 62.18 40.00 0.29 0.013 0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Surface Area
Dep. Storage
Average Slope
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length
Mannings n
                      Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                   108.92
5.00
1.92 (ii)
5.00
0.31
                                                                                                                                                                                                                                               64.33
10.00
5.65 (ii)
10.00
0.15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HYETOGR
TIME
hrs
2.083
2.167
2.250
2.333
2.417
2.500
2.583
2.667
2.750
2.833
2.917
3.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RAIN | TIME mm/hr | hrs 3.57 | 1.083 | 3.57 | 1.167 | 4.07 | 1.250 | 4.07 | 1.250 | 5.79 | 1.583 | 5.79 | 1.583 | 5.79 | 1.583 | 5.79 | 1.583 | 1.750 | 7.53 | 1.750 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.2
                                                                                                                                                                                                                                                                                                                    *TOTALS*
0.179 (iii)
1.33
46.63
50.52
0.92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RAIN
mm/hr
25.64
108.92
108.92
33.31
17.99
17.99
12.60
9.82
9.82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RAIN
                        PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                         0.17
1.33
49.52
50.52
0.98
                                                                                                                                                                                                                                               0.01
1.42
30.31
50.52
0.60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                mm/hr
8.12
8.12
6.96
6.96
6.12
5.48
5.48
4.97
4.56
4.56
***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^\circ = 89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             108.92
5.00
1.86 (ii)
5.00
0.32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       64.33
10.00
5.58 (ii)
10.00
0.16
                                                                                                                   Area (ha)= 0.64
Total Imp(%)= 84.00 Dir. Conn.(%)= 84.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              *TOTALS*
0.159 (iii)
1.33
46.63
50.52
0.92
                                                                                                           PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0.15
1.33
49.52
50.52
0.98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0.01
1.42
30.31
50.52
0.60
                        Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        **** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                           NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0. Ia = Dep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                 RAIN TIME mm/hr hrs 3.57 1.083 3.57 1.167 4.07 1.333 4.76 1.417 4.76 1.500 5.79 1.687 7.53 1.750 7.53 1.833 11.20 1.917 11.20 2.000
                                                                                                                                                                                                   RANSFORMED HYETOGR RAIN | TIME mm/hr | hrs common record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record record r
                                                                                                                                                                                                                                                                                                     RAIN
mm/hr
8.12 |
8.12 |
6.96 |
6.96 |
6.12 |
5.48
5.48
4.97
4.56
4.56
                                                                                TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                             RAIN
mm/hr
4.22
4.22
3.93
3.68
3.68
3.47
3.28
3.28
3.12
3.12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IMPERVIOUS PERVIOUS (i)
0.51 0.12
1.00 1.00
1.00 2.00
64.81 40.00
0.013 0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (ha)=
(mm)=
(%)=
(m)=
                     Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                                   108.92
5.00
1.91 (ii)
5.00
0.31
                                                                                                                                                                                                                                             64.33
10.00
5.75 (ii)
10.00
0.15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                    *TOTALS*
0.175 (iii)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TIME
hrs
1.083
1.167
1.250
1.333
1.417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TIME
hrs
2.083
2.167
2.250
2.333
2.417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RAIN
mm/hr
8.12 |
8.12 |
6.96 |
6.96 |
                                                                                                                                                                        0.16
1.33
49.52
50.52
0.98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RAIN
mm/hr
25.64
108.92
108.92
33.31
17.99
17.99
12.60
9.82
9.82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                      PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                             0.01
1.42
30.31
50.52
0.60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RAIN
mm/hr
3.57
4.07
4.07
4.76
4.76
5.79
5.79
7.53
7.53
11.20
11.20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1.417
1.500
1.583
1.667
1.750
1.833
1.917
2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2.417
2.500
2.583
2.667
2.750
2.833
2.917
3.000
                        WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                        Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             108.92 64.33
5.00 10.00
1.90 (ii) 6.08 (ii)
```

RAIN mm/hr 4.22 4.22 3.93 3.68 3.68 3.47 3.47 3.28 3.28 3.12

mm/hi 4.22 4.22 3.93 3.68 3.68 3.47 3.28 3.12 3.12

RAIN mm/hr 4.22 4.22 3.93 3.68 3.68 3.47 3.28 3.28 3.12

```
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                         5.00
0.32
                                                                                                                                                                        10.00
0.15
                                                                                                                                                                                                                         *TOTALS*
0.168 (iii)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                       0.02
1.42
30.31
50.52
0.60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RAIN
mm/hr
3.57
4.07
4.07
4.76
4.76
5.79
5.79
7.53
7.53
11.20
11.20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TIME
hrs
1.083
1.167
1.250
1.333
1.417
1.500
1.583
1.667
1.750
1.833
1.917
2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RAIN
mm/hr
25.64
108.92
108.92
33.31
17.99
17.99
12.60
9.82
9.82
               PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                      0.15
1.33
49.52
50.52
0.98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2.083
2.167
2.250
2.333
2.417
2.500
2.583
2.667
2.750
2.833
2.917
3.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8.12
8.12
6.96
6.96
6.12
5.48
5.48
4.97
4.56
4.56
             * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
TIME TO PEAK (hrs)=
PEAK FLOW (hrs)=
RUNOFF VLLIME (mm)=
TRAL RAINFALL (mm)=
RUNOFF COEFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 108.92
5.00
1.64 (ii)
5.00
0.32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     64.33
15.00
10.84 (ii)
15.00
0.09
CALIB
| STANDHYD ( 20091)
|ID= 1 DT= 5.0 min
                                                                                Area (ha)= 0.40
Total Imp(%)= 77.00 Dir. Conn.(%)= 77.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       *TOTALS*
0.087 (iii)
1.33
43.74
50.52
0.87
                                                                        0.08
1.33
49.52
50.52
0.98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0.01
1.50
30.31
50.52
0.60
               Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                              ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                              NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                              (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^\circ=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                 TRANSFORMED HYETOGRAPH
TIME RAIN | TIME
hrs mm/hr | hrs |
1.083 25.64 | 2.083 |
1.167 25.64 | 2.167 |
1.250 108.92 | 2.250 |
1.250 108.92 | 2.250 |
1.333 108.92 | 2.333 |
1.410 33.31 | 2.417 |
1.833 108.92 | 2.333 |
1.410 33.31 | 2.417 |
1.833 17.99 | 2.667 |
1.833 17.99 | 2.667 |
1.833 12.60 | 2.833 |
1.750 12.60 | 2.833 |
1.917 9.82 | 2.917 |
2.000 9.82 | 3.000
                                                                                   TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                          TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                            mm/h
4.22
4.22
3.93
3.68
3.68
3.47
3.47
3.28
3.28
3.28
                                                                                                                                                                                                               6.96
6.96
6.12
6.12
5.48
5.48
4.97
4.56
4.56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Area (ha)= 0.07 Total Imp(\%)= 84.00 Dir. Conn.(\%)= 84.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (ha)=
(mm)=
(%)=
(m)=
              Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                 108.92
5.00
1.66 (ii)
5.00
0.32
                                                                                                                                                                      64.33
10.00
6.26 (ii)
10.00
0.15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TIRANSFORMED HYETOGRAF
TIME RAIN | TIME
In S mm/hr | hrs
1.083 | 25.64 | 2.083 |
1.167 | 25.64 | 2.167 |
1.250 | 108.92 | 2.250 |
1.333 | 108.92 | 2.333 |
1.417 | 33.31 | 2.417 |
1.333 | 108.92 | 2.333 |
1.417 | 33.31 | 2.417 |
1.333 | 108.92 | 2.363 |
1.417 | 33.31 | 2.417 |
1.583 | 17.99 | 2.667 |
1.583 | 17.99 | 2.667 |
1.583 | 12.60 | 2.750 |
1.833 | 12.60 | 2.833 |
1.917 | 9.82 | 2.917 |
2.000 | 9.82 | 3.000
                                                                                                                                                                                                                       *TOTALS*
0.104 (iii)
1.33
45.09
50.52
0.89
               PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                    0.09
1.33
49.52
50.52
0.98
                                                                                                                                                                          0.01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    mm/hr
3.57
3.57
4.07
4.76
4.76
5.79
5.79
7.53
11.20
11.20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             mm/hr
8.12
8.12
6.96
6.96
6.12
5.48
5.48
4.97
4.56
4.56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                    WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
               Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 108.92
5.00
0.98 (ii)
5.00
0.34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     64.33
5.00
4.83 (ii)
5.00
0.22
  CALIB NO (200812)
STANDHYD (200812)
LD= 1 DT= 5.0 min
Total Imp(%)= 70.00 Dir. Conn.(%)= 70.00

IMPERVIOUS PERVIOUS (i)
0.11 (i)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       *TOTALS*
0.020 (iii)
1.33
46.42
50.52
0.92
                                                                                                                                                                                                                                                                                                                                                                                                                                                              PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                        IMPERVIOUS
0.27
1.00
1.00
50.33
0.013
                                                                                                                                                              PERVIOUS (i)
0.11
1.00
2.00
40.00
0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0.02
1.33
49.52
50.52
0.98
                 Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                           ** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                              NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
               CN* = 89.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RAIN TIME mm/hr hrs hrs 1.083 3.57 1.167 4.07 1.333 4.76 1.417 4.76 1.500 5.79 1.667 7.53 1.750 7.53 1.833 1.20 1.917 11.20 2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RANSFORME
RAIN
mm/hr
25.64
25.64
108.92
108.92
133.31
17.99
17.99
12.60
9.82
9.82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TIME hrs 2.083 2.167 2.250 2.333 2.417 2.500 2.583 2.667 2.750 2.750 3.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RAIN
mm/hr
8.12
8.12
6.96
6.96
6.12
6.12
5.48
4.97
4.97
4.56
4.56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
  ADD HYD ( 0110)|
1 + 2 = 3 |
                                                                                                       AREA
(ha)
0.07
0.38
                          ID = 3 ( 0110):
                                                                                                  0.45 0.107
                                                                                                                                                                   1.33
                                                                                                                                                                                                  44.16
                NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                108.92
5.00
0.98 (ii)
5.00
0.34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    64.33
5.00
4.94 (ii)
5.00
0.22
| CALIB
| STANDHYD (200822)
|ID= 1 DT= 5.0 min
                                                                                Area (ha)= 0.39 
Total Imp(\%)= 59.00 Dir. Conn.(\%)= 59.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       *TOTALS*
0.020 (iii)
1.33
46.23
50.52
0.92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0.00
1.33
30.31
50.52
0.60
                                                                      0.02
1.33
49.52
50.52
0.98
                 Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                              NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                              (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN° = 89.0 Ia = Dep. Storage (Above)

ITAM STEP (DT) SHOULD BE SMALLER OR EQUAL

THAN THE STORAGE COEFFICIENT.

(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                   NSFORMED H RAIN | mm/hr | 25.64 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ..
                                                                                                                                                                            HYETOGR
TIME
hrs
2.083
2.167
2.250
2.333
2.417
2.500
2.583
2.667
2.750
2.750
2.833
2.917
3.000
                                                                                                                  TIME
hrs
1.083
1.167
1.250
1.333
1.417
1.500
1.583
1.667
1.750
1.750
1.750
1.917
2.000
                                                                                                                                                                                                                                                                        RAIN
mm/hr
4.22
4.22
3.93
3.68
3.68
3.47
3.47
3.28
3.28
                                                        TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.833
1.000
                                                                                    RAIN
mm/hr
3.57
3.57
4.07
4.76
4.76
5.79
5.79
7.53
11.20
11.20
                                                                                                                                                                                                                                         TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                               mm/hi
8.12
8.12
6.96
6.12
6.12
5.48
4.97
4.56
4.56
                                                                                                                                                                                                                                                                                                                                                                                                                                                ADD HYD ( 0111) |
1 + 2 = 3 |
ID1= 1 (200821):
+ ID2= 2 (200822):
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ID = 3 ( 0111):
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0.46 0.098
                                                                                                                                                                                                                                                                                                                                                                                                                                                               NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
              Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                   108.92
5.00
1.65 (ii)
5.00
0.32
                                                                                                                                                                       64.33
15.00
10.85 (ii)
15.00
0.09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Area (ha)= 0.47 Total Imp(\%)= 74.00 Dir. Conn.(\%)= 74.00
                                                                                                                                                                                                                       *TOTALS*
0.079 (iii)
1.33
41.62
50.52
0.82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IMPERVIOUS PERVIOUS (i)
0.35 0.12
1.00 1.00
1.00 2.00
55.98 40.00
0.013 0.290
                 PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                        0.07
1.33
49.52
50.52
0.98
                                                                                                                                                                        0.02
1.50
30.31
50.52
0.60
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (ha)=
(mm)=
(%)=
(m)=
=
              * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
               (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^\circ = 89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TIME
hrs
1.083
1.167
1.250
1.333
1.417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TIME
hrs
2.083
2.167
2.250
2.333
2.417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RAIN
mm/hr
8.12
8.12
6.96
6.96
6.12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RAIN
mm/hr
3.57
3.57
4.07
4.07
4.76
4.76
5.79
5.79
7.53
7.53
11.20
11.20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RAIN
mm/hr
25.64
108.92
108.92
33.31
17.99
17.99
12.60
9.82
9.82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
CALIB
STANDHYD (200821)
ID= 1 DT= 5.0 min
                                                                                 Area (ha)= 0.07 Total Imp(\%)= 83.00 Dir. Conn.(\%)= 83.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1.417
1.500
1.583
1.667
1.750
1.833
1.917
2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2.417
2.500
2.583
2.667
2.750
2.833
2.917
3.000
                                                                                                        IMPERVIOUS

0.06

1.00

1.00

21.60

0.013
                                                                                                                                                              PERVIOUS (i)
0.01
1.00
2.00
40.00
0.290
                Surface Area
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 108.92 64.33
5.00 10.00
1.74 (ii) 6.65 (ii)
                              NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
```

RAIN mm/hr 4.22 4.22 3.93 3.68 3.68 3.47 3.28 3.28 3.12 3.12

RAIN mm/hr 4.22 4.22 3.93 3.68 3.68 3.47 3.28 3.12 3.12

RAIN mm/hr 4.22 4.22 3.93 3.68 3.68 3.47 3.47 3.28 3.28

RAIN mm/hr 4.22 4.22 3.93 3.68 3.68 3.47 3.28 3.28 3.12

```
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Area (ha)= 0.87
Total Imp(%)= 67.00 Dir. Conn.(%)= 67.00
                                                                                                                               5.00
0.32
                                                                                                                                                                               10.00
0.14
                                                                                                                                                                                                                                 *TOTALS*
0.119 (iii)
                   PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                            0.10
1.33
49.52
50.52
0.98
                                                                                                                                                                             0.02
1.42
30.31
50.52
0.60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         IMPERVIOUS PERVIOUS (i)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (ha)=
(mm)=
(%)=
(m)=
=
                  * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                    (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               --- TRANSFORMED HYETOGR
TIME RAIN | TIME hrs mm/hr | hrs s
1.083 | 25.64 | 2.63 |
1.167 | 25.64 | 2.167 |
1.250 | 108.92 | 2.250 |
1.333 | 108.92 | 2.250 |
1.503 | 3.31 | 2.417 |
1.503 | 3.73 | 2.590 |
1.503 | 3.77 | 99 | 2.67 |
1.504 | 2.75 |
1.505 | 3.77 | 99 | 2.67 |
1.750 | 2.66 | 2.750 |
1.833 | 12.60 | 2.833 |
1.917 | 9.82 | 2.917 |
2.000 | 9.82 | 3.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RAIN
mm/hr
8.12
8.12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RAIN
mm/hr
3.57
4.07
4.07
4.76
5.79
5.79
7.53
11.20
11.20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              6.96
6.96
6.12
6.12
5.48
5.48
4.97
4.56
4.56
   CALIB
| STANDHYD ( 20101)
|ID= 1 DT= 5.0 min
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                     Area (ha)= 0.25
Total Imp(%)= 82.00 Dir. Conn.(%)= 82.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1.417
1.500
1.583
1.667
1.750
1.833
1.917
2.000
                                                                                   Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                108.92
5.00
2.10 (ii)
5.00
0.31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    64.33
15.00
11.30 (ii)
15.00
0.09
                                  NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                      --- TRANSFORMED HYETOG
TIME RAIN | TIME
hrs mm/hr | hrs
1.083 25.64 2.083
1.167 25.64 2.083
1.250 108.92 2.250
1.333 108.92 2.350
1.410 33.31 2.417
1.833 119.19 2.063
1.833 17.99 2.0667
1.750 12.60 2.750
1.833 12.60 2.833
1.917 9.82 2.917
2.000 9.82 3.000
                                                                                                                                                                             ED HYETOGRAF

TIME

hrs

2.083

2.167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        *TOTALS*
0.192 (iii)
1.33
43.17
50.52
0.85
                                                                                       RAIN TIME
mm/hr hrs
3.57 1.163
3.57 1.167
4.07 1.250
4.07 1.333
4.76 1.417
4.76 1.500
5.79 1.667
7.53 1.750
7.53 1.833
11.20 1.917
11.20 2.000
                                                             TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                   TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0.18
1.33
49.52
50.52
0.98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0.03
1.50
30.31
50.52
0.60
                                                                                                                                                                                                                                                                                     3.93
3.93
3.68
3.68
3.47
3.28
3.28
3.12
3.12
                                                                                                                                                                                                                       6.96
6.96
6.12
6.12
5.48
5.48
4.97
4.97
4.56
4.56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 I a= bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                  Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                      108.92
5.00
1.44 (ii)
5.00
0.33
                                                                                                                                                                            64.33
10.00
5.51 (ii)
10.00
0.16
                                                                                                                                                                                                                                                                                                                                                                                                                                                           CALIB | STANDHYD ( 20112) | ID= 1 DT= 5.0 min |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Area (ha)= 0.90 Total Imp(\%)= 80.00 Dir. Conn.(\%)= 80.00
                                                                                                                                                                                                                               *TOTALS*
0.068 (iii)
1.33
46.05
50.52
0.91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                            0.06
1.33
49.52
50.52
0.98
                                                                                                                                                                                 0.01
                  * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                   ---- TRANSFORMED HYETOG

TIME RAIN | TIME

hrs mm/hr | hrs

1.083 25.64 | 2.083

1.167 25.64 | 2.167

1.250 108.92 | 2.250

1.333 108.92 | 2.333

1.417 22.21 | 417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2.083
2.167
2.250
2.333
2.417
2.500
2.583
2.667
2.750
2.833
2.917
3.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           mm/hr
25.64
25.64
108.92
108.92
33.31
33.31
17.99
17.99
12.60
9.82
9.82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  mm/hr
3.57
3.57
4.07
4.76
4.76
5.79
7.53
7.53
11.20
11.20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              mm/hr
8.12
8.12
6.96
6.96
6.12
5.48
5.48
4.97
4.56
4.56
      1.333
1.417
1.500
1.583
1.667
1.750
1.833
1.917
2.000
                              ID = 3 ( 0121):
                                                                                                             0.72
                                                                                                                                  0.187
                   NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                108.92
5.00
2.12 (ii)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     64.33
10.00
6.40 (ii)
| CALIB |
                   Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                               5.00
0.31
                                                                                                                                                                               10.00
0.14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RANSFORME
RAIN
mm/hr
25.64
25.64
108.92
108.92
133.31
17.99
17.99
12.60
9.82
9.82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RAIN | TIME mm/hr | hrs 3.57 | 1.083 | 3.57 | 1.167 | 4.07 | 1.250 | 4.07 | 1.250 | 5.79 | 1.583 | 5.79 | 1.583 | 5.79 | 1.583 | 5.79 | 1.583 | 1.750 | 7.53 | 1.833 | 11.20 | 1.917 | 11.20 | 2.000
                                                                                                                                                                                                                               *TOTALS*
0.237 (iii)
1.33
45.67
50.52
0.90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TIME hrs 2.083 2.167 2.250 2.333 2.417 2.500 2.583 2.667 2.750 2.833 2.917 3.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RAIN
mm/hr
8.12
8.12
6.96
6.12
6.12
5.48
4.97
4.97
4.56
4.56
                                                                                                                                                                             0.02
1.42
30.31
50.52
0.60
                    PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                            0.22
1.33
49.52
50.52
0.98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                  * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                   (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN° = 89.0 Ia = Dep. Storage (Above)

ITAM STEP (DT) SMOULD BE SMALLER OR EQUAL

THAN THE STORAGE COEFFICIENT.

(iii) PEAK FLOW DOES NOT INCLIDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               108.92
5.00
1.74 (ii)
5.00
0.32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    64.33
10.00
5.47 (ii)
10.00
0.16
   | CALIB
| STANDHYD ( 20122)
|ID= 1 DT= 5.0 min
                                                                                     Area (ha)= 1.11 Total Imp(\%)= 81.00 Dir. Conn.(\%)= 81.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        *TOTALS*
0.129 (iii)
1.33
46.63
50.52
0.92
                                                                                                              IMPERVIOUS PERVIOUS (i)
0.90 0.21
1.00 1.00
1.00 2.00
86.02 40.00
0.013 0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0.12
1.33
49.52
50.52
0.98
                    Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                              (ha)=
(mm)=
(%)=
(m)=
=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                  NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN° = 89.0 Ia = Dep. Storage (Above)

ITAM STEP (DT) SHOULD BE SMALLER OR EQUAL

THAN THE STORAGE COEFFICIENT.

(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                          NSFORMED | RAIN | Mm/hr | 25.64 | 25.64 | 25.64 | 108.92 | 108.92 | 108.92 | 17.99 | 17.99 | 12.60 | 31.26 | 31.26 | 32.26 | 32.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 33.26 | 3
                                                                                                                  --- TR
TIME
hrs
1.083
1.167
1.250
1.333
1.417
1.500
1.583
1.667
1.750
1.833
1.917
2.000
                                                                                                                                                                                                                                                                                  RAIN
mm/hr
4.22
4.22
3.93
3.68
3.68
3.47
3.47
3.28
3.28
                                                            TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.833
1.000
                                                                                         RAIN
mm/hr
3.57
3.57
4.07
4.76
4.76
5.79
5.79
7.53
11.20
11.20
                                                                                                                                                                                   TIME hrs 2.083 2.167 2.250 2.333 2.417 2.500 2.583 2.667 2.750 2.833 2.917 3.000
                                                                                                                                                                                                                                                   TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                       8.12
8.12
6.96
6.96
6.12
5.48
4.97
4.56
4.56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Area (ha)= 0.47 Total Imp(\%)= 85.00 Dir. Conn.(\%)= 85.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       IMPERVIOUS PERVIOUS (i)
0.40 0.07
1.00 1.00
1.00 2.00
55.98 40.00
0.013 0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (ha)=
(mm)=
(%)=
(m)=
                  Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                         108.92
5.00
2.26 (ii)
5.00
0.30
                                                                                                                                                                            64.33
10.00
6.43 (ii)
10.00
0.14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RAIN TIME
mm/hr hrs
3.57 1.083
3.57 1.167
4.07 1.250
4.07 1.250
4.07 1.333
4.76 1.417
5.79 1.583
5.79 1.667
7.53 1.833
1.20 1.917
11.20 2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TRANSFORMED HYETOGRAPH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HYETOGE
TIME
1 hrs
2.083
2.167
2.250
2.333
2.417
2.500
2.583
2.667
2.750
2.750
2.833
2.917
3.000
                                                                                                                                                                                                                               *TOTALS*
0.294 (iii)
1.33
45.87
50.52
0.91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RAIN
mm/hr
25.64
108.92
108.92
33.31
33.31
17.99
17.99
12.60
12.60
9.82
9.82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RAIN
mm/hr
8.12 |
8.12 |
6.96 |
6.96 |
6.12 |
6.12 |
5.48
4.97
4.97
4.56
4.56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                     PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                              0.27
1.33
49.52
50.52
0.98
                                                                                                                                                                               0.03
1.42
30.31
50.52
0.60
                 * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                   (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^\circ = 89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 108.92
5.00
1.74 (ii)
5.00
0.32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     64.33
10.00
5.47 (ii)
10.00
0.16
   CALIB
STANDHYD (201021)
ID= 1 DT= 5.0 min
                                                                                      Area (ha)= 0.47 
Total Imp(\%)= 85.00 Dir. Conn.(\%)= 85.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         *TOTALS*
0.129 (iii)
1.33
46.63
50.52
0.92
                                                                                                              IMPERVIOUS

0.40

1.00

1.00

55.98

0.013
                                                                                                                                                                    PERVIOUS (i)
0.07
1.00
2.00
40.00
0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0.12
1.33
49.52
50.52
0.98
                    Surface Area
                                                                                                                                                                                                                                                                                                                                                                                                                                                           **** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                  NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
```

RAIN mm/hr 4.22 4.22 3.93 3.68 3.68 3.47 3.28 3.28 3.12 3.12

RAIN mm/hr 4.22 4.22 3.93 3.93 3.68 3.68 3.47 3.28 3.28 3.12 3.12

RAIN mm/hr 4.22 4.22 3.93 3.68 3.68 3.47 3.28 3.28 3.12 3.12

RAIN mm/hr 4.22 4.22 3.93 3.68 3.68 3.47 3.47 3.28 3.28 3.12

```
CN* = 89.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
 | ADD HYD ( 0136) |
| 1 + 2 = 3 |
                                                               AREA QPEAK
(ha) (cms)
0.47 0.129
0.47 0.129
                                                                                                      TPEAK
(hrs)
1.33
1.33
            ID1= 1 (201021):
+ ID2= 2 (201022):
                                                                                              1.33
                                                       0.94 0.259
                ID = 3 ( 0136):
                                                                                                                        46.63
           NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
CALIB
STANDHYD ( 2005)
ID= 1 DT= 5.0 min
                                                  Area (ha)= 0.28
Total Imp(%)= 90.00 Dir. Conn.(%)= 90.00
                                                                IMPERVIOUS
0.25
1.00
1.00
43.20
0.013
                                                                                                PERVIOUS (i)
0.03
1.00
2.00
40.00
0.290
          Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                (ha)=
(mm)=
(%)=
(m)=
                   NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                      D HYETOGRAPH
|' TIME
|' hrs m
| 2.083 8
| 2.167 8
                                                                                                                                                                   RAIN
mm/hr
4.22
3.93
3.93
3.68
3.47
3.47
3.28
3.12
                                                   RAIN TIME
mm/hr hrs
3.57 1.163
3.57 1.167
4.07 1.250
4.07 1.333
4.76 1.417
4.76 1.500
5.79 1.667
7.53 1.833
1.20 1.917
11.20 2.000
                                                                                                                                                TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                   TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                6.96
6.96
6.12
6.12
5.48
5.48
4.97
4.97
4.56
4.56
         Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                     108.92
5.00
1.49 (ii)
5.00
0.33
                                                                                                      64.33
5.00
4.59 (ii)
5.00
0.23
                                                                                                                                     *TOTALS*
0.081 (iii)
1.33
47.59
50.52
0.94
                                                                        0.08
1.33
49.52
50.52
0.98
           PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                         0.00
            WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
          IMPERVIOUS
0.62
1.00
1.00
86.02
0.013
                                                                                                  PERVIOUS (i)
0.49
1.00
2.00
40.00
0.290
           Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                   NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
          -----
                                                  Area (ha)= 0.11
Total Imp(%)= 87.00 Dir. Conn.(%)= 87.00
                                                                IMPERVIOUS PERVIOUS (i) 0.10 0.01 1.00 1.00 1.00 1.00 2.00 27.08 40.00 0.013 0.290
                                            (ha)=
(mm)=
(%)=
(m)=
=
           Surface Area
Dep. Storage
           Dep. Storage
Average Slope
Length
Mannings n
                   NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                          HYETOGR
TIME
hrs
2.083
2.167
2.250
2.333
2.417
                                                   RAIN TIME
mm/hr hrs
3.57 1.083
3.57 1.167
4.07 1.250
4.07 1.250
4.07 1.333
4.76 1.417
4.76 1.500
5.79 1.583
5.79 1.667
7.53 1.750
7.53 1.833
11.20 1.2000
                                                                                      ANSFORMED HYETOG

RAIN | TITUTE

mm/hr | hrs

225-64 | 2.067

108-92 | 2.250

108-92 | 2.353

33.31 | 2.417

33.33 | 2.417

33.31 | 2.500

17.99 | 2.687

17.99 | 2.687

12.60 | 2.833

9.82 | 2.917

9.82 | 3.000
                                   TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                RAIN
mm/hr
8.12
8.12
6.96
6.96
6.12
6.12
5.48
4.97
4.97
4.56
4.56
                                                                                                                                                TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                    RAIN
mm/hr
4.22
4.22
3.93
3.68
3.68
3.47
3.47
3.28
3.28
         Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                      108.92
5.00
1.13 (ii)
5.00
0.34
                                                                                                      64.33
5.00
4.61 (ii)
5.00
0.22
                                                                                                                                    *TOTALS*
0.031 (iii)
1.33
47.00
50.52
0.93
           PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                         0.03
1.33
49.52
50.52
0.98
                                                                                                       0.00
1.33
30.31
50.52
0.60
         * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
         (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0   Ia=\text{Dep}. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUIT. THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
 ADD HYD ( 0142) |
1 + 2 = 3 |
                                                               AREA QPEAK
(ha) (cms)
0.10 0.029
0.11 0.031
                                                                                                      TPEAK R.V.
(hrs) (mm)
1.33 47.49
1.33 47.00
            ID1= 1 (200111):
+ ID2= 2 (200121):
                ID = 3 ( 0142):
                                                                0.21 0.060
                                                                                                      1.33
                                                                                                                        47.23
          NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
CALIB
STANDHYD (200112)
ID= 1 DT= 5.0 min
                                                  Area (ha)= 0.10 Total Imp(\%)= 79.00 Dir. Conn.(\%)= 79.00
                                                                 IMPERVIOUS
0.08
1.00
1.00
25.69
0.013
                                                                                                  PERVIOUS (i)
0.02
1.00
2.00
40.00
0.290
                                                (ha)=
(mm)=
(%)=
(m)=
=
          Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                   NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
```

| 0.250 0.333 0.417 0.500 0.583 0.667 0.750 0.833 | RAIN TIME TI | 25.64 25.64 108.92 108.92 33.31 33.31 17.99 17.99 12.60 | 2.083 2.167 2.250 2.333 2.417 2.500 | RAIN mm/hr 8.12 8.12 6.96 6.12 6.12 5.48 5.48 4.97 4.56 4.56 | TIME hrs 3.08 3.17 3.25 3.33 3.42 3.50 3.58 3.67 3.75 3.83 3.92 4.00 | RAIN mm/hr 4.22 4.22 3.93 3.68 3.68 3.47 3.28 3.28 3.12 3.12 |
|--|--|--|--|--|---|---|
| Max.Eff.Inten.(mm/h over (mi Storage Coeff. (mi Unit Hyd. Tpeak (mi Unit Hyd. peak (cm: | r)= 108.92 n) 5.00 n)= 2.26 n)= 5.00 s)= 0.30 | (ii) | 64.33 15.00 11.46 (ii) 15.00 0.09 | | | |
| PEAK FLOW (CM: TIME TO PEAK (hr: RUNOFF VOLUME (M: TOTAL RAINFALL (M: RUNOFF COEFFICIENT | s)= 0.19 s)= 1.33 n)= 49.52 n)= 50.52 = 0.98 | | 0.05 1.50 30.31 50.52 0.60 | *TOTA 0.2 1. 41.0 50. | 14 (iii) 33 06 52 | |
| **** WARNING: STORAGE CO | | | | | | |
| (i) CN PROCEDURE | SELECTED FOR P | ERVIOUS | LOSSES: | | | |
| $CN^* = 89.0$ (ii) TIME STEP (DT) | Ia = Dep.) SHOULD BE SM | Storage ALLER OR | (Above) EQUAL | | | |
| (i) CN PROCEDURE: CN* = 89.0 (ii) TIME STEP (DT THAN THE STOR (iii) PEAK FLOW DOE: | AGE COEFFICIEN S NOT INCLUDE | T. BASEFLOW | IF ANY. | | | |
| | | | | | | |
| CALIB STANDHYD (200111) AI ID= 1 DT= 5.0 min To | rea (ha)= otal Imp(%)= | | | (%)= 89 | . 50 | |
| Length (I Mannings n | a)= | | RVIOUS (i) 0.01 1.00 2.00 40.00 0.290 | | | |
| NOTE: RAINFALL | WAS TRANSFORM | ED TO | 5.0 MIN. TI | ME STEP | | |
| | TR | ANSFORME | D HYETOGRAF | ч | | |
| hrs 0.083 0.167 0.250 0.333 0.417 0.500 0.583 0.667 0.750 0.833 | RAIN TIME mm/hr hrs 3.57 1.083 3.57 1.167 4.07 1.250 4.07 1.333 4.76 1.417 4.76 1.500 5.79 1.583 5.79 1.667 7.53 1.750 7.53 1.833 11.20 1.917 11.20 2.000 | RAIN mm/hr 25.64 108.92 108.92 33.31 17.99 17.99 12.60 9.82 9.82 | hrs 2.083 2.167 2.250 2.333 2.417 2.500 2.583 2.667 2.750 2.833 2.917 | RAIN mm/hr 8.12 8.12 8.12 6.96 6.96 6.12 6.12 5.48 5.48 4.97 4.56 4.56 | TIME hrs 3.08 3.17 3.25 3.33 3.42 3.50 3.58 3.67 3.75 3.83 3.92 4.00 | RAIN mm/hr 4.22 4.22 3.93 3.68 3.68 3.47 3.47 3.28 3.28 3.12 3.12 |
| Max.Eff.Inten.(mm/h over (mi Storage Coeff. (mi Unit Hyd. Tpeak (mi Unit Hyd. peak (cm | n) 5.00 n)= 1.10 | (ii) | 64.33 5.00 4.26 (ii) 5.00 0.23 | | | |
| PEAK FLOW (cm: | s)= 0.03 | | 0.00 1.33 30.31 50.52 0.60 | *TOTAL 0.0 1. 47. 50. 0. | 29 (iii) 33 49 52 | |
| **** WARNING: STORAGE CO | | | TIME STEP! | | | |
| (i) CN PROCEDURE | SELECTED FOR P | ERVIOUS | LOSSES: | | | |
| | | | | | | |
| | | | | | | |
| hrs 1 0.083 0.167 0.250 0.333 0.417 0.500 0.583 0.667 | 3.57 1.083 3.57 1.167 4.07 1.250 4.07 1.333 4.76 1.417 4.76 1.500 5.79 1.583 | ANSFORMEI RAIN mm/hr 25.64 108.92 108.92 33.31 33.31 17.99 17.99 12.60 | 2.500 | 8.12 8.12 6.96 6.12 6.12 5.48 | TIME hrs 3.08 3.17 3.25 3.33 3.42 3.50 3.58 3.67 | RAIN mm/hr 4.22 4.22 3.93 3.93 3.68 3.68 3.47 3.47 |
| 0.750 0.833 | 7.53 1.750 7.53 1.833 | 12.60 | 2.750 2.833 | 4.97 4.97 | 3.75 | 3.28 |

| 0.1667 3.57 0.200 4.77 0.333 4.07 0.417 4.76 0.500 4.76 0.583 5.79 0.667 7.73 0.683 7.33 0.917 11.30 | 1.167 25.64 1.250 108.92 1.333 108.92 1.417 33.31 1.500 33.31 1.583 17.99 1.667 17.99 1.750 12.60 1.833 12.60 1.917 9.82 2.000 9.82 | 2.167 2.250 2.333 2.417 2.500 2.583 2.667 2.750 2.833 2.917 3.000 | 8.12 3.17 4. 6.96 3.23 3. 6.12 3.42 3. 6.12 3.50 3. 5.48 3.58 3. 5.48 3.67 3. 4.97 3.75 3. 4.97 3.75 3. 4.97 3.75 3. 4.96 3.92 3. 4.56 4.00 3. | 22 93 93 68 68 47 47 28 28 12 |
|--|---|---|--|---|
| Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= | 108.92 5.00 1.09 (ii) 5.00 0.34 | 64.33 10.00 5.48 (ii) 10.00 0.16 | | |
| PEAK FLOW (cms)= TIME TO PEAK (hrs)= RUNOFF VOLUME (mm)= TOTAL RAINFALL (mm)= RUNOFF COEFFICIENT = | 0.02 1.33 49.52 50.52 0.98 | 0.00 1.42 30.31 50.52 0.60 | *TOTALS* 0.026 (iii) 1.33 45.46 50.52 0.90 | |
| **** WARNING: STORAGE COEFF. | | | | |
| (i) CN PROCEDURE SELECT Cn* = 89.0 IE (ii) TIME STEP (DT) SHOOL THAN THE STORAGE CC (iii) PEAK FLOW DOES NOT | 1 = Dep. Storage | (Above) | | |
| CALIB STANDHYD (200122) Area ID= 1 DT= 5.0 min Total 1 | (ha)= 0.13 Emp(%)= 86.00 | Dir. Conn. | (%)= 86.00 | |
| Surface Area (ha)= Dep. Storage (mn)= Average Slope (%)= Length (m)= Mannings n = | IMPERVIOUS PE 0.11 1.00 1.00 29.44 0.013 | ERVIOUS (i) 0.02 1.00 2.00 40.00 0.290 | | |
| NOTE: RAINFALL WAS T | RANSFORMED TO | 5.0 MIN. T | IME STEP. | |
| TIME RAIN hrs mm/hr 0.083 3.57 0.167 3.57 0.250 4.07 0.417 4.76 0.583 5.79 0.667 5.79 0.763 7.53 0.833 7.53 0.917 11.20 | TIME RAIN HAS RAIN HAN HAS RAIN HAN HAN HAN HAN HAN HAN HAN HAN HAN HA | ED HYETOGRAI | PH RAIN TIME mm/hr hrs mm 8.12 3.08 4.12 3.17 4.6.96 3.25 3.17 4.6.96 1.325 3.3 3.4.5 4.28 3.38 3.3 3.5 4.49 7.1 3.83 3.4.56 1.2 3.60 3.3 3.4.56 1.2 3.60 3.3 3.4.56 1.2 3.60 3.3 3.4.56 1.2 3.60 3.3 3.4.56 1.2 3.60 3.3 3.4.56 1.2 3.60 3.3 3.4.56 1.2 3.60 3.3 3.4.56 1.2 3.60 3.3 3.4.56 1.2 3.60 3.3 3.4.56 1.2 3.60 3.3 3.4.56 1.2 3.60 3.3 3.4.56 1.2 3.60 3.3 3.4.56 1.2 3.60 3.3 3.4.56 1.2 3.60 3.3 3.4.56 1.2 3.60 3.3 3.4.56 1.2 3.60 3.3 3.4.56 1.2 3.60 3.3 3.4.56 1.2 3.60 3.3 3.4 3.56 1.2 3.60 3.3 3.4 3.56 1.2 3.60 3.3 3.4 3.56 1.2 3.60 3.3 3.4 3.56 1.2 3.60 3.3 3.4 3.56 1.2 3.60 3.3 3.4 3.56 1.2 3.60 3.3 3.4 3.56 1.2 3.60 3.3 3.4 3.56 1.2 3.60 3.3 3.4 3.56 1.2 3.60 3.3 3.4 3.56 1.2 3.60 3.3 3.4 3.56 1.2 3.60 3.50 3.50 3.50 3.50 3.50 3.50 3.50 3.5 | AIN 1/hr 22 23 93 93 68 68 47 47 28 28 12 |
| Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= | 108.92 5.00 1.19 (ii) 5.00 0.33 | 64.33 5.00 4.79 (ii) 5.00 0.22 | *TOTALS* | |
| PEAK FLOW (cms)= TIME TO PEAK (hrs)= RUNOFF VOLUME (mm)= TOTAL RAINFALL (mm)= RUNOFF COEFFICIENT = | 0.03 1.33 49.52 50.52 0.98 | 0.00 1.33 30.31 50.52 0.60 | 0.037 (iii) 1.33 46.81 50.52 0.93 | |
| **** WARNING: STORAGE COEFF. | | | | |

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

```
 \begin{array}{c} \text{CN}^{\pm} = 89.0 \quad \text{Ia = Dep. Storage} \quad \text{(Above)} \\ \text{(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL} \\ \text{THAN THE STORAGE COEFFICIENT.} \\ \text{(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.} \\ \end{array} 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               73.03
0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             40.00
0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TRANSFORMED HYETOGRAPH

RE RAIN | TIME |
183 30.27 | 2.083 9
77 30.27 | 2.167 9
10 126.55 | 2.250 8
13 126.55 | 2.333 8
17 39.22 | 2.417 7
13 39.22 | 2.417 7
13 39.22 | 2.500 7
15 1.1 35 | 2.667 9
15 1.1 35 | 2.67 9
15 1.1 35 | 2.67 9
15 1.1 35 | 2.67 9
15 1.1 35 | 2.67 9
15 1.1 35 | 2.67 9
15 1.1 35 | 2.67 9
15 1.1 35 | 2.67 9
15 1.1 35 | 2.67 9
15 1.1 35 | 2.67 9
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15 1.1 35 | 2.67 9
15 1.1 35 | 2.67 9
15 1.1 35 | 2.67 9
15 1.1 35 | 2.67 9
15 1.1 35 | 2.67 9
15 1.1 35 | 2.67 9
15 1.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RAIN TIME
mm/hr hrs
4 .32 1.083
4 .91 1.167
4 .91 1.333
5.73 1.417
5.73 1.500
6.96 1.687
9.03 1.833
13.36 1.917
13.36 2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
      ADD HYD ( 0145)|
1 + 2 = 3 |
                                                                                                                                      AREA QPEAK TPEAK (ha) (cms) (hrs) 0.10 0.026 1.33 0.13 0.037 1.33
                             ID1= 1 (200112):
+ ID2= 2 (200122):
                                    ID = 3 ( 0145): 0.23 0.063 1.33
                          NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
                                   V V I SSSSS U U A L
V V I SS U U AA L
V V I SS U U AAAAA L
V V I SS U U AAAAA L
W I SSSS UUUUU A A LLLLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           126.55
5.00
1.93 (ii)
5.00
0.31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            80.98
10.00
5.43 (ii)
10.00
0.16
*TOTALS*
0.257 (iii)
1.33
55.65
59.72
0.93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0.24
1.33
58.72
59.72
0.98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0.02
1.42
38.27
59.72
0.64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                          **** DETAILED OUTPUT ****
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \mathbb{C} \mathbb{N}^{\circ} = 89.0. If a pep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
          Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\V02\Voin.dat
Output filename: C:\User$\caef070146\appoata\Loca\\civica\\H5\90564c49-8c07-4086-8157-8729fb3caba3\219ec28a
summary filename: C:\User$\caef070146\appoata\Loca\\civica\\H5\90564c49-8c07-4086-8157-8729fb3caba3\219ec28a
 DATE: 05-18-2022
                                                                                                                                                                                                          TIME: 12:44:42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IMPERVIOUS PERVIOUS (i)
0.62 0.08
1.00 1.00
1.00 2.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Surface Area
Dep. Storage
Average Slope
Length
Mannings n

(ha)=
(mm)=
(%)=
(%)=
(m)=
          NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TRANSFORMED HYETOGRAPH
ME RAIN 'TIME
83 30.27 2.083 9
67 30.27 2.167 9
50 126.55 2.250 8
31 126.55 2.333 8
170 39.22 2.417 7
39.12 2.417 7
39.12 2.417 7
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39.12 2.417 7
39.
                                                                                                             Filename: C:\Users\caef070146\AppD
ata\Local\Temp\
11403a02-80e0-48b3-97a8-b203216ba841\63724dd9
Comments: 10-year, 4 hr-Chicago, City of Barrie
                 READ STORM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TIME
hrs
1.083
1.167
1.250
1.333
1.417
1.500
1.583
1.667
1.750
1.833
1.917
2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RAIN
mm/hr
4.32
4.32
4.91
4.91
5.73
5.73
6.96
6.96
9.03
9.03
13.36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RAIN
mm/hr
9.72
9.72
8.53
7.35
6.59
6.59
5.99
5.50
5.50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             mm/hr
5.09
5.09
4.74
4.45
4.45
4.49
4.19
3.97
3.97
3.77
                                                                                                          RAIN | TIME RAIN | TIME mm/hr hrs mm/hr hrs mm/hr hrs 1.17 30.27 2.17 4.91 1.33 126.55 2.33 5.73 1.50 30.696 1.67 21.35 2.67 9.03 1.83 15.36 2.00 11.74 3.00
                                                                                                                                                                                                                                                                          RAIN | TIME
mm/hr | hrs
9.72 | 3.17
8.53 | 3.33
7.35 | 3.50
6.59 | 3.67
5.99 | 3.83
5.50 | 4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           126.55
5.00
1.85 (ii)
5.00
0.32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             80.98
5.00
4.89 (ii)
5.00
0.22
     | CALIB | | STANDHYD ( 20022) | ID= 1 DT= 5.0 min |
                                                                                                          Area (ha)= 0.80
Total Imp(%)= 85.00 Dir. Conn.(%)= 85.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             *TOTALS*
0.234 (iii)
1.33
56.47
59.72
                                                                                                                                      IMPERVIOUS PERVIOUS (i)
0.68 0.12
1.00 1.00
1.00 2.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0.22
1.33
58.72
59.72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0.02
1.33
38.27
59.72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PEAK FLOW
TIME TO PEAK
RUNOFF VOLUME
TOTAL RAINFALL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           126.55
39.22
39.22
21.35
21.35
15.01
15.01
11.74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4.91
5.73
5.73
6.96
6.96
9.03
9.03
13.36
13.36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1.333
1.417
1.500
1.583
1.667
1.750
1.833
1.917
2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2.333
2.417
2.500
2.583
2.667
2.750
2.833
2.917
3.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8.53
7.35
7.35
6.59
6.59
5.99
5.99
5.50
5.50
                      RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4.74
4.45
4.45
4.19
4.19
3.97
3.97
3.77
  ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 In a Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           126.55
5.00
1.64 (ii)
5.00
0.32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             80.98
5.00
4.92 (ii)
5.00
0.22
    *TOTALS*
0.156 (iii)
1.33
56.06
59.72
0.94
                                                                                                                            IMPERVIOUS (1)
= 0.39 0.04
= 1.00 1.00
= 1.00 2.00
= 53.54 40.00
= 0.013 0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0.14
1.33
58.72
59.72
0.98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0.01
1.33
38.27
59.72
0.64
                         Surface Area (ha) = Dep. Storage (mm) = Average Slope (%) = Length (m) = Mannings n =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                            NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^\circ=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                         TIME
hrs
1.083
1.167
1.250
1.333
1.417
                                                                            TIME
hrs
0.083
0.167
0.250
0.333
0.417
                                                                                                                 RAIN
mm/hr
4.32
4.32
4.91
4.91
5.73
6.96
6.96
9.03
9.03
                                                                                                                                                                                                                                                                            RAIN
mm/hr
9.72 |
9.72 |
8.53 |
8.53 |
7.35 |
6.59 |
6.59 |
5.99 |
5.99 |
5.99 |
5.90 |
                                                                                                                                                                                                                                                                                                             TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                       RAIM
mm/hi
5.09
5.09
4.74
4.74
4.45
4.45
4.19
4.19
3.97
3.97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CALIB
| STANDHYD ( 20041)
|ID= 1 DT= 5.0 min
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Area (ha)= 0.35 Total Imp(\%)= 89.00 Dir. Conn.(\%)= 89.00
                                                                                                          5.73 | 1.417
5.73 | 1.500
6.96 | 1.583
6.96 | 1.667
9.03 | 1.750
9.03 | 1.833
13.36 | 1.917
13.36 | 2.000
                                                                            0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IMPERVIOUS PERVIOUS (i)
0.31 0.04
1.00 1.00
1.00 2.00
48.30 40.00
0.013 0.290
                                                                                                                                                 126.55
5.00
1.60 (ii)
5.00
0.32
                      Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                       80.98
5.00
4.51 (ii)
5.00
0.23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   *TOTALS*
0.145 (iii)
1.33
56.67
59.72
0.95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RAIN
mm/hr
9.72 |
9.72 |
8.53 |
7.35
7.35
7.35
6.59
6.59
5.99
5.90
5.50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.92
4.00
                                                                                                                                                        0.14
1.33
58.72
59.72
0.98
                                                                                                                                                                                                                    0.01
1.33
38.27
59.72
0.64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           mm/hr
5.09
5.09
4.74
4.74
4.45
4.45
4.19
3.97
3.97
3.77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                      * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: (\text{ii)} \quad \text{TM}^* = 89.0 \quad \text{ii} \quad \text{Dep. Storage} \quad (\text{Above}) (ii) THAN THE STORAGE CODEFICIENT. (\text{iii)} \quad \text{PEAR} \quad \text{THAN THE STORAGE CODE BASEFLOW IF ANY.}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      126.55
5.00
1.50 (ii)
5.00
0.33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Max.Eff.Inten.(mm/hr) = over (min)
Storage Coeff. (min) =
Unit Hyd. Tpeak (min) =
Unit Hyd. peak (cms) =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         80.98
5.00
4.55 (ii)
5.00
0.23
     CALIB
5TANDHYD (20032)
10-1 DT= 5.0 min
Total Imp(%)= 87.00 bir. Conn.(%)= 87.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           *TOTALS*
0.118 (iii)
1.33
56.47
59.72
0.95
                                                                                           0.11
1.33
58.72
59.72
0.98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0.01
1.33
38.27
59.72
0.64
                        Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                            NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^\circ = 89.0 Ia = Dep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                          TIME RAIN | TIME RAIN | TIME RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | T
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```
1.42 (ii)
5.00
0.33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                              Area (ha)= 0.36
Total Imp(%)= 85.00 Dir. Conn.(%)= 85.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                *TOTALS*
0.089 (iii)
1.33
54.21
59.72
0.91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0.08
1.33
58.72
59.72
0.98
                                                                                                                                                                                                                                                                                  PERVIOUS (i)
0.05
1.00
2.00
40.00
0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0.01
1.42
38.27
59.72
0.64
                                                                                                                                                                                           IMPERVIOUS
                               Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                               0.31
1.00
1.00
48.99
0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                       NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^\circ = 89.0 Ia = Dep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                               RANSFORMED HYETUGE RAIN ! THOSE MINISTER PROPERTY | THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE RAIN ! THOSE
                                                                                                                                                                                                 TIME hrs 1.083 1.167 1.250 1.333 1.417 1.500 1.583 1.667 1.750 1.833 1.917 2.000
                                                                                                                                                                                                                                                                                                                                                                                                                            3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                  hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.750
0.833
0.917
1.000
                                                                                                                                                  mm/hr
4.32
4.91
4.91
5.73
5.73
6.96
6.96
9.03
9.03
13.36
13.36
                                                                                                                                                                                                                                                                                                                                                                           mm/hr
9.72
9.72
8.53
8.53
7.35
6.59
6.59
5.99
5.50
5.50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     mm/h
5.09
5.09
4.74
4.74
4.45
4.19
4.19
3.97
3.97
3.77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CALIB
STANDHYD ( 20062) | Area (ha)= 0.73
ID= 1 DT= 5.0 min | Total Imp(%)= 80.00 Dir. Conn.(%)= 80.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IMPERVIOUS PERVIOUS (i)
0.58 0.15
1.00 1.00
1.00 2.00
69.76 40.00
0.013 0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                         Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                        126.55
5.00
1.52 (ii)
5.00
0.33
                                                                                                                                                                                                                                                                                                     80.98
10.00
5.02 (ii)
10.00
0.16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RAIN | TIME mm/hr | hrs | 4.32 | 1.083 | 4.32 | 1.167 | 4.91 | 1.250 | 5.73 | 1.417 | 5.73 | 1.500 | 6.96 | 1.583 | 6.96 | 1.667 | 9.03 | 1.750 | 9.03 | 1.750 | 9.03 | 1.333 | 1.336 | 2.000
                                                                                                                                                                                                                                                                                                                                                                                            *TOTALS*
0.116 (iii)
1.33
55.65
59.72
0.93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TIME hrs
2.083
2.167
2.250
2.333
2.417
2.500
2.583
2.667
2.750
2.833
2.917
3.000
                                                                                                                                                                                                               0.11
1.33
58.72
59.72
0.98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RAIN
mm/hr
30.27
126.55
126.55
39.22
21.35
21.35
15.01
11.74
11.74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RAIN
mm/hr
9.72
9.72
8.53
8.53
7.35
6.59
6.59
5.99
5.50
5.50
                                                                                                                                                                                                                                                                                                     0.01
1.42
38.27
59.72
0.64
                             PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                        * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                           (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0   Ia=\text{Dep}. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     80.98
10.00
5.91 (ii)
10.00
0.15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             126.55
5.00
1.87 (ii)
5.00
0.32
                                                                                                                                             Area (ha)= 0.29 Total Imp(\%)= 78.00 Dir. Conn.(\%)= 78.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                *TOTALS*
0.227 (iii)
1.33
54.63
59.72
0.91
                                                                                                                                (ha)= 0.23

(mm)= 1.00

(%)= 1.00

(m)= 43.97

= 0.013
                                                                                                                                                                                                                                                                   PERVIOUS (i)
0.06
1.00
2.00
40.00
0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0.20
1.33
58.72
59.72
0.98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0.03
1.42
38.27
59.72
0.64
                           Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                     NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                      TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.508
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                      RAIN
mm/hr
4.32
4.32
4.91
5.73
5.73
6.96
6.96
9.03
9.03
13.36
                                                                                                                                                                                                                                                                                                                                                                          RAIN
mm/hr
9.72 |
9.72 |
8.53 |
7.35 |
7.35 |
6.59 |
6.59 |
5.99 |
5.50 |
                                                                                                                                                                                                                                                                                                                                                                                                                          TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (ha)= 0.55 0.10 (i)

(mm)= 1.00 1.00 (%)= 1.00 2.00 (m)= 65.83 40.00 (m)= 0.013 0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                           Max.Eff.Inten.(mm/hr)=
over (min)
                                                                                                                                                                                                    126.55
5.00
                                                                                                                                                                                                                                                                                                       80.98
10.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\pm} = 89.0 I a = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                             RAIN TIME
mm/hr 1184
4 32 1.167
4 91 1.250
4 91 1.333
5.73 1.417
5.73 1.500
6.96 1.687
9.03 1.833
13.36 1.917
13.36 2.000
                                                                                                                                                                                                                                                   ANSFORMED HYETOGE RAIN | TIME mm/hr | TIME mm/hr | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET COME | NET 
                                                                                                                                                                                                                                                                                                                                                                          RAIN
mm/hr
9.72
9.72
8.53
8.53
7.35
6.59
6.59
5.50
5.50
                                                                                                                                                                                                                                                                                                                                                                                                                             TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                    TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5.09
5.09
4.74
4.74
4.45
4.45
4.19
3.97
3.97
3.77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | CALIB | STANDHYD ( 20071) | Area (ha) = 0.58 | Dir. Conn.(%) = 85.00 | Total Imp(%) = 85.00 | Dir. Conn.(%) = 85.00 | Total Imp(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Conn.(%) = 85.00 | Dir. Co
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (ha)= IMPERVIOUS PERVIOUS (i) (mm)= 1.00 1.00 2.00 (m)= 62.18 40.00 0.290 (m)= 62.013 0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Dep. Storage
Average Slope
Length
Mannings n
                           Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                        126.55
5.00
1.81 (ii)
5.00
0.32
                                                                                                                                                                                                                                                                                                   80.98
10.00
5.32 (ii)
10.00
0.16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RAIN | TIME RAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN | TIME TAIN |
                                                                                                                                                                                                                                                                                                                                                                                              *TOTALS*
0.209 (iii)
1.33
55.65
59.72
0.93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.675
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RAIN
mm/hr
9.72 |
9.72 |
8.53
8.53
7.35 |
7.35 |
6.59 |
6.59 |
5.99 |
5.99 |
5.50 |
                             PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                               0.19
1.33
58.72
59.72
0.98
                                                                                                                                                                                                                                                                                                     0.02
1.42
38.27
59.72
0.64
***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                           Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          126.55
5.00
1.75 (ii)
5.00
0.32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        80.98
10.00
5.26 (ii)
10.00
0.16
 CALIB | Area (ha) = 0.64 | Dir. Conn.(%) = 84.00 | IMPERVIOUS | PERVIOUS (i)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                *TOTALS*
0.187 (iii)
1.33
55.65
59.72
0.93
                                                                                                                      PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0.17
1.33
58.72
59.72
0.98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0.02
1.42
38.27
59.72
0.64
                           Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                     NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                    TRANSFORMED HYETOGRAPH

RE RAIN | ' TIME R

R33 30.27 | 2.083 | 99.

77 30.27 | 2.167 | 9.

83 126.555 | 2.250 | 8.

83 126.555 | 2.333 | 8.

83 126.555 | 2.333 | 8.

83 126.555 | 2.333 | 8.

83 126.555 | 2.333 | 8.

83 126.555 | 2.333 | 8.

83 126.555 | 2.333 | 8.

83 126.555 | 2.333 | 8.

83 126.555 | 2.333 | 8.

83 126.555 | 2.333 | 8.

83 126.555 | 2.333 | 8.

83 126.55 | 2.333 | 5.

83 126.55 | 2.683 | 6.

84 20.35 | 2.683 | 6.

85 15.01 | 2.750 | 5.

83 15.01 | 2.750 | 5.

83 15.01 | 2.750 | 5.

83 15.01 | 2.750 | 5.

83 15.01 | 2.750 | 5.

83 15.01 | 2.750 | 5.

84 20.55 | 5.

85 20.55 | 5.

86 20.55 | 5.

87 21.35 | 2.667 | 6.

87 21.35 | 2.667 | 6.

88 20.55 | 6.

89 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 6.

80 20.55 | 7.

80 20.55 | 7.

80 20.55 | 7.

80 20.55 | 7.

80 20.55 | 7.

80 20.55 | 7.

80 20.55 | 7.

80 20.55 | 7.

80 20.55 | 7.

80 20.55 | 7.

80 20.55 | 7.

80 20.55 | 7.

80 20.55 | 7.

80 20.55 | 7.

80 20.55 | 7.

80 20.55 | 7.

80 20.55 | 7.

80 20.55 | 7.

80 20.55 | 7.

80 20.55 | 7.

80 20.55 | 7.

80 20.55 | 7.

80 20.55 | 7.

80 20.55 | 7.

80 20.55 | 7.

80 20.55 | 7.

80 20.55 | 7.

80 20.55 | 7.

80 20.55 | 7.

80 20.55 | 7.

                                                                                                    TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.508
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                  RAIN
mm/hr
4.32
4.32
4.91
4.91
5.73
5.73
6.96
6.96
9.03
9.03
13.36
13.36
                                                                                                                                                                                                        TIME
hrs
1.083
1.167
1.250
1.333
1.417
1.500
1.583
1.667
1.750
1.833
1.917
2.000
                                                                                                                                                                                                                                                                                                                                                                           RAIN
mm/hr
9.72
9.72
8.53
8.53
7.35
7.35
6.59
6.59
5.99
5.99
5.50
                                                                                                                                                                                                                                                                                                                                                                                                                            TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RAI
mm/h
5.09
5.09
4.74
4.74
4.45
4.19
4.19
3.97
3.97
3.77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Area (ha)= 0.63
Total Imp(%)= 81.00 Dir. Conn.(%)= 81.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                             Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                        126.55
5.00
1.80
5.00
0.32
                                                                                                                                                                                                                                                                                                     80.98
10.00
5.42 (ii)
10.00
0.16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                      (ii)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TRANSFORMED
ME RAIN |
"5 mm/hr |
167 30.27 |
160 126.55 |
17 39.22 |
17 39.22 |
18 21.35 |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ) HYETOGRAPH

TIME

hrs m

2.083 5

2.167 2

2.250 4

2.333 2

2.417

2.500

2.583
                                                                                                                                                                                                                                                                                                                                                                                          *TOTALS*
0.205 (iii)
1.33
55.45
59.72
0.93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RAIN | RAIN | Mm/hr | 9.72 | 9.72 | 8.53 | 8.53 | 7.35 | 7.35 | 6.59 |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TIME
hrs
0.083
0.167
0.250
0.333
0.417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TIME
hrs
1.083
1.167
1.250
1.333
1.417
1.500
1.583
                             PEAK FLOW
TIME TO PEAK
RUNOFF VOLUME
                                                                                                                                                                                                                   0.19
1.33
58.72
59.72
0.98
                                                                                                                                                                                                                                                                                                     0.02
1.42
38.27
59.72
0.64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RAIN
mm/hr
4.32
4.32
4.91
4.91
5.73
5.73
6.96
                      ** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
```

RAIN mm/hr 5.09 4.74 4.74 4.45 4.45 4.19 4.19 3.97 3.97 3.77

RAIN mm/hr 5.09 5.09 4.74 4.74 4.45 4.45 4.19 4.19 3.97 3.97 3.77

```
0.27
1.00
1.00
50.33
0.013
                                                                                                                          6.96 | 1.667
9.03 | 1.750
9.03 | 1.833
13.36 | 1.917
13.36 | 2.000
                                                                                                                                                                                                           21.35 | 2.667
15.01 | 2.750
15.01 | 2.833
11.74 | 2.917
11.74 | 3.000
                                                                                                                                                                                                                                                                                                           6.59
5.99
5.50
5.50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0.11
1.00
2.00
                      Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                      126.55
5.00
1.79 (ii)
5.00
0.32
                                                                                                                                                                                                                                                80.98
10.00
5.72 (ii)
10.00
0.15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RAIN TIME mm/hr hrs 4.32 1.083 4.91 1.250 4.91 1.250 4.91 1.333 5.73 1.417 5.73 1.500 6.96 1.687 9.03 1.750 9.03 1.833 1.336 1.917 13.36 2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ANSFORMED HYETOGR RAIN | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME 
                                                                                                                                                                                                                                                                                                                       *TOTALS*
0.198 (iii)
1.33
54.83
59.72
0.92
                      PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                        0.18
1.33
58.72
59.72
0.98
                                                                                                                                                                                                                                                 0.02
1.42
38.27
59.72
0.64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RAIN
mm/hr
9.72 |
9.72 |
8.53 |
8.53 |
7.35 |
6.59 |
6.59 |
5.50 |
5.50 |
                        WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\pm}=89.0   Ia=\text{bep}. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 126.55
5.00
1.54 (ii)
5.00
0.33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            80.98
10.00
9.93 (ii)
10.00
0.11
                                                                                                   Area (ha)= 0.40 Total Imp(\%)= 77.00 Dir. Conn.(\%)= 77.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PEAK FLOW (cms)=
TIME TO PEAK
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         *TOTALS*
0.107 (iii)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0.09
1.33
58.72
59.72
0.98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0.02
1.42
38.27
59.72
0.64
                        Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1.33
52.57
59.72
0.88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                            NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                     RAIN TIME mm/hr has 1 183 4 32 1 1.167 4.91 1.250 4.91 1.250 6.96 1.583 6.96 1.667 9.03 1.750 9.03 1.833 13.36 1.917 13.36 2.000
                                                                                                                                                                                                     RANSFORMED HYETOGR RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME
                                                                                                                                                                                                                                                                                                                                                   TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                              RAIN
mm/hr
5.09
5.09
4.74
4.74
4.45
4.45
4.19
4.19
3.97
3.97
3.77
                                                                                  TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                           RAIN
mm/hr
9.72
9.72
8.53
8.53
7.35
6.59
6.59
5.99
5.99
5.50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CALIB
STANDHYD (200811)
ID= 1 DT= 5.0 min
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Area (ha)= 0.07 Total Imp(\%)= 84.00 Dir. Conn.(\%)= 84.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IMPERVIOUS PERVIOUS (i)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (ha)=
(mm)=
(%)=
(m)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0.06
1.00
1.00
21.60
0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0.01
1.00
2.00
40.00
0.290
                      Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                     126.55
5.00
1.56 (ii)
5.00
0.33
                                                                                                                                                                                                                                                 80.98
10.00
5.89
10.00
0.15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                       *TOTALS*
0.122 (iii)
1.33
54.01
59.72
0.90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TIME hrs 2.083 2.167 2.250 2.333 2.417 2.500 2.583 2.667 2.750 2.833 2.917 3.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RAIN
mm/hr
30.27
126.55
126.55
39.22
39.22
21.35
21.35
15.01
11.74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TIME hrs 0.083 0.167 0.250 0.333 0.417 0.500 0.583 0.65 0.750 0.833 0.917 1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RAIN
mm/hr
9.72 |
9.72 |
8.53 |
8.53 |
7.35 |
6.59 |
6.59 |
5.99 |
5.99 |
5.50 |
                        PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                              0.11
1.33
58.72
59.72
0.98
                                                                                                                                                                                                                                                 0.02
1.42
38.27
59.72
0.64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          mm/hr
4.32
4.91
4.91
5.73
5.73
6.96
6.96
9.03
9.03
13.36
13.36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1.250
1.333
1.417
1.500
1.583
1.667
1.750
1.833
1.917
2.000
                  ** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^\circ = 89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    126.55
5.00
0.93 (ii)
5.00
0.34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               80.98
5.00
4.54 (ii)
5.00
0.23
*TOTALS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IMPERVIOUS
0.06
1.00
1.00
21.60
0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PERVIOUS (i)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (ha)=
(mm)=
(%)=
(m)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                              WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^\circ = 89.0 Ia = Dep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HYETOGR
TIME
hrs
2.083
2.167
2.250
2.333
2.417
2.500
2.583
2.667
2.750
2.833
2.917
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RAIN
mm/hr
30.27
126.55
126.55
39.22
39.22
21.35
21.35
15.01
11.74
11.74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TIME
hrs
1.083
1.167
1.250
1.333
1.417
1.500
1.583
1.667
1.750
1.833
1.917
2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RAIN
mm/hr
9.72
9.72
8.53
8.53
7.35
6.59
6.59
5.99
5.90
5.50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        mm/hr
4.32
4.32
4.91
5.73
5.73
6.96
6.96
9.03
9.03
13.36
       ADD HYD ( 0110) | 1 + 2 = 3
                                                                                                                                                                                                                                                TPEAK
(hrs)
1.33
1.33
                                                                                                                                                     0.45 0.130
                      NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    126.55
5.00
0.93 (ii)
5.00
0.34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               80.98
5.00
4.65 (ii)
5.00
0.22
*TOTALS*
0.023 (iii)
1.33
55.22
59.72
0.92
                                                                                                                 \begin{array}{cccccc} (ha) = & \text{IMPERVIOUS} & \text{PERVIOUS} & (i) \\ (ha) = & 0.23 & 0.16 \\ (mm) = & 1.00 & 1.00 \\ (\%) = & 1.00 & 2.00 \\ (m) = & 50.99 & 40.00 \\ = & 0.013 & 0.290 \\ \end{array}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0.02
1.33
58.72
59.72
0.98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0.00
1.33
38.27
59.72
0.64
                      Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                            NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = Dep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                  RAIN | TIME mm/hr | hrs | 4.32 | 1.087 | 4.32 | 1.087 | 4.32 | 1.087 | 4.32 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 
                                                                                                                                                                                                     RANSFORMED HYETOGG RAIN | ' TIME mm/hr ' ' TIME mm/hr ' ' hrs 30.27 | 2.083 30.27 | 2.165 2126.55 | 2.250 126.55 | 2.250 126.55 | 2.333 9.22 | 2.417 39.22 | 2.350 21.35 | 2.667 21.35 | 2.667 21.35 | 2.683 21.35 | 2.667 15.01 | 2.833 11.74 | 2.917 11.74 | 3.000
                                                                                                                                                                                                                                                                                                          RAIN
mm/hr
9.72
9.72
8.53
8.53
7.35
7.35
6.59
6.59
5.99
5.99
5.50
                                                                                 TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                   TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                 mm/h
5.09
5.09
4.74
4.74
4.45
4.19
4.19
3.97
3.77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ADD HYD ( 0111)
1 + 2 = 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AREA QPEAK (ha) (cms) 0.07 0.023 0.39 0.100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TPEAK
(hrs)
1.33
1.33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          R.V.
(mm)
55.22
50.32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ID1= 1 (200821):
+ ID2= 2 (200822):
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ID = 3 ( 0111):
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0.46 0.123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1.33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
                      Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                 80.98
10.00
9.95 (ii)
10.00
0.11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Area (ha)= 0.47
Total Imp(%)= 74.00 Dir. Conn.(%)= 74.00
                                                                                                                                                                                                                                                                                                                          *TOTALS*
0.100 (iii)
1.33
50.32
59.72
0.84
                                                                                                                                                                            0.08
1.33
58.72
59.72
0.98
                                                                                                                                                                                                                                                 0.02
1.42
38.27
59.72
0.64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       IMPERVIOUS PERVIOUS (i)
0.35 0.12
1.00 1.00
1.00 2.00
55.98 40.00
0.013 0.290
                        PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (ha)=
(mm)=
(%)=
(m)=
=
                  ** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = bep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TRANSFORMEI

IE RAIN
'S mm/hr
'3 30.27
'7 30.27
'0 126.55
'0 126.55
'7 39.22
') 39.22
'] 21.35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ) HYETOGRAF

'TIME

'hrs

| 2.083

| 2.167

| 2.250

| 2.333

| 2.417

| 2.500

| 2.583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TIME
hrs
1.083
1.167
1.250
1.333
1.417
1.500
1.583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RAIN | RAIN | Mm/hr | 9.72 | 9.72 | 8.53 | 8.53 | 7.35 | 7.35 | 6.59 |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TIME
hrs
0.083
0.167
0.250
0.333
0.417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RAIN
mm/hr
4.32
4.32
4.91
4.91
5.73
5.73
6.96
CALIB | CALIB | STANDHYD (200821) | Area (ha) = 0.07 | ID= 1 DT= 5.0 min | Total Imp(%) = 83.00 Dir. Conn.(%) = 83.00
```

TIME hrs 3.08 3.17 3.25 3.33 3.42 3.50 3.58 3.67 3.75 3.83 3.92 4.00

TIME hrs 3.08 3.17 3.25 3.33 3.42 3.50 3.58 3.67 3.75 3.83 3.92 4.00

TIME hrs 3.08 3.17 3.25 3.33 3.42 3.50 3.58 3.67 3.75 3.83 3.92 4.00

RAIN mm/hr 5.09 5.09 4.74 4.74 4.45 4.45 4.19 4.19 3.97 3.97 3.77

RAIN mm/hr 5.09 5.09 4.74 4.74 4.45 4.45 4.19 4.19 3.97 3.97 3.77

RAIN mm/hr 5.09 5.09 4.74 4.74 4.45 4.45 4.19 4.19 3.97 3.97 3.77

```
21.35 | 2.667
15.01 | 2.750
15.01 | 2.833
11.74 | 2.917
11.74 | 3.000
                                                                                                              6.96 | 1.667

9.03 | 1.750

9.03 | 1.833

13.36 | 1.917

13.36 | 2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ID = 3 ( 0121):
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1.33
                    Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                     126.55
5.00
1.64 (ii)
5.00
0.32
                                                                                                                                                                                                                         80.98
10.00
6.26 (ii)
10.00
0.15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Area (ha)= 0.87
Total Imp(%)= 67.00 Dir. Conn.(%)= 67.00
                    PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                       0.12
1.33
58.72
59.72
0.98
                                                                                                                                                                                                                                                                                             *TOTALS*
0.140 (iii)
                                                                                                                                                                                                                           0.02
1.42
38.27
59.72
0.64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IMPERVIOUS PERVIOUS (i)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0.58
1.00
1.00
76.16
0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0.29
1.00
2.00
40.00
0.290
                    * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                    (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\pm}=89.0   Ia=\text{bep}. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RAIN | TIME | mm/hr | hrs | 4.32 | 1.083 | 4.32 | 1.167 | 4.91 | 1.250 | 5.73 | 1.417 | 5.73 | 1.500 | 6.96 | 1.583 | 6.96 | 1.667 | 9.03 | 1.750 | 9.03 | 1.750 | 9.03 | 1.750 | 3.36 | 1.917 | 13.36 | 2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HYETOGR
TIME
hrs
2.083
2.167
2.250
2.333
2.417
2.500
2.583
2.667
2.750
2.833
2.917
3.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RAIN
mm/hr
30.27
126.55
126.55
39.22
39.22
21.35
21.35
15.01
11.74
11.74
CALIB
STANDHYD ( 20101)
ID= 1 DT= 5.0 min
                                                                                                         Area (ha)= 0.25 Total Imp(\%)= 82.00 Dir. Conn.(\%)= 82.00
                   126.55
5.00
1.97 (ii)
5.00
0.31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               80.98
15.00
10.37 (ii)
15.00
0.09
                                        NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                         RAIN | TIME RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME
                                                                                                                                                                                                                                                                                                                   TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                             RAIN
mm/hr
5.09
5.09
4.74
4.74
4.45
4.45
4.19
3.97
3.97
3.77
                                                                         TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                               RAIN
mm/hr
9.72
9.72
8.53
8.53
7.35
6.59
6.59
5.99
5.50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0.20
1.33
58.72
59.72
0.98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^\circ = 89.0 Ia = Dep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                    Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                                                                                         80.98
10.00
5.19 (ii)
10.00
0.16
                                                                                                                                                     126.55
5.00
1.36 (ii)
5.00
0.33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | CALIB | STANDHYD ( 20112) | Area (ha)= 0.90 | | ID= 1 DT= 5.0 min | Total Imp(%)= 80.00 Dir. Conn.(%)= 80.00
                                                                                                                                                                                                                                                                                          *TOTALS*
0.079 (iii)
1.33
55.03
59.72
0.92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0.07
1.33
58.72
59.72
0.98
                      PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                           0.01
1.42
38.27
59.72
0.64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                ** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                    (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^\circ = 89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       --- TRANSFORMED HYETOGRAPH
TIME RAIN 'TIME
hrs mm/hr 'hrs m
1.083 30.27 2.083 9
1.167 30.27 2.167 9
1.250 126.55 2.250 8
1.333 126.55 2.333 8
1.417 39.22 2.417 7
1.503 39.22 2.500 7
1.583 21.35 2.583 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RAIN
mm/hr
4.32
4.32
4.91
4.91
5.73
5.73
6.96
  ADD HYD ( 0121)|
1 + 2 = 3 |
                                                                                                                                       AREA QPEAK TPEAK (ha) (cms) (hrs)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PERVIOUS (i)
0.07
1.00
2.00
40.00
0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IMPERVIOUS
0.40
1.00
1.00
55.98
0.013
                                                                                                                                                | 1.667
| 1.750
| 1.833
| 1.917
| 2.000
                                                                                                                                                                                           21.35 | 2.667
15.01 | 2.750
15.01 | 2.833
11.74 | 2.917
11.74 | 3.000
                                                                                                                                                                                                                                                                              6.59 |
5.99 |
5.99 |
5.50 |
5.50 |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (ha)=
(mm)=
(%)=
(m)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                    Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                     126.55
5.00
1.99 (ii)
5.00
0.31
                                                                                                                                                                                                                         80.98
10.00
6.03 (ii)
10.00
0.15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RAIN
mm/hr
30.27
126.55
126.55
39.22
39.22
21.35
21.35
15.01
11.74
11.74
                      PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                            0.25
1.33
58.72
59.72
0.98
                                                                                                                                                                                                                           0.03
1.42
38.27
59.72
0.64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TIME
hrs
1.083
1.167
1.250
1.333
1.417
1.500
1.583
1.667
1.750
1.833
1.917
2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   mm/hr
4.32
4.32
4.91
5.73
5.73
6.96
6.96
9.03
9.03
13.36
                      WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                    (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN° = 89.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SMOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          126.55
5.00
1.64 (ii)
5.00
0.32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               80.98
10.00
5.15 (ii)
10.00
0.16
| CALIB
| STANDHYD ( 20122) | Area (ha)= 1.11
| Total Imp(%)= 81.00 | Dir. Conn.(%)= 81.00
| IMPERVIOUS | PERVIOLS (i)
                                                                                                      PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0.14
1.33
58.72
59.72
0.98
                    Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                        NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                      RAIN | TIME | mm/hr | 4.32 | 1.083 | 4.32 | 1.083 | 4.32 | 1.75 | 1.083 | 1.333 | 1.336 | 1.583 | 1.583 | 1.336 | 1.336 | 1.337 | 1.336 | 1.337 | 1.336 | 1.337 | 1.336 | 1.337 | 1.336 | 1.337 | 1.336 | 1.337 | 1.336 | 1.337 | 1.336 | 1.337 | 1.336 | 1.337 | 1.336 | 1.337 | 1.336 | 1.337 | 1.336 | 1.337 | 1.336 | 1.337 | 1.336 | 1.337 | 1.336 | 1.337 | 1.336 | 1.337 | 1.336 | 1.337 | 1.336 | 1.337 | 1.336 | 1.337 | 1.336 | 1.337 | 1.336 | 1.337 | 1.336 | 1.337 | 1.336 | 1.337 | 1.336 | 1.337 | 1.336 | 1.337 | 1.336 | 1.337 | 1.336 | 1.337 | 1.336 | 1.337 | 1.336 | 1.337 | 1.336 | 1.337 | 1.336 | 1.337 | 1.336 | 1.337 | 1.336 | 1.337 | 1.336 | 1.337 | 1.336 | 1.337 | 1.336 | 1.337 | 1.336 | 1.337 | 1.336 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.337 | 1.33
                                                                                                                                                                                  RANSFORMED HYETOGG RAIN | ' TIME mm/hr ' ' TIME mm/hr ' ' hrs 30.27 | 2.083 30.27 | 2.165 2126.55 | 2.250 126.55 | 2.250 126.55 | 2.333 9.22 | 2.417 39.22 | 2.350 21.35 | 2.667 21.35 | 2.667 21.35 | 2.683 21.35 | 2.667 15.01 | 2.833 11.74 | 2.917 11.74 | 3.000
                                                                                                                                                                                                                                                                              RAIN
mm/hr
9.72 |
9.72 |
8.53 |
7.35 |
7.35 |
6.59 |
6.59 |
5.99 |
5.99 |
5.50 |
                                                                         TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                   TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                             mm/h
5.09
5.09
4.74
4.74
4.45
4.19
4.19
3.97
3.77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Dep. Storage
Average Slope
Length
Mannings n
                   Max.Eff.Inten.(mm/hr)
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
PEAK FLOW (cms)=
PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
TOUNGF VOLUME (mm)=
TOUNGF ACHANAL (mm)=
RINOFF COEFFICIENT =
                                                                                                                                                     126.55
5.00
2.12
5.00
0.31
                                                                                                                                                                                                                           80.98
10.00
6.06 (ii)
10.00
0.15
                                                                                                                                                                                                                                                                                             *TOTALS*
0.346 (iii)
1.33
54.83
59.72
0.92
                                                                                                                                                        0.31
1.33
58.72
59.72
0.98
                                                                                                                                                                                                                         0.04
1.42
38.27
59.72
0.64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RAIN
mm/hr
4.32
4.31
4.91
5.73
5.73
6.96
6.96
9.03
9.03
13.36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TIME
hrs
1.083
1.167
1.250
1.333
1.417
1.500
1.583
1.667
1.750
1.833
1.917
2.000
             ** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^\circ=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           126.55
5.00
1.64 (ii)
5.00
0.32
```

TOTALS 0.152 (iii) 1.33 55.65 59.72 0.93 38.27 59.72 0.64 WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN° = 89.0 Ia = Dep. Storage (Above)

ITAM STEP (DT) SHOULD BE SMALLER OR EQUAL

THAN THE STORAGE COEFFICIENT.

(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALI NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. HYETOGR TIME hrs 2.083 2.167 2.250 2.333 2.417 2.500 2.583 2.667 2.750 2.833 2.917 3.000 RAIN mm/hr 30.27 126.55 126.55 39.22 39.22 21.35 21.35 15.01 11.74 11.74 RAIN mm/hr 9.72 9.72 8.53 8.53 7.35 6.59 6.59 5.99 5.50 TIME hrs 3.08 3.17 3.25 3.33 3.42 3.50 3.58 3.67 3.75 3.83 3.92 4.00 RAIN mm/hr 5.09 4.74 4.74 4.45 4.45 4.19 4.19 3.97 3.97 3.77 80.98 10.00 5.15 (ii) 10.00 0.16

53.96

RAIN mm/hr 9.72 | 9.72 | 8.53 | 8.53 | 7.35 | 6.59 | 6.59 | 5.50 | 5.50 |

RAIN mm/hr 9.72 | 9.72 | 8.53 | 8.53 | 7.35 | 7.35 | 6.59 |

HYETOGR TIME hrs 2.083 2.167 2.250 2.333 2.417 2.500 2.583 2.667 2.750 2.833 2.917

0.01

TIME hrs 3.08 3.17 3.25 3.33 3.42 3.50 3.58 3.67 3.75 3.83 3.92 4.00

RAIN mm/hr 9.72 9.72 8.53 8.53 7.35 6.59 6.59 5.99 5.99 5.50

RAIN mm/hr 5.09 5.09 4.74 4.74 4.45 4.45 4.19 3.97 3.97 3.77 3.77

TIME hrs 3.08 3.17 3.25 3.33 3.42 3.50 3.58 3.67 3.75 3.83 3.92 4.00

TOTALS 0.226 (iii) 1.33 51.97 59.72 0.87

RAIN mm/hr 5.09 5.09 4.74 4.45 4.45 4.19 4.19 3.97 3.97 3.77

```
0.152 (iii)
1.33
55.65
59.72
0.93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PERVIOUS (i)
0.49
1.00
2.00
                    PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                      0.14
1.33
58.72
59.72
0.98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0.62
1.00
1.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                  * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                    (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = bep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RAIN TIME mm/hr hrs 4.32 1.083 4.91 1.250 4.91 1.250 4.91 1.333 5.73 1.417 5.73 1.500 6.96 1.687 9.03 1.750 9.03 1.833 1.336 1.917 13.36 2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RAIN
mm/hr
9.72 |
9.72 |
8.53 |
8.53 |
7.35 |
6.59 |
6.59 |
5.50 |
5.50 |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RAIN
mm/hr
5.09
5.09
4.74
4.74
4.45
4.45
4.19
4.19
3.97
3.97
3.77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RAIN
mm/hr
30.27
126.55
126.55
39.22
21.35
21.35
15.01
11.74
11.74
    ADD HYD ( 0136) |
1 + 2 = 3 |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2.41/
2.500
2.583
2.667
2.750
2.833
2.917
3.000
                                                                                                                                   AREA QPEAK
(ha) (cms)
0.47 0.152
0.47 0.152
                                                                                                                                                                                                                  TPEAK
(hrs)
1.33
1.33
                         ID1= 1 (201021):
+ ID2= 2 (201022):
                                 ID = 3 ( 0136):
                                                                                                                                   0.94 0.303
                                                                                                                                                                                                                  1.33
                      NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   126.55
5.00
2.12 (ii)
5.00
0.31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      80.98
15.00
10.52 (ii)
15.00
0.09
                                                                                                        Area (ha)= 0.28 Total Imp(\%)= 90.00 Dir. Conn.(\%)= 90.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     *TOTALS*
0.254 (iii)
1.33
49.72
59.72
0.83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PEAK FLOW (cms)=
TIME TO PEAK (mrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0.22
1.33
58.72
59.72
0.98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0.06
1.50
38.27
59.72
0.64
                    Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                   IMPERVIOUS PERVIOUS (i)
                                                                                                                                                  0.25
1.00
1.00
43.20
0.013
                                                                                                                                                                                                             0.03
1.00
2.00
40.00
0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                      NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                             RANSFORMED HYETOGR RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME
                                                                                                        RAIN | mm/hr | 4.32 | 4.32 | 4.91 | 5.73 | 5.73 | 6.96 | 6.96 | 9.03 | 9.03 | 13.36 | 13.36 |
                                                                                                                                                TIME
hrs
1.083
1.167
1.250
1.333
1.417
1.500
1.583
1.667
1.750
1.750
1.750
1.917
2.000
                                                                                                                                                                                                                                                                                                          TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                               RAIN
mm/hr
5.09
5.09
4.74
4.74
4.45
4.19
4.19
3.97
3.97
3.97
3.77
                                                                        TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                       RAIN
mm/hr
9.72
9.72
8.53
8.53
7.35
6.59
6.59
5.99
5.99
5.50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CALIB
| STANDHYD (200111)
|ID= 1 DT= 5.0 min
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Area (ha)= 0.10 Total Imp(\%)= 89.50 Dir. Conn.(\%)= 89.50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IMPERVIOUS PERVIOUS (i)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (ha)=
(mm)=
(%)=
(m)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0.09
1.00
1.00
25.82
0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0.01
1.00
2.00
40.00
0.290
                    Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                126.55
5.00
1.41 (ii)
5.00
0.33
                                                                                                                                                                                                                    80.98
5.00
4.32
5.00
0.23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                (ii)
                                                                                                                                                                                                                                                                                 *TOTALS*
0.095 (iii)
1.33
56.67
59.72
0.95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RAIN
mm/hr
30.27
126.55
126.55
39.22
39.22
21.35
21.35
15.01
11.74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TIME hrs 2.083 2.167 2.250 2.333 2.417 2.500 2.583 2.667 2.750 2.833 2.917 3.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RAIN
mm/hr
9.72 |
9.72 |
8.53 |
8.53 |
7.35 |
6.59 |
6.59 |
5.99 |
5.99 |
5.50 |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RAIN
mm/hr
5.09
5.09
4.74
4.74
4.45
4.45
4.19
4.19
3.97
3.97
3.77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TIME hrs 0.083 0.167 0.250 0.333 0.417 0.500 0.583 0.65 0.750 0.833 0.917 1.000
                     PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                         0.09
1.33
58.72
59.72
0.98
                                                                                                                                                                                                                    0.01
1.33
38.27
59.72
0.64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               mm/hr
4.32
4.91
4.91
5.73
5.73
6.96
6.96
9.03
9.03
13.36
13.36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1.167
1.250
1.333
1.417
1.500
1.583
1.667
1.750
1.833
1.917
2.000
                ** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                    (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^\circ = 89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    126.55
5.00
1.03 (ii)
5.00
0.34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      80.98
5.00
4.01 (ii)
5.00
0.24
*TOTALS*
                                                                                                                                                       0.03
1.33
58.72
59.72
0.98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           IMPERVIOUS
0.08
1.00
1.00
25.69
0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PERVIOUS (i)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0.02
1.00
2.00
40.00
0.290
                            WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                    (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^\circ = 89.0 Ia = Dep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HYETOGR
TIME
hrs
2.083
2.167
2.250
2.333
2.417
2.500
2.583
2.667
2.750
2.833
2.917
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RAIN
mm/hr
30.27
126.55
126.55
39.22
21.35
21.35
15.01
11.74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RAIN
mm/hr
5.09
5.09
4.74
4.74
4.45
4.45
4.19
4.19
3.97
3.97
3.77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TIME
hrs
1.083
1.167
1.250
1.333
1.417
1.500
1.583
1.667
1.750
1.833
1.917
2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RAIN
mm/hr
9.72
9.72
8.53
8.53
7.35
6.59
6.59
5.99
5.99
5.50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               mm/hr
4.32
4.32
4.91
5.73
5.73
6.96
6.96
9.03
9.03
13.36
13.36
  IMPERVIOUS PERVIOUS (i)
                      Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                     0.10
1.00
1.00
27.08
0.013
                                                                                                                                                                                                          0.01
1.00
2.00
40.00
0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    126.55
5.00
1.03 (ii)
5.00
0.34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      80.98
10.00
5.16 (ii)
10.00
0.16
                                      NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                     TRANSFORMED HYETOGRAPH
                                                                                                                                                                               ANSFORMED HYETOGR.
RAIN | TIME
mm/hr | hrs |
30.27 | 2.083
30.27 | 2.167
126.55 | 2.250
126.55 | 2.250
126.55 | 2.333
39.22 | 2.417
39.22 | 2.500
21.35 | 2.667
15.01 | 2.833
11.74 | 2.917
11.74 | 3.000
                                                                                                    RAIN | TIME mm/hr hrs 4.32 | 1.083 4.32 | 1.167 4.91 | 1.250 4.91 | 1.250 6.96 | 1.687 6.96 | 1.687 6.96 | 1.687 9.03 | 1.750 9.03 | 1.833 13.36 | 1.917 13.36 | 2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     *TOTALS*
0.031 (iii)
1.33
54.40
59.72
0.91
                                                                                                                                                                                                                                                                                                          TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0.03
1.33
58.72
59.72
0.98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0.00
1.42
38.27
59.72
0.64
                                                                                                                                                                                                                                                                                                                                                   mm/h
5.09
5.09
4.74
4.74
4.45
4.45
                                                                        hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.567
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                       mm/hr
9.72
9.72
8.53
8.53
7.35
6.59
6.59
5.99
5.50
5.50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                  4.45
4.19
4.19
3.97
3.97
3.77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN° = 89.0 Ia = Dep. Storage (Above)

ITAM STEP (DT) SHOULD BE SMALLER OR EQUAL

THAN THE STORAGE COEFFICIENT.

(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                    Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                126.55
5.00
1.06 (ii)
5.00
0.34
                                                                                                                                                                                                                  80.98
5.00
4.34 (ii)
5.00
0.23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Area (ha)= 0.13
Total Imp(%)= 86.00 Dir. Conn.(%)= 86.00
                                                                                                                                                                                                                                                                                   *TOTALS*
0.037 (iii)
1.33
56.04
59.72
0.94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                     0.03
1.33
58.72
59.72
0.98
                                                                                                                                                                                                                    0.00
1.33
38.27
59.72
0.64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Dep. Storage
Average Slope
Length
Mannings n
                    * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                    (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^\circ = 89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HYETOGR.
TIME
hrs
2.083
2.167
2.250
2.333
2.417
2.500
2.583
2.667
2.750
2.833
2.917
3.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RAIN
mm/hr
9.72
9.72
8.53
8.53
7.35
6.59
6.59
5.99
5.50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RAIN
mm/hr
4.32
4.32
4.91
4.91
5.73
5.73
6.96
6.96
9.03
9.03
13.36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TIME
hrs
1.083
1.167
1.250
1.333
1.417
1.500
1.583
1.667
1.750
1.833
1.917
2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RAIN
mm/hr
30.27
126.55
126.55
39.22
39.22
21.35
21.35
15.01
11.74
11.74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RAIN
mm/hr
5.09
4.74
4.74
4.45
4.45
4.19
4.19
3.97
3.97
3.77
        ADD HYD ( 0142) |
1 + 2 = 3 |
                                                                                                                                                             QPEAK
(cms)
0.034
0.037
                                                                                                                                                                                                                  TPEAK
(hrs)
1.33
1.33
                                                                                                                                                                                                                                                       (mm)
56.56
56.04
                                 ID = 3 ( 0142):
                                                                                                                                   0.21 0.071
                                                                                                                                                                                                                    1.33
                                                                                                                                                                                                                                                         56.29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Max.Eff.Inten.(mm/hr)=
over (min)=
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      126.55
5.00
1.12
5.00
0.34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       80.98
5.00
4.51 (ii)
5.00
0.23
| CALIB | CALIB | STANDHYD (200112) | Area (ha) = 0.10 | Dir. Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%) = 79.00 | Conn.(%)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (ii)
```

```
PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                              0.043 (iii)
1.33
55.84
59.72
0.93
                                                                                                                                                                                                                                                                                                                                                                               | CALIB |
| STANDHYD ( 20022) |
|ID= 1 DT= 5.0 min |
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Area (ha)= 0.80
Total Imp(%)= 85.00 Dir. Conn.(%)= 85.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PERVIOUS (i)
0.12
1.00
2.00
40.00
0.290
                                                                                                                                                                                                                                                                                                                                                                                            Surface Area
Dep. Storage
Average Slope
Length
Mannings n
              * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = bep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                         NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                     RAIN TIME
mm/hr hrs
5.22 1.083
5.22 1.167
5.94 1.250
5.94 1.353
6.93 1.417
6.93 1.500
8.42 1.583
8.42 1.667
10.91 1.833
10.91 1.833
16.13 1.917
16.13 2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RAIN
mm/hr
11.74
11.74
10.09
10.09
8.89
7.96
7.96
7.24
7.24
6.65
6.65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.75
3.75
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RAIN
mm/hr
6.15
6.15
5.74
5.38
5.38
5.08
4.80
4.80
4.57
4.57
 | ADD HYD ( 0145)|
| 1 + 2 = 3 |
                                                                                                                                               TPEAK
(hrs)
1.33
1.33
                   ID1= 1 (200112):
+ ID2= 2 (200122):
                        ID = 3 ( 0145):
                                                                                         0.23 0.074
                                                                                                                                               1.33
                 NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
                                          / I SSSSS U U A L
/ I SS U U A A L
I SS U U AAAAA L
I SS U U AAAAA L
I SS U U A A A L
I SSSSS UUUUU A A LLLLL
                                                                                                                                                                                 (v 6.1.2002)
                                                                                                                                                                                                                                                                                                                                                                                            Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                148.15
5.00
1.81 (ii)
5.00
0.32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       102.23
10.00
5.10 (ii)
10.00
0.16
- 33333 0UUUUU A A LLLLL

000 TITT TITTT H H Y Y M M 000
0 0 T T H H Y Y M M 0 0
0 0 T T H H Y Y M M 000

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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      *TOTALS*
0.304 (iii)
                                                                                                                                                                                                                                                                                                                                                                                            PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0.28
1.33
70.24
71.24
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0.03
1.42
48.54
71.24
0.68
                                                                                                                                                                                                                                                                                                                                                                                             WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                           **** DETAILED OUTPUT ****
                                                                                                                                                                                                                                                                                                                                                                                            (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
        Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\V02\Voin.dat
OUtput filename: C:\Users\caef070146\Apppata\Local\Civica\W15\S0564c49-8c07-4086-8157-8729fb3caba3\b4bab8e4
Summary filename: C:\Users\caef070146\Apppata\Local\Civica\W15\S0564c49-8c07-4086-8157-8729fb3caba3\b4bab8e4
                                                                                                                                                                                                                                                                                                                                                                              CALIB
STANDHYD (20021)
ID= 1 DT= 5.0 min
DATE: 05-18-2022
                                                                                                                                       TIME: 12:44:43
USER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Area (ha) = 0.70
Total Imp(\%) = 89.00 Dir. Conn.(%) = 89.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IMPERVIOUS 0.62 0.08 1.00 1.00 2.00 68.31 40.00 0.013 0.290
                                                                                                                                                                                                                                                                                                                                                                                            Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                 (ha)=
(mm)=
(%)=
(m)=
       NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Filename: C:\Users\caef070146\AppD
ata\Local\Temp\
11403a02-8000-48b3-97a8-b203216ba841\53217781
Comments: 25-year, 4 hr-Chicago, City of Barrie
              READ STORM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RAIN
mm/hr
11.74
11.74
10.09
10.09
8.89
7.96
7.96
7.24
6.65
6.65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RAIN
mm/hr
6.15
6.15
5.74
5.38
5.38
5.08
5.08
4.80
4.57
4.57
                                                                                                                                                                                                                                                                                                                                                                                                                              hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                       mm/hr | 5.22 | 5.22 | 5.22 | 5.94 | 6.93 | 6.93 | 8.42 | 8.42 | 8.42 | 10.91 | 10.91 | 16.13 | 16.13 |
      Ptotal= 71.24 mm
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1.167
1.250
1.333
1.417
1.500
1.583
1.667
1.750
1.833
1.917
2.000
                                                                           RAIN |
mm/hr |
5.22 |
5.94 |
6.93 |
8.42 |
10.91 |
16.13 |
                                                                                                     TIME RAIN | '
hrs mm/hr | '
1.17 36.37 |
1.33 148.15 |
1.50 47.06 |
1.67 25.72 |
1.83 18.11 |
2.00 14.17
                                                                                                                                                       TIME
hrs
2.17
2.33
2.50
2.67
2.83
3.00
                                                                                                                                                                                                                                                                                                                                                                                            Max.Eff.Inten.(mm/hr)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             148.15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        102.23
                over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                        5.00
1.74 (ii)
5.00
0.32
                                                                                                                                                5.00
4.59 (ii)
5.00
0.23
                                                                                                                                                                                                                                                                                                                                                                                                         NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TRANSFORMED HYETOGRAPH
ME RAIN | TIME
83 36.37 | 2.083 | 11
50 148.15 | 2.250 | 10
33 148.15 | 2.337 | 18
30 148.15 | 2.337 | 18
30 148.15 | 2.337 | 18
30 148.15 | 2.337 | 18
30 15.77 | 2.583 | 7
50 18.11 | 2.533 | 7
31 18.11 | 2.533 | 7
31 18.11 | 2.533 | 7
31 18.11 | 2.530 | 7
31 18.11 | 2.530 | 7
31 18.11 | 2.530 | 7
31 18.11 | 2.530 | 7
31 18.11 | 2.500 | 7
31 18.11 | 2.300 | 6
                                                                                                                                                                                         *TOTALS*
0.276 (iii)
1.33
67.85
71.24
0.95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RAIN
mm/hr
11.74
11.74
10.09
10.09
8.89
7.96
7.96
7.24
6.65
6.65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TIME
hrs
1.083
1.167
1.250
1.333
1.417
1.500
1.583
1.667
1.750
1.833
1.917
2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RAIN
mm/hr
6.15
6.15
5.74
5.38
5.38
5.08
4.80
4.80
4.57
4.57
                                                                                                                                                                                                                                                                                                                                                                                                                              TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.508
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                      RAIN | mm/hr | 5.22 | 5.94 | 5.94 | 6.93 | 6.93 | 8.42 | 10.91 | 10.91 | 16.13 | 16.13 |
                                                                                                       0.26
1.33
70.24
71.24
0.99
                                                                                                                                               0.02
1.33
48.54
71.24
0.68
                PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
               * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                            Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                148.15
5.00
1.54 (ii)
5.00
0.33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      102.23
5.00
4.62 (ii)
5.00
0.22
    *TOTALS*
0.184 (iii)
1.33
67.41
71.24
0.95
                                                                                       IMPERVIOUS 0.39 0.04 1.00 1.00 2.00 53.54 40.00 0.013 0.290
                                                                                                                                                                                                                                                                                                                                                                                            PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0.17
1.33
70.24
71.24
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0.02
1.33
48.54
71.24
0.68
                Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                               ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                             NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                            (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 I a= bep. Storage (Above) (ii) TIME STEP (OT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                        ANSFORMED HYETOGRAR mm/hr ' TIME mm/hr ' hrs 36.37 ' 2.083 36.37 ' 2.167 148.15 ' 2.250 148.15 ' 2.250 148.15 ' 2.250 25.72 ' 2.66 2.417 47.72 2.72 2.683 25.72 2.683 18.11 2.657 18.11 2.633 14.17 | 2.833 14.17 | 3.000
                                                                         RAIN | TIME | mm/hr | hrs | 5.22 | 1.083 | 5.22 | 1.167 | 5.94 | 1.250 | 6.93 | 1.417 | 6.93 | 1.500 | 8.42 | 1.583 | 8.42 | 1.667 | 10.91 | 1.750 | 10.91 | 1.833 | 1.917 | 16.13 | 2.000
                                                                                                                                                                               RAIN
mm/hr
11.74
11.74
10.09
10.09
8.89
7.96
7.96
7.24
7.24
                                                                                                                                                                                                          hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                  hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                    mm/hi
6.15
6.15
5.74
5.74
5.38
5.38
5.08
4.80
4.57
4.57
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Area (ha)= 0.35
Total Imp(%)= 89.00 Dir. Conn.(%)= 89.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IMPERVIOUS (i) 0.31 0.04 1.00 1.00 2.00 48.30 40.00 0.013 0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                 (ha)=
(mm)=
(%)=
(m)=
=
                                                                                                                                                                                                                                                                                                                                                                                            Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0.31
1.00
1.00
48.30
0.013
                Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                   148.15 1
5.00
1.50 (ii)
5.00
0.33
                                                                                                                                   102.23
5.00
i) 4.24 (ii)
5.00
0.24
                                                                                                                                                                                                                                                                                                                                                                                                         NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HYETOGR
TIME
1 nrs
2 .083
2 .167
2 .250
2 .333
2 .417
2 .500
2 .583
1 2 .667
2 .750
2 .833
2 .917
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TIME hrs 1.083 1.167 1.250 1.333 1.417 1.500 1.583 1.667 1.750 1.833 1.917 2.000
                                                                                                                                                                                         *TOTALS*
0.171 (iii)
1.33
68.06
71.24
0.96
                PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RAIN
mm/hr
36.37
148.15
148.15
47.06
47.06
25.72
25.72
18.11
14.17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RAIN
mm/hr
11.74
11.74
10.09
10.09
8.89
7.96
7.96
7.24
7.24
6.65
6.65
                                                                                                                                               0.01
1.33
48.54
71.24
0.68
                                                                                                                                                                                                                                                                                                                                                                                                                              TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                       RAIN
mm/hr
5.22
5.94
5.94
6.93
8.42
8.42
10.91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RAIN
mm/hr
6.15
6.15
5.74
5.38
5.38
5.08
4.80
4.80
4.57
4.57
                   WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^\circ = 89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                       16.13
16.13
                                                                                                                                                                                                                                                                                                                                                                                            Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                148.15
5.00
1.41
5.00
0.33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        102.23
5.00
4.27 (ii)
5.00
0.23
                                                                        Area (ha)= 0.47  
Total Imp(\%)= 87.00 Dir. Conn.(\%)= 87.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     *TOTALS*
0.139 (iii)
1.33
67.84
71.24
0.95
                                                                                                                                       PERVIOUS (i)

0.06

1.00

2.00

40.00

0.290
                                                                                            IMPERVIOUS

0.41

1.00

1.00

55.98

0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0.13
1.33
70.24
71.24
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0.01
1.33
48.54
71.24
0.68
                                                                                                                                                                                                                                                                                                                                                                                             PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                              ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
```

```
7.96
7.96
7.24
7.24
6.65
6.65
                          (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \mathbb{CN}^* = 89.0 in a pep. Storage (Above) in time step (bt) Should Be Smaller on Equal THAN THE STORAGE CORFIZIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             148.15
5.00
1.33 (ii)
5.00
0.33
                                                                                                                            Area (ha)= 0.36 Total Imp(\%)= 85.00 Dir. Conn.(\%)= 85.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          *TOTALS*
0.106 (iii)
1.33
65.45
71.24
0.92
                                                                                                                                                        PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0.09
1.33
70.24
71.24
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0.01
1.42
48.54
71.24
0.68
                           Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                         (ha)=
(mm)=
(%)=
(m)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                               NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                              RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN |
                                                                                                                                                                                                                                                                                                                        RAIN
mm/hr
11.74
11.74
10.09
10.09
8.89
7.96
7.96
7.24
7.24
6.65
6.65
                                                                                        TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                         TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Area (ha)= 0.73 
Total Imp(\%)= 80.00 Dir. Conn.(\%)= 80.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IMPERVIOUS 0.58 0.15
1.00 1.00
1.00 2.00
69.76 40.00
0.013 0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Surface Area (ha) = Dep. Storage (mm) = Average Slope (%) = Length (m) = Mannings n =
                                                                                                                                                                                                                                                                                                                                                                                                                            5.08
4.80
4.80
4.57
4.57
                        Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                                                148.15 102.23
5.00 5.00
1.42 (ii) 4.72 (ii)
5.00
0.33 0.22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TRANSFORMED HYETOGRAPME RAIN | TIME rs mm/hr | hrs | hrs | 11 ME rs | 183 36.37 | 2.083 167 36.37 | 2.167 1 | 150 148.15 | 2.250 11 | 33 148.15 | 2.250 11 | 17 47.06 | 2.417 | 17 40.07 | 2.500 | 2.500 | 2.500 | 2.500 | 2.500 | 2.500 | 2.500 | 3.500 | 2.500 | 3.500 | 2.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.500 | 3.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RAIN TIME
mm/hr hrs
5.22 1.083
5.22 1.167
5.94 1.353
6.93 1.417
6.93 1.500
8.42 1.583
8.42 1.667
10.91 1.750
10.91 1.833
16.13 1.917
16.13 2.000
                                                                                                                                                                                                                                                                                                                                               *TOTALS*
0.140 (iii)
1.33
66.97
71.24
0.94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3.08
3.17
3.25
3.33
3.42
3.50
3.56
3.57
3.75
3.83
3.92
4.00
                           PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                    0.13
1.33
70.24
71.24
0.99
                                                                                                                                                                                                                                                                 0.01
1.33
48.54
71.24
0.68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RAIN
mm/hr
11.74
11.74
10.09
10.09
8.89
7.96
7.96
7.24
6.65
6.65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                        * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                          Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         148.15
5.00
1.76 (ii)
5.00
0.32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   102.23
10.00
5.55
10.00
0.16
| CALIB
| STANDHYD ( 20052) | Area (ha) = 0.29
| ID = 1 DT = 5.0 min | Total Imp(%) = 78.00 | Dir. Conn.(%) = 78.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          *TOTALS*
0.269 (iii)
1.33
65.89
71.24
0.92
                                                                                                                                                 PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0.24
1.33
70.24
71.24
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0.03
1.42
48.54
71.24
0.68
                        Surface Area
Dep. Storage
Average Slope
Length
Mannings n

(ha)=
(mm)=
(%)=
(%)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                               NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0   Ia=\text{bep}. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                             TRANSFORMED HYETOGRAPH
TIME RAIN ' TIME
hrs mm/hr ' hrs m
1.083 36.37 2.083 11
1.167 36.37 2.167 11
1.250 148.15 2.250 10
1.333 148.15 2.353 10
1.417 47.06 2.417 8
1.500 47.06 2.500 8
                                                                                                                               RAIN
mm/hr
5.22
5.22
5.94
5.94
6.93
6.93
                                                                                                                                                                                                                                                                                                                                                                             TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | CALIB | CALIB | STANDHYD ( 20061) | Area (ha) = 0.65 | Dir. Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%) = 85.00 | Conn.(%)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             *TOTALS*
0.242 (iii)
1.33
66.76
71.24
0.94
                                                                                                                                                                  IMPERVIOUS
0.55
1.00
1.00
65.83
0.013
                                                                                                                                                                                                                                                    PERVIOUS (i)
0.10
1.00
2.00
40.00
0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0.22
1.33
70.24
71.24
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                          Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                 NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^\circ = 89.0 Ia = Dep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                            RAIN TIME RAIN THETOGR.

mm/hr hrs mm/hr hrs

5.22 1.082 36.37 2.083

5.24 1.168 36.37 2.083

5.24 1.133 148.15 2.313

6.93 1.417 47.06 2.417

6.93 1.417 47.06 2.417

6.93 1.500 47.06 2.500

8.42 1.583 25.72 2.683

8.42 1.583 25.72 2.683

8.42 1.583 18.11 2.333

10.31 1.750 18.11 2.333

16.13 1.32 1.417 2.917

16.13 2.000 14.17 3.000
                                                                                                                                                                                                                                                                                                                                                                           TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                      TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                            RAIN
mm/hr
11.74
11.74
10.09
10.09
8.89
7.96
7.96
7.24
6.65
6.65
                                                                                                                                                                                                                                                                                                                                                                                                                            6.15
6.15
5.74
5.74
5.38
5.38
5.08
4.80
4.80
4.57
4.57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CALIB STANDHYD ( 20071) | Area (ha)= 0.58 | Total Imp(%)= 85.00 | Dir. Conn.(%)= 85.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IMPERVIOUS PERVIOUS (i)
0.49 0.09
1.00 1.00
2.00
62.18 40.00
0.013 0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (ha)=
(mm)=
(%)=
(m)=
=
                      Max.Eff.Inten.(mm/hr)=
over (min)=
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (min)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                148.15 102.23
5.00 5.00
1.70 (ii) 4.99 (ii)
5.00
0.32 0.21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RAIN TIME mm/hr TIME mm/hr hrs 5.22 1.083 5.22 1.167 5.94 1.250 6.93 1.417 6.93 1.500 8.42 1.583 8.42 1.667 10.91 1.750 10.91 1.833 16.13 1.917 16.13 2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ANSFORMED HYETOG

RAIN) 'TIM

mm/hr | h

36.37 | 2.083

36.37 | 2.167

148.15 | 2.250

148.15 | 2.353

47.06 | 2.417

47.06 | 2.500

25.72 | 2.683

25.72 | 2.667

18.11 | 2.833

14.17 | 2.917

14.17 | 3.000
                                                                                                                                                                                    0.23
1.33
70.24
71.24
0.99
                                                                                                                                                                                                                                                                                                                                               *TOTALS*
0.252 (iii)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RAIN
mm/hr
11.74
10.09
10.09
8.89
7.96
7.96
7.24
7.24
6.65
6.65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                             0.03
1.33
48.54
71.24
0.68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                          WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\pm}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Max.Eff.Inten.(mm/hr)=
over (min)=
storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (ms)=
PEAK FLOW (cms)=
PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RINGFF VOLLME (mm)=
TOTAC RAINFALL (mm)=
RINGFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        148.15
5.00
1.64 (iii)
5.00
0.32
0.20
1.33
70.24
71.24
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                102.23
5.00
4.94 (ii)
5.00
0.22
CALIB
STANDHYD ( 20072)
                                                                                                             Area (ha) = 0.64
Total Imp(\%) = 84.00 Dir. Conn.(\%) = 84.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          *TOTALS*
0.225 (iii)
1.33
66.98
71.24
0.94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0.02
1.33
48.54
71.24
0.68
                          Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                               NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^{\pm}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                           TIME RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS 
                                                                                                                                                                                                                                                                      D HYETOGRAP

| TIME

| hrs

| 2.083 1

| 2.167 1

| 2.250 1

| 2.333 1

| 2.417

| 2.500

| 2.583

| 2.667

| 2.750

| 2.833

| 2.917

| 3.000
                                                                                        TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
                                                                                                                                                                                                                                                                                                                                                                           TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                    mm/hr
5.22
5.94
5.94
6.93
6.93
8.42
10.91
10.91
16.13
16.13
                                                                                                                                                                                                                                                                                                                                                                                                                            mm/h
6.15
6.15
5.74
5.38
5.38
5.08
4.80
4.57
4.57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                148.15
5.00
1.69 (ii)
5.00
0.32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ---- TRANSFORMED HYETOGRAPH ----
```

5.08 5.08 4.80 4.80 4.57 4.57

```
TIME
hrs
1.083
1.167
                                                                                                                                                                      RAIN
mm/hr
36.37
36.37
                                                                                                                                                                                                         TIME
hrs
2.083
2.167
                                                                  TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.508
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                   hrs
3.08
3.17
                                                                                                   mm/hr
5.22
5.94
5.94
6.93
6.93
8.42
10.91
10.91
16.13
16.13
                                                                                                                                                                                                | 2.167
| 2.250
| 2.333
| 2.417
| 2.500
| 2.583
| 2.667
| 2.750
| 2.833
| 2.917
| 3.000
                                                                                                                                                                                                                                             11.74
10.09
10.09
8.89
7.96
7.96
7.24
7.24
6.65
                                                                                                                                    1.167
1.250
1.333
1.417
1.500
1.583
1.667
1.750
1.833
1.917
2.000
                                                                                                                                                                   36.37
148.15
148.15
47.06
47.06
25.72
25.72
18.11
18.11
14.17
                                                                                                                                                                                                                                                                                   3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                      5.74
5.74
5.38
5.38
5.08
4.80
4.80
4.57
4.57
                 Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                    148.15
5.00
1.68 (ii)
5.00
0.32
                                                                                                                                                                                           102.23
10.00
5.37 (ii)
10.00
0.16
                                                                                                                                                                                                                                                          *TOTALS*
0.234 (iii)
1.33
66.11
71.24
0.93
                   PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (MM)=
TOTAL RAINFALL (MM)=
RUNOFF COEFFICIENT =
                                                                                                                                         0.21
1.33
70.24
71.24
0.99
                                                                                                                                                                                                 0.03
1.42
48.54
71.24
0.68
                         WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN° = 89.0 Ia = Dep. Storage (Above)

(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL

THAN THE STORAGE COEFFICIENT.

(iii) PEAK FLOW DOES NOT INCLIDE BASEFLOW IF ANY.
 CALIB
STANDHYD ( 20091)
Total Imp(%)= 77.00

IMPERVIOUS PERVIOUS (i)

CALIB
STANDHYD ( 20091)

Area (ha)= 0.40
Dir. Conn.(%)= 77.00

IMPERVIOUS PERVIOUS (i)
                                                                                                                         IMPERVIOUS

0.31

1.00

1.00

51.64

0.013
                                                                                                                                                                                  PERVIOUS (i)
0.09
1.00
2.00
40.00
0.290
                   Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                   NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                   TRANSFORMED HYETOGR TIME RAIN | TIME hrs mm/hr | hrs mm/hr | hrs 1.083 36.37 | 2.083 | 1.167 38.37 | 2.167 | 1.167 38.37 | 2.167 | 1.167 38.37 | 2.167 | 1.167 38.37 | 2.167 | 1.167 38.37 | 2.167 | 1.167 38.37 | 2.167 | 2.167 | 1.167 38.37 | 2.167 | 2.167 | 1.167 38.37 | 2.167 | 2.167 | 1.167 38.37 | 2.167 | 2.167 | 1.167 38.37 | 2.167 | 2.167 | 1.167 38.37 | 2.167 | 2.167 | 2.167 | 1.167 38.37 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 |
                                                                                                                                                      TRANSFORMED HYETOGRAPH
                                                               TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                              TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                   mm/hr
5.22
5.22
5.94
5.94
6.93
6.93
8.42
10.91
10.91
16.13
16.13
                                                                                                                                                                                                                                             10.09
10.09
8.89
8.89
7.96
7.96
7.24
7.24
6.65
6.65
                                                                                                                                                                                                                                                                                                                    5.74
5.38
5.38
5.08
5.08
4.80
4.80
4.57
                   Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                     148.15
5.00
1.47 (ii)
5.00
0.33
                                                                                                                                                                                            102.23
10.00
5.53 (ii)
10.00
0.16
                                                                                                                                                                                                                                                          *TOTALS*
0.145 (iii)
1.33
65.24
71.24
0.92
                    PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                          0.13
1.33
70.24
71.24
0.99
                                                                                                                                                                                                 0.02
1.42
48.54
71.24
0.68
***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                       Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                            102.23
5.00
4.27 (ii)
5.00
0.23
                                                                                                                                                                                                                                                          *TOTALS*
0.027 (iii)
1.33
66.74
71.24
0.94
                   PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                          0.02
1.33
70.24
71.24
0.99
                                                                                                                                                                                                 0.00
1.33
48.54
71.24
0.68
                  * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^p=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. LOSSES AND A COMMON THAN THE STORAGE COEFFICIENT.
   ADD HYD ( 0110) |
1 + 2 = 3 |
                                                                                                                                               OPEAK
(cms)
0.027
0.131
                                                                                                                                                                                                TPEAK
(hrs)
1.33
1.33
                                                                                                                      AREA
(ha)
0.07
0.38
                                                                                                                                                                                                                                 R.V.
(mm)
66.74
63.72
                       ID1= 1 (200811):
+ ID2= 2 (200812):
                              ID = 3 ( 0110):
                                                                                                                        0.45 0.159
                                                                                                                                                                                                                                   64.19
                                                                                                                                                                                                1.33
                   NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
CALIB
STANDHYD (200822)
ID= 1 DT= 5.0 min
                                                                                             Area (ha)= 0.39 Total Imp(\%)= 59.00 Dir. Conn.(\%)= 59.00
                                                                                         PERVIOUS (i)
0.16
1.00
2.00
40.00
0.290
                  Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                    NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                   ---- TRANSFORMED HYETOGRAPH
TIME RAIN | TIME |
hrs mm/hr | hrs mm
1.083 36.37 2.083 11.
1.167 36.37 2.167 11.
1.250 148.15 2.333 10.
1.437 47.06 2.509 13.
1.437 47.06 2.509 13.
1.457 2.508 37.
1.667 25.72 2.583 7.
1.667 25.72 2.583 7.
1.667 25.72 2.583 6.
1.833 18.11 2.833 7.
1.833 18.11 2.833 6.
1.831 14.77 2.917 6.
1.833 6.00 14.17 2.917 6.
1.800 14.17 2.917 6.
                                                                                                                                                                                                                                          RAIN
mm/hr
11.74
11.74
10.09
10.09
8.89
8.89
7.96
7.24
6.65
6.65
                                                                  TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                  RAIN
mm/hr
5.22
5.94
5.94
6.93
8.42
8.42
10.91
10.91
16.13
16.13
                                                                                                                                                                                                                                                                                TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                      mm/h
6.15
6.15
5.74
5.38
5.38
5.08
4.80
4.80
4.57
4.57
                   Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                    148.15
5.00
1.46 (ii)
5.00
0.33
                                                                                                                                                                                     102.23
10.00
9.10 (ii)
10.00
0.12
                                                                                                                                                                                                                                                           *TOTALS*
0.120 (iii)
1.33
61.32
71.24
0.86
                   PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                          0.09
1.33
70.24
71.24
0.99
                                                                                                                                                                                                0.03
1.42
48.54
71.24
0.68
                  * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^{\pm}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
```

THAN THE STORAGE COEFFICIENT.

(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. Area (ha)= 0.38 Total Imp(%)= 70.00 Dir. Conn.(%)= 70.00
 IMPERVIOUS
 PERVIOUS (i)

 0.27
 0.11

 1.00
 1.00

 1.00
 2.00

 50.33
 40.00

 0.013
 0.290
 Surface Area Dep. Storage Average Slope Length Mannings n (ha)= (mm)= (%)= (m)= NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. TRANSFORMED HYETOGRAP
ME RAIN ' TIME
FS mm/hr ' hrs
83 36.37 2.083 1
67 36.37 2.167 1
50 148.15 2.250 1
31 148.15 2.250 1
31 148.15 2.333 1
77 47.06 2.417 1
77 47.06 2.67 2.667
50 18.11 2.750
50 18.11 2.750
50 18.11 2.833 TIME hrs 1.083 1.167 1.250 1.333 1.417 1.500 1.583 1.667 1.750 1.833 1.917 2.000 RAIN mm/hr 6.15 6.15 5.74 5.38 5.38 5.08 4.80 4.80 4.57 4.57 hrs 0.083 0.167 0.250 0.333 0.417 0.500 0.583 0.667 0.750 0.833 0.917 1.000 mm/hr 5.22 5.22 5.94 6.93 6.93 8.42 8.42 10.91 10.91 16.13 16.13 mm/hr 11.74 11.74 10.09 10.09 8.89 7.96 7.96 7.24 7.24 6.65 6.65 hrs 3.08 3.17 3.25 3.33 3.42 3.50 3.58 3.67 3.75 3.83 3.92 4.00 Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= 148.15 5.00 1.45 (ii) 5.00 0.33 102.23 10.00 6.14 (ii) 10.00 0.15 *TOTALS* 0.131 (iii) 1.33 63.72 71.24 0.89 0.11 1.33 70.24 71.24 0.99 WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $\text{CN}^\circ = 89.0$ Ia = bep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. Area (ha)= 0.07 Total Imp(%)= 84.00 Dir. Conn.(%)= 84.00 IMPERVIOUS PERVIOUS (i)
0.06 0.01
1.00 1.00
1.00 2.00
21.60 40.00
0.013 0.290 (ha)= (mm)= (%)= (m)= = Surface Area Dep. Storage Average Slope Length Mannings n NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. TRANSFORMED HYETOGRAPI RAIN mm/hr 11.74 11.74 10.09 10.09 8.89 7.96 7.96 7.24 7.24 TIME hrs 1.083 1.167 1.250 1.333 1.417 1.500 1.583 1.667 1.750 1.833 RAIN mm/hr 36.37 36.37 148.15 148.15 47.06 47.06 25.72 25.72 18.11 18.11 HYETOGR TIME hrs 2.083 2.167 2.250 2.333 2.417 2.500 2.583 2.667 2.750 2.833 RAIN mm/hr 6.15 6.15 5.74 5.74 5.38 5.38 5.08 RAIN mm/hr 5.22 5.22 5.94 5.94 6.93 6.93 8.42 8.42 10.91 TIME hrs 3.08 3.17 3.25 3.33 3.42 3.50 3.58 3.67 3.75 3.83 TIME hrs 0.083 0.167 0.250 0.333 0.417 0.500 0.583 0.667 0.750 0.833 THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. Area (ha)= 0.07Total Imp(%)= 83.00 Dir. Conn.(%)= 83.00
 IMPERVIOUS
 PERVIOUS (i)

 0.06
 0.01

 1.00
 1.00

 1.00
 2.00

 21.60
 40.00

 0.013
 0.290
 Surface Area Dep. Storage Average Slope Length Mannings n (ha)= (mm)= (%)= (m)= NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. NSFORMED HY RAIN | 1 mm/hr | 36, 37 | 2 36, 37 | 2 36, 37 | 2 148, 15 148, 15 147, 06 47, 06 47, 06 47, 06 47, 06 47, 06 47, 106 47, TRANSFORMED HYETOGRAPH HYETOGR TIME hrs 2.083 2.167 2.250 2.333 2.417 2.500 2.583 2.667 2.750 2.833 2.917 3.000 RAIN mm/hr 11.74 | 11.74 | 10.09 | 8.89 7.96 7.96 7.24 6.65 6.65 TIME hrs 1.083 1.167 1.250 1.333 1.417 1.500 1.583 1.667 1.750 1.833 1.917 2.000 TIME hrs 3.08 3.17 3.25 3.33 3.42 3.50 3.58 3.67 3.75 3.83 3.92 4.00 RAIN mm/hr 6.15 6.15 5.74 5.38 5.38 5.08 5.08 4.80 4.80 4.57 4.57 TIME hrs 0.083 0.167 0.250 0.333 0.417 0.500 0.583 0.667 0.750 0.833 0.917 1.000 RAIN mm/hr 5.22 5.22 5.94 5.94 6.93 8.42 8.42 10.91 10.91 16.13 Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= 148.15 5.00 0.87 (ii) 5.00 0.34 102.23 5.00 4.37 (ii) 5.00 0.23 *TOTALS* 0.027 (iii) 1.33 66.52 71.24 0.93 PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT = 0.02 1.33 70.24 71.24 0.99 ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^{\circ}=89.0$ Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. ADD HYD (0111) | 1 + 2 = 3 AREA QPEAK (ha) (cms) 0.07 0.027 0.39 0.120 ID1= 1 (200821): + ID2= 2 (200822): ID = 3 (0111): 0.46 0.147 1.33 NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY. Area (ha)= 0.47 Total Imp(%)= 74.00 Dir. Conn.(%)= 74.00 IMPERVIOUS PERVIOUS (i) 0.35 0.12 1.00 1.00 2.00 55.98 40.00 0.013 0.290 Surface Area Dep. Storage Average Slope Length Mannings n (ha)= (mm)= (%)= (m)= =

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

--- TRANSFORMED HYETOGRAPH ---

```
RAIN TIME mm/hr hrs 1.083 5.22 1.167 5.94 1.250 5.94 1.333 6.93 1.417 6.93 1.500 8.42 1.583 8.42 1.667 10.91 1.750 10.91 1.833 16.13 1.917 16.13 2.000
                                                                                                                   TIME
hrs
1.083
1.167
                                                                                                                                                                                    TIME
hrs
2.083
2.167
                                                                                                                                                                                                                                                                                             RAIN
mm/hr
6.15
6.15
5.74
5.38
5.38
5.08
4.80
4.80
4.57
4.57
                                                 TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                           hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                 mm/hr
36.37
148.15
148.15
47.06
47.06
25.72
25.72
18.11
14.17
                                                                                                                                                                            2.167
2.250
2.333
2.417
2.500
2.583
2.667
2.750
2.833
2.917
3.000
  Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                               148.15
5.00
1.54 (ii)
5.00
0.33
                                                                                                                                                                   102.23
10.00
5.88 (ii)
10.00
0.15
                                                                                                                                                                                                                                   *TOTALS*
0.167 (iii)
1.33
64.59
71.24
0.91
  PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                       0.14
1.33
70.24
71.24
0.99
                                                                                                                                                                                 0.03
1.42
** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN* = 89.0 Ia = Dep. Storage (Above)

(i) TIME STEP (DT) SMOULD BE SMALLER OR EQUAL

THAN THE STORAGE COEFFICIENT.

(iii) PEAK FLOW DOES NOT INCLIDE BASEFLOW IF ANY.
```

| CALIB STANDHYD (20101) ID= 1 DT= 5.0 min | Area Total | (ha)= Imp(%)= | 0.25 82.00 | Dir. | Conn. (%)= | 82.00 | |
|---|-------------------------------------|--|------------------|---|------------|-------|--|
| Surface Area Dep. Storage Average Slope Length Mannings n | (ha)= (mm)= (%)= (m)= = | IMPERVI 0.2 1.0 1.0 40.8 0.01 | 0 0 0 2 | 9ERVIO 0.0 1.0 2.0 40.0 0.29 | 5 | | |

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

| | TRANSFORME | . INVETOCRAD | | |
|---|---|---|--|---|
| TIME RAIN hrs mm/hr 0.083 5.22 0.1670 5.22 0.1670 5.24 0.233 5.94 0.233 5.94 0.333 0.500 6.93 0.583 8.42 0.750 10.91 0.667 8.42 0.750 10.91 0.917 16.13 | hrs mm/hr 1.083 36.37 1.167 36.37 1.250 148.15 1.333 148.15 1.417 47.06 1.550 47.06 1.583 25.72 1.675 18.11 1.833 18.11 1.917 14.17 | TIME | RAIN TIME mm/hr hrs. 1.74 3.08 1.1.74 3.17 0.09 3.25 0.09 3.33 42 8.89 3.50 7.96 3.58 7.24 3.75 3.67 7.24 3.75 3.66 5.5 3.92 6.65 3.92 6.65 3.92 | RAIN mm/hr 6.15 6.15 5.74 5.38 5.38 5.08 4.80 4.80 4.57 4.57 |
| Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (min)= TIME TO PEAK (hrs)= RUNOFF VOLUME (mm)= RUNOFF VOLUME (mm)= RUNOFF COEFFICIENT = **WARNING.** STORAGE COFFE. | 148.15 10 5.00 (ii) 5.00 0.33 0.08 1.33 70.24 71.24 0.99 | 0.2.23 5.00 4.87 (ii) 5.00 0.22 0.01 1.33 48.54 71.24 0.68 | *TOTALS* 0.096 (iii) 1.33 66.32 71.24 0.93 | 4.37 |

| | 0. 0. 0. 0. 0. 0. 0. | 167 250 333 417 500 583 667 750 833 917 | 5.22 5.22 5.94 5.94 6.93 6.93 8.42 8.42 10.91 10.91 16.13 | hrs 1.083 1.167 1.250 1.333 1.417 1.500 1.583 1.667 1.750 1.750 1.833 1.917 | 36.37 36.37 148.15 148.15 47.06 47.06 25.72 25.72 18.11 18.11 14.17 | 2.250 2.333 2.417 2.500 2.583 2.667 2.750 2.833 2.917 | 11.74 11.74 10.09 10.09 8.89 7.96 7.96 7.24 7.24 6.65 | 3.08 3.17 3.25 3.33 3.42 3.50 3.58 3.67 3.75 3.83 3.92 | 5.38 5.38 5.08 5.08 4.80 4.80 4.57 |
|-----|---|---|---|---|---|---|--|--|--|
| *** | Max.Eff.Inten ov Storage Coeff Unit Hyd. Tpe Unit Hyd. pea PEAK FLOW TIME TO PEAK RUNOFF VOLUME TOTAL RAINFAL RUNOFF COEFFI | er (m . (m . k (cr . k (cr . (hi . (r . (r . CIENT | nr)= in)= in)= in)= ns)= ns)= ns)= nm)= nm)= | 5.00 1.87 5.00 0.32 0.30 1.33 70.24 71.24 0.99 | 1 (ii) | 10.00 5.66 (ii) 10.00 0.15 0.04 1.42 48.54 71.24 0.68 | *TOT 0. 1 65 71 | ALS* 331 (iii) 33 89 | 4.57 |
| | * WARNING: STO | | | | | | | | |
| | | | | | | | | | |

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^{\circ}=89.0$ Ia = Dep. Storrage (Above) (i) TIME STEP (OT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (ii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB STANDHYD (20122) ID= 1 DT= 5.0 min | Area Total | (ha)= Imp(%)= | 1.11 81.00 | Dir. Conn.(%) | = 81.00 |
|---|--------------------------------|--|---------------|--|---------|
| Surface Area Dep. Storage Average Slope Length Mannings n | (ha)= (mm)= (%)= (m)= | IMPERVIOUS 0.90 1.00 1.00 86.02 0.013 | | PERVIOUS (i) 0.21 1.00 2.00 40.00 0.290 | |

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

| | TRANSFORME | D HYETOGRAI | PH | |
|---|----------------------------|---------------|------------------------------|--------------|
| | TIME RAIN | ' TIME | RAIN TIME | |
| | hrs mm/hr | ' hrs | mm/hr hrs | |
| 0.083 5.22 0.167 5.22 | 1.083 36.37 1.167 36.37 | 2.083 | 11.74 3.08 11.74 3.17 | 6.15 6.15 |
| | 1.250 148.15 | | | |
| 0.333 5.94 | 1 333 148 15 | 2.333 | 10.09 3.23 | 5.74 |
| 0.417 6.93 | 1.417 47.06 | 2.417 | 8.89 3.42 | |
| | | 2.500 | 8.89 3.50 | |
| | | 2.583 | | |
| 0.667 8.42 | 1.667 25.72 | 2.667 | 7.96 3.67 | 5.08 |
| 0.750 10.91 | 1.750 18.11 | 2.750 | | |
| 0.833 10.91 | 1.917 14.17 | 2.033 | 6.65 3.92 | |
| 1.000 16.13 | 2.000 14.17 | 3.000 | 6.65 4.00 | |
| | | | | |
| Max.Eff.Inten.(mm/hr)= | 148.15 1 | 02.23 | | |
| over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= | 5.00 | 10.00 | | |
| Storage Coett. (min)= | 1.99 (11) | 5.69 (11) | | |
| Unit Hyd. peak (mm)= | 0.31 | 0.00 | | |
| onre nyu: peak (cms)= | 0.31 | 0.13 | *TOTALS* | |
| PEAK FLOW (cms)= | 0.37 | 0.05 | 0.410 (ii | ii) |
| TIME TO PEAK (hrs)= RUNOFF VOLUME (mm)= | 1.33 | 1.42 | 1.33 | |
| RUNOFF VOLUME (mm)= | 70.24 | 48.54 | 66.11 | |
| TOTAL RAINFALL (mm)= RUNOFF COEFFICIENT = | | 71.24 0.68 | 71.24 0.93 | |
| RUNUFF COEFFICIENT = | 0.99 | 0.00 | 0.93 | |
| ** WARNING: STORAGE COEFF. | IS SMALLER THAN | TIME STEP! | | |
| | | | | |

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: ${\sf CN^{\hat{\pi}}} = 89.0 \quad {\sf Ia} = {\sf Dep. Storage} \quad ({\sf Above}) \\ {\sf (ii)} \; {\sf TIME STEP} \; ({\sf DT}) \; {\sf SHOULD BE SMALLER OR EQUAL} \\$

ADD HYD (0121) TPEAK (hrs) 1.33 1.33 ID1= 1 (20101): + ID2= 2 (20102): ID = 3 (0121): 0.72 0.263 1.33 65.19

THAN THE STORAGE COEFFICIENT.

(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| CALIB | STANDHYD (20111)| |ID= 1 DT= 5.0 min | Area (ha)= 0.87 Total Imp(%)= 67.00 Dir. Conn.(%)= 67.00 IMPERVIOUS 0.58 0.29
1.00 1.00
1.00 2.00
76.16 40.00
0.013 0.290 Surface Area Dep. Storage Average Slope Length Mannings n

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

| TIME RAIN hrs mm/hr 0.083 5.22 0.167 5.94 0.333 5.94 0.410 6.93 0.500 6.93 0.500 6.94 0.667 6.93 0.667 10.91 0.833 10.91 0.833 10.91 0.831 1.000 16.13 | hrs mm/hr 1.083 36.37 1.167 36.37 1.250 148.15 1.333 148.15 1.417 47.06 1.583 25.72 1.667 25.72 1.667 25.72 1.1.833 18.11 1.917 14.17 | TIME hrs 2.083 2.167 2.250 2.333 2.417 2.500 2.583 2.667 2.750 2.833 2.917 | RAIN TI mm/hr 3.1 11.74 3.1 11.74 3.1 10.09 3.2 10.09 3.2 10.09 3.2 7.96 3.5 7.96 3.5 7.96 3.5 7.24 3.7 7.24 3.7 | 17 6.15 25 5.74 33 5.74 42 5.38 50 5.38 58 5.08 57 5.08 | | | | | |
|--|---|--|---|---|--|--|--|--|--|
| Max.Eff.Inten.(mm/hr)= | 5.00 1.85 (ii) 5.00 0.32 0.24 1.33 70.24 | 02.23 10.00 6.82 (ii) 10.00 0.14 0.06 1.42 48.54 71.24 0.68 | *TOTALS* 0.292 1.33 63.07 71.24 0.89 | (111) | | | | | |
| | | | | | | | | | |

| CALIB | STANDHYD (20112) |ID= 1 DT= 5.0 min Area (ha)= 0.90 Total Imp(%)= 80.00 Dir. Conn.(%)= 80.00

PERVIOUS (i) 0.18 1.00 2.00 40.00 0.290 Surface Area Dep. Storage Average Slope Length Mannings n

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

THAN THE STORAGE COEFFICIENT.

(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB STANDHYD (201021) ID= 1 DT= 5.0 min | Area Total | (ha)= 0.47 Imp(%)= 85.00 | Dir. Conn.(%)= | 85.00 |
|---|-------------------------------------|--|--|-------|
| Surface Area Dep. Storage Average Slope Length Mannings n | (ha)= (mm)= (%)= (m)= = | IMPERVIOUS 0.40 1.00 1.00 55.98 0.013 | PERVIOUS (i) 0.07 1.00 2.00 40.00 0.290 | |

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

| | TRANSFORME | D HYFTOGRAPI | н | |
|---|--|--|---|---|
| 0.333 5.94 0.417 6.93 0.500 6.93 0.583 8.42 0.667 8.42 0.750 10.91 0.833 10.91 | TIME RAIN mm/hr 1.083 36.37 1.167 36.37 1.250 148.15 1.333 148.15 1.417 47.06 1.500 47.06 1.5667 25.72 1.750 18.11 1.833 18.11 | TIME | RAIN TIME | RAI mm/h 6.15 6.15 5.74 5.38 5.08 5.08 4.80 4.80 |
| 1.000 16.13 | | | 6.65 4.00 | 4.57 |
| Max.Eff.Inten.(mm/hr) = over (min) storage Coeff. (min) = Unit Hyd. Tpeak (min) = Unit Hyd. peak (cms) = TIME TO PEAK FLOW (cms) = TIME TO PEAK (hrs) = TIME TO PEAK (hrs) = TOTAL RAINFALL (mm) = TUNOFF COEFFICIENT = | 148.15 1: 5.00 1.54 (ii) 5.00 0.33 0.16 1.33 70.24 71.24 0.99 | 0.02.23 5.00 4.84 (ii) 5.00 0.22 0.02 1.33 48.54 71.24 0.68 | *TOTALS* 0.183 (iii) 1.33 66.98 71.24 0.94 | |

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^{\circ}=89.0$ Ia = bep. Storage (Above) (ii) TIME STEP (OT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB STANDHYD (201022) ID= 1 DT= 5.0 min | Area Total | (ha)= 0.47 Imp(%)= 85.00 | Dir. Conn.(%)= | 85.00 |
|---|-------------------------------------|--|--|-------|
| Surface Area Dep. Storage Average Slope Length Mannings n | (ha)= (mm)= (%)= (m)= = | IMPERVIOUS 0.40 1.00 1.00 55.98 0.013 | PERVIOUS (i) 0.07 1.00 2.00 40.00 0.290 | |

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

| | TRANSFORMED HYETOGRAPH | | | | | | | | | | | |
|-------|------------------------|-------|--------|--------|-------|------|-------|--|--|--|--|--|
| TIME | RAIN | TIME | RAIN | ' TIME | RAIN | TIME | RAIN | | | | | |
| hrs | mm/hr | hrs | mm/hr | ' hrs | mm/hr | hrs | mm/hr | | | | | |
| 0.083 | 5.22 | 1.083 | 36.37 | 2.083 | 11.74 | 3.08 | 6.15 | | | | | |
| 0.167 | 5.22 | 1.167 | 36.37 | 2.167 | 11.74 | 3.17 | 6.15 | | | | | |
| 0.250 | 5.94 | 1.250 | 148.15 | 2.250 | 10.09 | 3.25 | 5.74 | | | | | |
| 0.333 | 5.94 | 1.333 | 148.15 | 2.333 | 10.09 | 3.33 | 5.74 | | | | | |
| 0.417 | 6.93 | 1.417 | 47.06 | 2.417 | 8.89 | 3.42 | 5.38 | | | | | |
| 0.500 | 6.93 | 1.500 | 47.06 | 2.500 | 8.89 | 3.50 | 5.38 | | | | | |
| 0.583 | 8.42 | 1.583 | 25.72 | 2.583 | 7.96 | 3.58 | 5.08 | | | | | |
| 0.667 | 8.42 | 1.667 | 25.72 | 2.667 | 7.96 | 3.67 | 5.08 | | | | | |
| 0.750 | 10.91 | 1.750 | 18.11 | 2.750 | 7.24 | 3.75 | 4.80 | | | | | |
| 0.833 | 10.91 | 1.833 | 18.11 | 2.833 | 7.24 | 3.83 | 4.80 | | | | | |

```
Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                   148.15
5.00
1.54 (ii)
5.00
0.33
                                                                                                                                                                  102.23
5.00
4.84 (ii)
5.00
0.22
                                                                                                                                                                                                                          *TOTALS*
0.183 (iii)
1.33
66.98
71.24
0.94
                PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                       0.16
1.33
70.24
71.24
0.99
                                                                                                                                                                       0.02
1.33
48.54
71.24
0.68
               * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
               (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^2=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
| ADD HYD ( 0136) |
| 1 + 2 = 3
                           ID = 3 ( 0136):
                                                                                                   0.94 0.366
                                                                                                                                                                  1.33
                                                                                                                                                                                                   66.98
                  NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
  IMPERVIOUS 0.25 0.03 0.03 1.00 1.00 2.00 43.20 40.00 0.290
                  Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                               NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                  TRANSFORMED HYETOGR TIME RAIN | TIME hrs mm/hr | hrs mm/hr | hrs 1.083 36.37 | 2.083 | 1.167 38.37 | 2.167 | 1.167 38.37 | 2.167 | 1.167 38.37 | 2.167 | 1.167 38.37 | 2.167 | 1.167 38.37 | 2.167 | 1.167 38.37 | 2.167 | 2.167 | 1.167 38.37 | 2.167 | 2.167 | 1.167 38.37 | 2.167 | 2.167 | 1.167 38.37 | 2.167 | 2.167 | 1.167 38.37 | 2.167 | 2.167 | 1.167 38.37 | 2.167 | 2.167 | 2.167 | 1.167 38.37 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 | 2.167 |
                                                                                                                                   TRANSFORMED HYETOGRAPH
                                                                                                                                                                                                           RAIN
mm/hr
11.74
11.74
10.09
10.09
8.89
7.96
7.96
7.24
6.65
6.65
                                                         TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                           TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                     mm/hr
5.22
5.22
5.94
6.93
6.93
8.42
8.42
10.91
10.91
16.13
                                                                                                                                                                                                                                                                           mm/h
6.15
6.15
5.74
5.38
5.38
5.08
4.80
4.57
4.57
                  Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                    148.15
5.00
1.32 (ii)
5.00
0.33
                                                                                                                                                                  102.23
5.00
4.06 (ii)
5.00
0.24
                                                                                                                                                                                                                         *TOTALS*
0.111 (iii)
1.33
68.06
71.24
0.96
                   PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                        0.10
1.33
70.24
71.24
0.99
                                                                                                                                                                        0.01
1.33
48.54
71.24
0.68
 ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                     Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                   102.23
5.00
3.77 (ii)
5.00
0.25
                                                                                                                                                                                                                         *TOTALS*
0.040 (iii)
1.33
67.94
71.24
0.95
                                                                                                                       0.04
1.33
70.24
71.24
0.99
                  PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                        0.00
1.33
48.54
71.24
0.68
                  WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                Area (ha)= 0.11
Total Imp(%)= 87.00 Dir. Conn.(%)= 87.00
                                                                         Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                               NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                  --- TRANSFORNED HYETOGR TIME RAIN | 'TIME hrs mm/hr ' hrs 1.083 36.37 | 2.083 | 1.167 38.37 | 2.165 1 | 1.333 148.15 | 2.253 | 1.417 | 47.06 | 2.417 | 1.500 47.06 | 2.500 | 1.583 | 25.72 | 2.583 | 1.417 | 2.753 | 1.417 | 2.753 | 1.417 | 2.753 | 1.417 | 2.753 | 1.417 | 2.753 | 1.417 | 2.753 | 1.417 | 2.753 | 1.417 | 2.317 | 2.000 | 1.4.17 | 3.000
                                                                                                                                                                                                           RAIN
mm/hr
11.74
10.09
10.09
8.89
7.96
7.96
7.24
6.65
6.65
                                                         TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                   RAIN
mm/hr
5.22
5.94
5.94
6.93
8.42
8.42
10.91
10.91
16.13
                                                                                                                                                                                                                                            TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                           RAIN
mm/hr
6.15
6.15
5.74
5.38
5.38
5.38
5.08
4.80
4.57
4.57
                Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                   148.15 102.23
5.00 5.00 1.00 (ii) 4.08 (ii)
5.00 5.00 0.34 0.24
                                                                                                                                                                                                                         *TOTALS*
0.043 (iii)
1.33
67.40
71.24
0.95
                   PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                        0.04
1.33
70.24
71.24
0.99
                                                                                                                                                                        0.00
1.33
48.54
71.24
0.68
                     WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                ADD HYD ( 0142) | 1 + 2 = 3
```

THAN THE STORAGE COEFFICIENT.

(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. Area (ha)= 1.11 Total Imp(%)= 56.00 Dir. Conn.(%)= 56.00 IMPERVIOUS (1) 0.62 0.49 1.00 1.00 2.00 86.02 40.00 0.013 0.290 Surface Area Dep. Storage Average Slope Length Mannings n (ha)= (mm)= (%)= (m)= = NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. TRANSFORMED HYETOGRAP
ME RAIN ' TIME
FS mm/hr ' hrs
83 36.37 2.083 1
67 36.37 2.167 1
50 148.15 2.250 1
31 148.15 2.250 1
31 148.15 2.333 1
77 47.06 2.417 1
77 47.06 2.67 2.667
50 18.11 2.750
50 18.11 2.750
50 18.11 2.833 RAIN | TIME | hrs | 5.22 | 1.083 | 5.22 | 1.167 | 5.94 | 1.250 | 6.93 | 1.417 | 6.93 | 1.500 | 8.42 | 1.583 | 1.667 | 10.91 | 1.750 | 10.91 | 1.833 | 16.13 | 1.2000 | 10.10 | 1.833 | 16.13 | 1.2000 | 1.833 | 16.13 | 1.2000 | 1.833 | 16.13 | 1.2000 | 1.833 | 16.13 | 1.2000 | 1.833 | 16.13 | 1.2000 | 1.833 | 16.13 | 1.2000 | 1.833 | 16.13 | 1.2000 | 1.833 | 16.13 | 1.2000 | 1.833 | 1.3000 | 1.833 | 1.3000 | 1.833 | 1.3000 | 1.833 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1.3000 | 1 RAIN mm/hr 6.15 6.15 5.74 5.38 5.38 5.08 4.80 4.80 4.57 4.57 hrs 0.083 0.167 0.250 0.333 0.417 0.500 0.583 0.667 0.750 0.833 0.917 1.000 mm/hr 11.74 11.74 10.09 10.09 8.89 7.96 7.96 7.24 7.24 6.65 6.65 hrs 3.08 3.17 3.25 3.33 3.42 3.50 3.58 3.67 3.75 3.83 3.92 4.00 Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= 148.15 5.00 1.99 (ii) 5.00 0.31 102.23 10.00 i) 9.64 (ii) 10.00 0.11 *TOTALS* 0.330 (iii) 1.33 60.69 71.24 0.85 PEAK FLOW (CMS)= TIME TO PEAK (hrs)= RUNOFF VOLUME (mM)= TOTAL RAINFALL (mM)= RUNOFF COEFFICIENT = 0.25 1.33 70.24 71.24 0.99 WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $\text{CN}^\circ = 89.0$ Ia = bep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. Area (ha)= 0.10 Total Imp(%)= 89.50 Dir. Conn.(%)= 89.50 IMPERVIOUS PERVIOUS (i)
0.09 0.01
1.00 1.00
2.00
25.82 40.00
0.013 0.290 (ha)= (mm)= (%)= (m)= = Surface Area Dep. Storage Average Slope Length Mannings n NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. TRANSFORMED HYETOGRAPI TIME hrs 1.083 1.167 1.250 1.333 1.417 1.500 1.583 1.667 1.750 1.833 RAIN mm/hr 36.37 36.37 148.15 148.15 47.06 25.72 25.72 18.11 18.11 HYETOGR TIME hrs 2.083 2.167 2.250 2.333 2.417 2.500 2.583 2.667 2.750 2.833 RAIN mm/hr 6.15 6.15 5.74 5.74 5.38 5.38 5.08 RAIN mm/hr 11.74 | 11.74 | 10.09 | 10.09 | 8.89 | 8.89 | 7.96 | 7.24 | 7.24 | TIME hrs 0.083 0.167 0.250 0.333 0.417 0.500 0.583 0.667 0.750 0.833 RAIN mm/hr 5.22 5.22 5.94 5.94 6.93 6.93 8.42 8.42 10.91 TIME hrs 3.08 3.17 3.25 3.33 3.42 3.50 3.58 3.67 3.75 3.83 ID = 3 (0142): 0.21 0.083 1.33 NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY. Area (ha)= 0.10 Total Imp(%)= 79.00 Dir. Conn.(%)= 79.00 IMPERVIOUS PERVIOUS (i) 0.08 0.02 1.00 1.00 1.00 2.00 25.69 40.00 0.013 0.290 Surface Area Dep. Storage Average Slope Length Mannings n (ha)= (mm)= (%)= (m)= NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. TRANSFORMED HYETOGRAPH RAIN TIME
mm/hr hrs
5.22 1.083
5.24 1.167
5.94 1.250
6.93 1.417
6.93 1.500
8.42 1.583
8.42 1.667
10.91 1.833
10.91 1.833 HYETOGR TIME hrs 2.083 2.167 2.250 2.333 2.417 2.500 2.583 2.667 2.750 2.833 2.917 3.000 RAIN mm/hr 11.74 | 11.74 | 10.09 | 8.89 | 7.96 | 7.96 | 7.24 | 6.65 | 6.65 | TIME hrs 3.08 3.17 3.25 3.33 3.42 3.50 3.58 3.67 3.75 3.83 3.92 4.00 TIME hrs 0.083 0.167 0.250 0.333 0.417 0.500 0.583 0.667 0.750 0.833 0.917 1.000 RAIN mm/hr 6.15 6.15 5.74 5.38 5.38 5.08 5.08 4.80 4.87 4.57 Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= 148.15 5.00 0.97 (ii) 5.00 0.34 102.23 5.00 4.85 (ii) 5.00 0.22 *TOTALS*
0.038 (iii)
1.33
65.64
71.24
0.92 0.03 1.33 70.24 71.24 0.99 PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT = ** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^{\circ}=89.0$ Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. | CALIB | STANDHYD (200122) | Area (ha) = 0.13 | Total Imp(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. Conn.(%) = 86.00 | Dir. C (ha)= IMPERVIOUS 0.02 (i) 0.02 (mm)= 1.00 1.00 (2.00 (%)= 1.00 2.00 (m)= 29.44 40.00 = 0.013 0.290 Surface Area Dep. Storage Average Slope Length Mannings n NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. RAIN mm/hr 11.74 10.09 10.09 8.89 8.89 7.96 7.96 7.24 7.24 TIME hrs 3.08 3.17 3.25 3.33 3.42 3.50 3.58 3.67 2.75 TIME hrs 1.083 1.167 1.250 1.333 1.417 1.500 1.583 1.667 1.750 TIME hrs 0.083 0.167 0.250 0.333 0.417 0.500 0.583 0.667 0.750 RAIN mm/hr 6.15 6.15 5.74 5.74 5.38 5.38 5.08 RAIN mm/hr 5.22 5.22 5.94 6.93 6.93 8.42 8.42 10.91

```
Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                    148.15
5.00
1.05 (ii)
5.00
0.34
                                                                                                                                                                   102.23
5.00
4.24 (ii)
5.00
0.24
                                                                                                                                                                                                                         *TOTALS*
0.051 (iii)
1.33
67.17
71.24
0.94
                   PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                         0.05
1.33
70.24
71.24
0.99
                                                                                                                                                                        0.00
1.33
48.54
71.24
0.68
                  * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = bep. Storage (Above) (ii) TIME STEP (OT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
   | ADD HYD ( 0145) |
| 1 + 2 = 3
                       ID1= 1 (200112):
+ ID2= 2 (200122):
                             ID = 3 ( 0145):
                                                                                                     0.23 0.089
                                                                                                                                                                                                    66.51
                                                                                                                                                                  1.33
                     NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
                                                 / I SSSSS U U A L L I SS U U AAAA L I SS U U AAAAA L I SS U U AAAAA L I SS U U A A L L I SSSS UUUUU A A LLLLL
                                                                                                                                                                                                               (v 6.1.2002)
***** DETAILED OUTPUT *****
          Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\Vo2\voin.dat
Output filename: C:\User$\caef070146\Appoata\Loca\\civica\\H5\50564c49-8c07-4086-8157-8729fb3caba3\b83c9b70
Summary filename: C:\User$\caef070146\Appoata\Loca\\civica\\H5\50564c49-8c07-4086-8157-8729fb3caba3\b83c9b70
 USER:
         READ STORM | Filename: C:\Users\caef070146\AppD ata\Loca\Temp\ 11403a02-80e0-48b3-97a8-b203216ba841\05b28c32 Ptotal= 79.45 mm | Comments: 50-year, 4 hr-chicago, City of Barrie
                                                                TIME RAIN TIME RAIN 'TIME RAIN TIME RAIN hrs mm/hr hrs mm/hr hrs mm/hr
                                                                                  7.85
9.50
9.50
12.27
12.27
18.04
18.04
                                                                                                                                                51.92 | 2.500

28.58 | 2.583

28.58 | 2.667

20.23 | 2.750

20.23 | 2.833

15.88 | 2.917

15.88 | 3.000
                                                                                                                  1.500
1.583
1.667
1.750
1.833
1.917
2.000
                                                                                                                                                                                                               10.03
9.00
9.00
8.19
8.19
7.53
7.53
                                                                                                                                                                                                                                           3.50
3.58
3.67
3.75
3.83
3.92
4.00
                 Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
RUNOFF COLFFICIENT
                                                                                                                                                                 118.16
5.00
4.41 (ii)
5.00
0.23
                                                                                                                                                                                                                       *TOTALS*
0.308 (iii)
1.33
75.98
79.45
0.96
                                                                                                                       0.28
1.33
78.45
79.45
0.99
                                                                                                                                                                        0.02
1.33
56.03
79.45
0.71
                     WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                   (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \mathbb{C}\mathbb{N}^n=89.0. If a Pep. Storage (Above) (ii) TIME STEP (0.7) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFTICIENT. (iii) PHAN FILES NOT INCLUDE BASEFLOW IF ANY.
     CALIB
| STANDHYD ( 20031)
|ID= 1 DT= 5.0 min |
                                                                                    Area (ha)= 0.43 
Total Imp(\%)= 90.00 Dir. Conn.(\%)= 90.00
                                                                             Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                  NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                  TRANSFORMED HYETOGR
TIME RAIN | TIME
hrs mm/hr | hrs
1.083 40.22 | 2.083
1.167 40.22 | 2.167
1.1533 | 14.42 | 2.157
1.1533 | 14.42 | 2.153
1.417 | 51.92 | 2.417
1.500 | 51.92 | 2.500
1.583 | 28.58 | 2.583
1.667 | 28.53 | 2.667
1.667 | 28.53 | 2.67
1.753 | 28.58 | 2.58
1.753 | 28.58 | 2.58
1.753 | 28.58 | 2.58
1.753 | 28.58 | 2.58
1.753 | 28.58 | 2.58
1.753 | 28.58 | 2.58
1.753 | 28.58 | 2.58
1.753 | 28.58 | 2.58
1.753 | 28.58 | 2.58
1.753 | 28.58 | 2.58
1.753 | 28.58 | 2.58
1.753 | 28.58 | 2.58
1.753 | 28.58 | 2.58
1.753 | 28.58 | 2.58
1.753 | 28.58 | 2.58
1.753 | 28.58 | 2.58
1.753 | 28.58 | 2.58
1.753 | 28.58 | 2.58
1.753 | 28.58 | 2.58
1.753 | 28.58 | 2.58
1.753 | 28.58 | 2.58
1.753 | 28.58 | 2.58
1.753 | 28.58 | 2.58
1.753 | 28.58 | 2.58
1.753 | 28.58 | 2.58
1.753 | 28.58 | 2.58
1.753 | 28.58 | 2.58
1.753 | 28.58 | 2.58
1.753 | 28.58 | 2.58
1.753 | 28.58 | 2.58
1.753 | 28.58 | 2.58
1.753 | 28.58 | 2.58
1.753 | 28.58 | 2.58
1.753 | 28.58 | 2.58
1.753 | 28.58 | 2.58
1.753 | 28.58 | 2.58
1.753 | 28.58 | 2.58
1.753 | 28.58 | 2.58
1.753 | 28.58 | 2.58
1.753 | 28.58 | 2.58
1.753 | 28.58 | 2.58
1.753 | 28.58 | 2.58
1.753 | 28.58 | 2.58 | 2.58
1.753 | 28.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58 | 2.58
                                                                                                                                                                                                                                         TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                           TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                     RAIN
mm/hr
5.93
6.74
7.85
7.85
9.50
12.27
12.27
18.04
                                                                                                                                                                                                           mm/hr
13.20
13.20
11.37
10.03
10.03
9.00
9.00
8.19
7.53
7.53
                                                                                                                                                                                                                                                                         mm/hi
6.98
6.98
6.51
6.11
6.11
5.77
5.46
5.19
5.19
                  Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                    164.22 118.16
5.00 5.00
1.44 (ii) 4.07
5.00 5.00
0.33 0.24
                                                                                                                                                                                                                     *TOTALS*
0.190 (iii)
1.33
76.21
79.45
0.96
                    PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                         0.18
                                                                                                                                                                          0.01
1.33
                                                                                                                         78.45
79.45
0.99
                       WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                   (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^\circ = 89.0   \text{Ia} = \text{Dep}. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
  | CALIB
| STANDHYD ( 20032)| Area (ha)= 0.47
```

| 0.17 5.93 1.17 40.22 2.17 13.20 3.17 6.98 0.33 6.74 1.33 164.22 2.33 11.37 3.33 6.51 0.50 7.88 1.50 51.9 2.55 10.00 3.07 5.77 0.67 2.50 2.50 2.50 2.50 2.50 2.50 2.50 2.50 3.07 5.77 0.83 12.7 1.63 20.53 2.67 20.9 13.83 5.46 1.00 18.04 2.00 15.88 3.00 7.53 4.00 5.19 |
|--|
| CALTB |
| IMPERVIOUS PERVIOUS (i) |
| TIME RAIN TIME R |
| Max.Eff.Inten.(mm/hr)= 164.22 118.16 0 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5 |
| **** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN° = 89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. |
| CALIB STANDHYD (20021) Area (ha) = 0.70 Total Imp(%) = 89.00 Dir. Conn.(%) = 89.00 |
| NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. TRANSFORMED HYETOGRAPH TIME RAIN TI |
| ID= 1 DT= 5.0 min Total Imp(%)= 87.00 Dir. Conn.(%)= 87.00 |
| TIME RAIN TIME RAIN TIME RAI |

| hrs | s mm/hr | l hrs | mm/hr | i' hrs | mm/hr | l hrs | mm/h |
|------------------|---------|--------|----------------|--------|----------------|-----------|------|
| 0.083 | | | 40.22 | 2.083 | 13.20 | | 6.98 |
| 0.167 | | | | | 13.20 | | 6.98 |
| 0.250 | | | 164.22 | 2.250 | 11.37 | | 6.5 |
| 0.333 | | | 164.22 | | 11.37 | | 6.53 |
| 0.417 | | | 51.92 | | 10.03 | | 6.13 |
| 0.500 | | | 51.92 | | 10.03 | 3.50 | 6.1 |
| 0.583 | | | 28.58 | | 9.00 | 3.58 | 5.77 |
| 0.667 | | | 28.58 | | 9.00 | 3.67 | 5.77 |
| 0.750 | | | 20.23 | | 8.19 | 3.75 | 5.46 |
| 0.833 0.917 | | | 20.23 15.88 | | 8.19 | | 5.46 |
| 1.000 | | | 15.88 | | 7.53 7.53 | | 5.19 |
| 1.000 | 10.04 | 2.000 | 13.00 | 3.000 | 7.33 | 4.00 | 3.1 |
| Max.Eff.Inten.(n | nm/hr)= | 164.22 | 1 | 18.16 | | | |
| | (min) | 5.00 | | 5.00 | | | |
| Storage Coeff. | | | (ii) | |) | | |
| Unit Hyd. Tpeak | | 5.00 | | 5.00 | _ | | |
| Unit Hvd. peak | | 0.33 | | 0.23 | | | |
| | () | | | | *TOT | ALS* | |
| PEAK FLOW | (cms)= | 0.19 | | 0.02 | 0. | 205 (iii) |) |
| TIME TO PEAK | (hrs)= | 1.33 | | 1.33 | | 33 | |
| RUNOFF VOLUME | (mm)= | 78.45 | | 56.03 | | .53 | |
| TOTAL RAINFALL | (mm)= | 79.45 | | 79.45 | | 1.45 | |
| RUNOFF COEFFICIE | ENT = | 0.99 | | 0.71 | C |).95 | |

WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $\text{CN}^\circ = 89.0$ Ia = Dep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB STANDHYD (20041) ID= 1 DT= 5.0 min | Area Total | (ha)= 0 Imp(%)= 89 | .35 .00 Dir. Conn | .(%)= 89.00 | |
|--|---------------|-----------------------|----------------------|-------------|--|
| | | | | | |
| | | TMPERVTOUS | PERVIOUS (i |) | |
| Surface Area | (ha)= | 0.31 | 0.04 | , | |
| Surrace Area | (na)= | | | | |
| Dep. Storage | (mm)= | 1.00 | 1.00 | | |
| | | | | | |
| Average Slope | (%)= | 1.00 | 2.00 | | |
| Lenath | (m)= | 48.30 | 40.00 | | |
| | (111)- | | | | |
| Mannings n | = | 0.013 | 0.290 | | |
| | | | | | |

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

| TIME | RAIN | TIME | RAIN | ' TIME | RAIN | TIME | RAIN |
|------------|-------|--------|--------|--------|-------|------|-------|
| hrs | mm/hr | hrs | mm/hr | ' hrs | mm/hr | hrs | mm/hr |
| 0.083 | 5.93 | 1.083 | 40.22 | 2.083 | 13.20 | 3.08 | 6.98 |
| 0.167 | 5.93 | 1.167 | 40.22 | 2.167 | 13.20 | 3.17 | 6.98 |
| 0.250 | 6.74 | 1.250 | 164.22 | 2.250 | 11.37 | 3.25 | 6.51 |
| 0.333 | 6.74 | 1.333 | 164.22 | 2.333 | 11.37 | 3.33 | 6.51 |
| 0.417 | 7.85 | 1.417 | 51.92 | 2.417 | 10.03 | 3.42 | 6.11 |
| 0.500 | 7.85 | 1.500 | 51.92 | 2.500 | 10.03 | 3.50 | 6.11 |
| 0.583 | 9.50 | 1.583 | 28.58 | 2.583 | 9.00 | 3.58 | 5.77 |
| 0.667 | 9.50 | 1.667 | 28.58 | 2.667 | 9.00 | 3.67 | 5.77 |
| 0.750 | 12.27 | 1.750 | 20.23 | 2.750 | 8.19 | 3.75 | 5.46 |
| 0.833 | 12.27 | 1.833 | 20.23 | 2.833 | 8.19 | 3.83 | 5.46 |
| 0.917 | 18.04 | 1.917 | 15.88 | 2.917 | 7.53 | 3.92 | 5.19 |
| 1.000 | 18.04 | 2.000 | 15.88 | 3.000 | 7.53 | 4.00 | 5.19 |
| Inten (mm/ | (hr)= | 164 22 | 11 | 18 16 | | | |

--- TRANSFORMED HYFTOGRAPH ----

Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= 164.22 118.16 5.00 5.00 1.35 (ii) 4.10 (ii) 5.00 5.00

```
Unit Hyd. peak (cms)=
                                                                                                                                                                          0.33
                                                                                                                                                                                                                                             0.24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RAIN
mm/hr
40.22
40.22
164.22
164.22
51.92
51.92
51.92
28.58
28.58
20.23
20.23
15.88
15.88
                                                                                                                                                                                                                                                                                                                  TOTALS*
0.154 (iii)
1.33
75.98
79.45
0.96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TIME hrs
2.083
2.167
2.250
2.333
2.417
2.500
2.583
2.667
2.750
2.833
2.917
3.000
                            PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                        0.01
1.33
56.03
79.45
0.71
                                                                                                                                                                      0.14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         mm/hr
13.20
13.20
11.37
11.37
10.03
10.03
9.00
9.00
8.19
7.53
7.53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1.083
| 1.167
| 1.250
| 1.333
| 1.417
| 1.500
| 1.583
| 1.667
| 1.750
| 1.833
| 1.917
| 2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5.93
5.93
6.74
7.85
7.85
9.50
9.50
12.27
12.27
18.04
                                                                                                                                                                       78.45
79.45
0.99
                               WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                           (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0   Ia=\text{Dep}. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               164.22
5.00
1.28 (ii)
5.00
0.33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               118.16
10.00
i) 5.09 (ii)
10.00
0.16
     CALIB
STANDHYD (20042)
ID= 1 DT= 5.0 min
                                                                                                                  Area (ha)= 0.36
Total Imp(%)= 85.00 Dir. Conn.(%)= 85.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          *TOTALS*
0.119 (iii)
1.33
73.51
79.45
0.93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                        0.10
1.33
78.45
79.45
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0.02
1.42
56.03
79.45
0.71
                          Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                               NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^\circ=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                         TRANSFORMED HYETOGRAPH
TIME RAIN ' TIME
hrs mm/hr ' hrs m
1.083 40.22 2.083 13
1.167 40.22 2.167 13
1.250 164.22 2.250 11
1.333 164.22 2.333 11
1.410 51.92 2.417 31
1.540 52.50 10
1.550 52.50 10
1.550 52.50 52.50 10
1.550 52.50 52.50 10
1.550 52.50 52.50 10
1.550 52.50 52.50 52.50 10
1.550 52.50 52.50 52.50 10
1.550 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 52.50 
                                                                                  TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                         RAIN
mm/hr
5.93
5.93
6.74
6.74
7.85
7.85
9.50
9.50
9.50
12.27
12.27
18.04
18.04
                                                                                                                                                                                                                                                                                                                                                                                RAIN
mm/hr
6.98
6.51
6.51
6.11
5.77
5.46
5.19
5.19
                                                                                                                                                                                                                                                                                            RAIN
mm/hr
13.20
13.20
11.37
10.03
10.03
9.00
9.00
8.19
8.19
7.53
7.53
                                                                                                                                                                                                                                                                                                                                      TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | CALIB
| STANDHYD ( 20062) | Area (ha)= 0.73
| ID= 1 DT= 5.0 min | Total Imp(%)= 80.00 Dir. Conn.(%)= 80.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Surface Area (ha)= 0.58 0.15
Dep. Storage (mm)= 1.00 1.00
Average Slope (%)= 1.00 2.00
Length (m)= 69.76 40.00
Mannings n = 0.013 0.290
                          Max.Eff.Inten.(mm/hr) = over (min) storage (coff. (min) = Unit Hyd. Tpeak (min) = Unit Hyd. Tpeak (min) = Unit Hyd. peak (cms) = TIME TO PEAK (trong) = RUNOFF VOLUME (mm) = TOTAL RAINFALL (mm) = RUNOFF COEFFICIENT =
                                                                                                                                                                 164.22
5.00
1.37 (ii)
5.00
0.33
                                                                                                                                                                                                                     118.16
5.00
i) 4.53 (ii)
5.00
0.23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TRANSFORMED HYETOGRAPH
ME RAIN | TIME | 175 mm/hr | 171 mt | 175 mm/hr | 171 mt | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/hr | 175 mm/h
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RAIN | TIME | hrs | 5.93 | 1.083 | 7.85 | 1.167 | 6.74 | 1.250 | 7.85 | 1.417 | 7.85 | 1.500 | 9.50 | 1.583 | 9.50 | 1.583 | 1.27 | 1.27 | 1.831 | 18.04 | 2.000 |
                                                                                                                                                                                                                                                                                                            *TOTALS*
0.156 (iii)
1.33
75.08
79.45
0.94
                                                                                                                                                                      0.14
1.33
78.45
79.45
0.99
                                                                                                                                                                                                                                        0.02
1.33
56.03
79.45
0.71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RAIN
mm/hr
13.20
13.20
11.37
11.37
10.03
10.03
9.00
9.00
8.19
8.19
7.53
7.53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                          * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                            (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Max.Eff.Inten.(mm/n) over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= PEAK FLOW (cms)= RUNOFF VOLUME (mm)= CORTANDENCE (mm)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               164.22
5.00
1.69 (ii)
5.00
0.32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                118.16
10.00
i) 5.32 (ii)
10.00
0.16
     *TOTALS*
0.301 (iii)
1.33
73.96
79.45
0.93
                                                                                                        (ha)= 0.23

(mm)= 1.00

(%)= 1.00

(m)= 43.97

= 0.013
                                                                                                                                                                                                                           PERVIOUS (i)
0.06
1.00
2.00
40.00
0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0.27
1.33
78.45
79.45
0.99
                            Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                               NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\pm} = 89.0 Ia = Dep. Storage (Above)
                            (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8.19 | 3.83
7.53 | 3.92
7.53 | 4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               164.22
5.00
1.62
5.00
0.32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               118.16
5.00
4.88 (ii)
5.00
0.22
                                                                                                                   Area (ha)= 0.65
Total Imp(\%)= 85.00 Dir. Conn.(\%)= 85.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          *TOTALS*
0.276 (iii)
1.33
74.86
79.45
0.94
                           Surface Area (ha)= 1MPERVIOUS PREVIOUS (i)
Dep. Storage (mm)= 1.00 1.00
Average Slope (%)= 1.00 2.00
Length (m)= 65.83 40.00
Mannings n = 0.013 0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0.24
1.33
78.45
79.45
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0.03
1.33
56.03
79.45
0.71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                               NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                         TRANSFORMED HYETOGRAPH
TIME RAIN ' TIME R
hrs mm/hr ' hrs m
1.083 40.22 2.083 13.
1.167 40.22 2.167 13.
1.250 164.22 2.333 11.
1.333 164.22 2.333 11.
1.417 51.92 2.401 10.
1.580 38.28 2.381 10.
1.667 28.58 2.667 9.
1.667 28.58 2.667 9.
1.750 20.23 2.750 8.
1.833 20.23 2.833 8.
1.833 20.23 2.833 8.
1.817 15.88 2.917 7.
2.000 15.88 3.000 7.
                                                                                                                                                                                                                                                                                         RAIN
mm/hr
13.20 |
11.37 |
11.37 |
10.03 |
9.00 |
9.00 |
9.00 |
8.19 |
8.19 |
7.53 |
                                                                                  TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                       RAIN
mm/hr
5.93
6.74
6.74
7.85
9.50
9.50
12.27
12.27
18.04
18.04
                                                                                                                                                                                                                                                                                                                                                                                  RAIT
mm/hi
6.98
6.51
6.51
6.11
5.77
5.46
5.19
5.19
                                                                                                                                                                                                                                                                                                                                      3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Area (ha)= 0.58
Total Imp(%)= 85.00 Dir. Conn.(%)= 85.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                          Max.Eff.Inten.(smm/hr)=
over (min)=
over (min)=
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
PEAK FLOW (cms)=
PEAK FLOW (frs)=
TIME TO PEAK (hrs)=
RUNDAR RAINFALL (mm)=
RUNDAF ROUBEF (mm)=
                                                                                                                                                                 164.22 118.16
5.00 5.00
1.63 (ii) 4.79 (ii)
5.00
0.32 5.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TRANSFORMED HYETOGRAPH
ME RAIN | TIMEP
ME RAIN | TIMEP
ME RAIN | TIMEP
ME RAIN | TIMEP
ME RAIN | TIMEP
ME RAIN | TIMEP
ME RAIN | TIMEP
ME RAIN | TIMEP
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ME RAIN | TIMEP
ME RAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RAIN TIME mm/hr hrs 5.93 1.083 5.93 1.167 6.74 1.250 6.74 1.353 7.85 1.417 7.85 1.500 9.50 1.687 9.50 1.687 12.27 1.833 18.04 1.917 18.04 2.000
                                                                                                                                                                                                                                                                                                            *TOTALS*
0.281 (iii)
1.33
75.09
79.45
0.95
                                                                                                                                                                    0.25
1.33
78.45
79.45
0.99
                                                                                                                                                                                                                                     0.03
1.33
56.03
79.45
0.71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.657
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RAIN
mm/hr
13.20 |
13.20 |
11.37 |
10.03 |
9.00 |
9.00 |
9.00 |
8.19 |
7.53 |
7.53 |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                 WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                           (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN° = 89.0 Ia = Dep. Storage (Above)

ITAM STEP (DT) SMOULD BE SMALLER OR EQUAL

THAN THE STORAGE COEFFICIENT.

(iii) PEAK FLOW DOES NOT INCLIDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            164.22
5.00
1.58 (ii)
5.00
0.33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                118.16
5.00
i) 4.74 (ii)
5.00
0.22
CALIB
STANDHYD ( 20072)
ID= 1 DT= 5.0 min

Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                     Area (ha)= 0.64
Total Imp(%)= 84.00 Dir. Conn.(%)= 84.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          *TOTALS*
0.251 (iii)
1.33
75.09
79.45
0.95
                                                                                                        (ha)= 0.54 0.10 (i)

(mm)= 1.00 1.00 (%)= 1.00 2.00 (m)= 65.32 40.00 0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0.22
1.33
78.45
79.45
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0.03
1.33
56.03
79.45
0.71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                 NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^\circ=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                         TIME hrs 1.083 1.167 1.250 1.333 1.417 1.500 1.583 1.667 1.750
                                                                                                                                                                                                 RANSFORMED H
RAIN | '
40.22 | 2
40.22 | 2
164.22 | 2
51.92 | 2
51.92 | 2
28.58 | 2
28.58 | 2
20.23 | 2
                                                                                                                                                                                                                                               D HYETOGR
TIME
hrs
2.083
2.167
2.250
2.333
2.417
2.500
2.583
2.667
2.750
                                                                                                                                                                                                                                                                                           RAIN
mm/hr
13.20 |
13.20 |
11.37 |
11.37 |
10.03 |
9.00 |
9.00 |
8.19 |
                                                                                  TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
                                                                                                                         RAIN
mm/hr
5.93
5.93
6.74
6.74
7.85
7.85
9.50
9.50
                                                                                                                                                                                                                                                                                                                                      TIME
h.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
                                                                                                                                                                                                                                                                                                                                                                                  mm/h
6.98
6.98
6.51
6.51
6.11
5.77
5.77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Surface Area (ha)= 0.51 PERVIOUS (i)
```

RAIN mm/hr 6.98 6.98 6.51 6.51 6.11 5.77 5.46 5.19 5.19

RAIN mm/hr 6.98 6.951 6.51 6.11 5.77 5.77 5.46 5.19 5.19

RAIN mm/hr 6.98 6.98 6.51 6.51

6.11 5.77 5.77 5.46 5.46 5.19

```
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                               1.00
1.00
64.81
0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RUNOFF VOLUME (mm)= 78.45
TOTAL RAINFALL (mm)= 79.45
RUNOFF COEFFICIENT = 0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                         NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                             RAIN | TIME RAIN | TIME mm/hr | hrs mm/hr | hrs mm/hr | hrs 5.93 | 1.083 | 40.22 | 2.083 | 5.93 | 1.162 | 40.22 | 2.167 | 6.74 | 1.253 | 1.642 | 2.253 | 6.74 | 1.253 | 1.642 | 2.253 | 6.74 | 1.253 | 1.642 | 2.253 | 6.74 | 1.253 | 1.642 | 2.253 | 7.85 | 1.500 | 51.92 | 2.500 | 9.50 | 1.583 | 28.58 | 2.667 | 7.85 | 1.667 | 28.58 | 2.667 | 12.27 | 1.750 | 20.23 | 2.783 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.253 | 1.2
                                                                                                                                                                                                                                                                                                                                                                        RAIN
mm/hr
13.20
13.20
11.37
11.37
10.03
10.03
9.00
9.00
8.19
8.19
7.53
7.53
                                                                                                                                                                                                                                                                                                                                                                                                                              TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RAIN
mm/hr
6.98
6.98
6.51
6.51
6.11
5.77
5.77
5.46
5.46
5.19
                                                                                                   TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                            Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                         164.22
5.00
1.61 (ii)
5.00
0.32
                                                                                                                                                                                                                                                                         118.16
10.00
i) 5.16 (ii)
10.00
0.16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            --- TRANSFORMED HYETOGRAPH

TIME RAIN | TIME |
hrs mm/hr | hrs m
1.083 40.22 | 2.083 13
1.167 40.22 | 2.167 13
1.250 164.22 | 2.350 11
1.333 164.22 | 2.350 11
1.417 51.92 | 2.417 1
1.500 164.22 | 2.350 11
1.417 51.92 | 2.417 1
1.667 28.58 | 2.667 9
1.750 20.23 | 2.750 8
1.833 20.23 | 2.833 8
1.917 15.88 | 2.917 7
2.000 15.88 | 3.00 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RAIN
mm/hr
13.20 |
13.20 |
11.37 |
11.37 |
10.03 |
9.00 |
9.00 |
9.00 |
8.19 |
8.19 |
7.53 |
                                                                                                                                                                                                                                                                                                                                                                                             *TOTALS*
0.261 (iii)
1.33
74.19
79.45
0.93
                            PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                               0.23
1.33
78.45
79.45
0.99
                                                                                                                                                                                                                                                                                                     0.03
1.42
56.03
79.45
0.71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RAIN TIME mm/hr hrs hrs 393 1.083 5.93 1.167 6.74 1.250 6.74 1.250 6.74 1.250 9.50 1.583 9.50 1.667 12.27 1.750 12.27 1.833 1.804 1.917 18.04 2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RAIN
mm/hr
6.98
6.98
6.51
6.51
6.11
5.77
5.77
5.46
5.19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                      ** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                            (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0   Ia=\mathrm{Dep}. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Max.Eff.Inten.(mm/hr)=
over (min)=
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (ms)=
PEAN FLOW (cms)=
TIME TO PEAK (hr)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                164.22
5.00
1.39 (ii)
5.00
0.33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               118.16
10.00
ii) 5.90 (ii)
10.00
0.15
| CALIB
| STANDHYD ( 20091) | Area (ha)= 0.40
| Total Imp(%)= 77.00 | Dir. Conn.(%)= 77.00
| IMPERVIOUS | PERVIOUS (i)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         *TOTALS*
0.147 (iii)
1.33
71.71
79.45
0.90
                            0.12
1.33
78.45
79.45
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   *** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                      NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                      TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                      RAIN
mm/hr
13.20
11.37
11.37
10.03
9.00
9.00
8.19
8.19
7.53
7.53
                                                                                                                                                                                                                                                                                                                                                                                                                            TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                     mm/hr
5.93
5.93
6.74
7.85
7.85
9.50
9.50
12.27
12.27
18.04
18.04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      mm/h
6.98
6.98
6.51
6.11
5.77
5.46
5.19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | CALIB | STANDHYD (200811) | Area (ha)= 0.07 | 10=1 DT= 5.0 min | Total Imp(%)= 84.00 | Dir. Conn.(%)= 84.00 | IMPERVIOUS | PERVIOUS (i)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                         164.22
5.00
1.41 (ii)
5.00
0.33
                                                                                                                                                                                                                                                                                             118.16
10.00
5.31 (ii)
10.00
0.16
                             Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ---- TRANSFORMED HYETOGRAPH ----
TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN |
hrs mm/hr | hrs mm/hr | hrs mm/hr | hrs mm/hr
0.083 3.93 | 1.083 40.22 | 2.083 13.20 | 3.08 6.98
                                                                                                                                                                                                                                                                                                                                                                                              *TOTALS*
0.162 (iii)
1.33
                                                                                                                                                                                                                                                                                                            0.02
                             PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
                                                                                                                                                                                                                        0.14
                                                                                                                                          5.93 | 1.167
6.74 | 1.250
6.74 | 1.333
7.85 | 1.417
7.85 | 1.500
9.50 | 1.583
9.50 | 1.667
12.27 | 1.750
12.27 | 1.833
18.04 | 1.917
18.04 | 2.000
                                                                                                                                                                                                                                                    40.22 | 2.167
164.22 | 2.250
164.22 | 2.333
51.92 | 2.417
51.92 | 2.583
28.58 | 2.667
20.23 | 2.750
20.23 | 2.833
15.88 | 2.917
15.88 | 3.000
                                                                                                                                                                                                                                                                                                                                                                 13.20
11.37
11.37
10.03
10.03
9.00
9.00
8.19
8.19
7.53
7.53
                                                                                                    0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           78.45
79.45
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      6.98
6.51
6.51
6.11
5.77
5.77
5.46
5.46
5.19
                                                                                                                                                                                                                                                                                                                                                                                                                                3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^\circ = 89.0 Ia = Dep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                            | CALIB | STANDHYD (200821) | Area (ha)= 0.07 | Dir. Conn.(%)= 83.00 | Conn. Conn. (%)= 83.00 | Conn. Conn. (%)= 83.00 | Conn. Conn. (%)= 83.00 | Conn. Conn. (%)= 83.00 | Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Conn. Con
                                                                                                                                                                                                                                                                                                                                                                                             *TOTALS*
0.030 (iii)
1.33
74.84
79.45
0.94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Surface Area (ha) = 0.06 0.01 0.01 pep. Storage (mm) = 1.00 1.00 2.00 Average Slope (%) = 1.00 2.00 40.00 40.00 Mannings n = 0.013 0.290
                             PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                         0.03
1.33
78.45
79.45
0.99
                                                                                                                                                                                                                                                                         0.00
1.33
56.03
79.45
0.71
                      ** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                            (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN° = 89.0 Ia = Dep. Storage (Above)

(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL

THAN THE STORAGE COEFFCIENT.

(iii) PEAK FLOW DOES NOT INCLIDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RAIN | TIME | hrs | 5.93 | 1.083 | 7.85 | 1.167 | 6.74 | 1.250 | 6.74 | 1.333 | 7.85 | 1.417 | 7.85 | 1.500 | 9.50 | 1.583 | 9.50 | 1.667 | 12.27 | 1.750 | 1.833 | 1.804 | 1.917 | 18.04 | 2.000 |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TRANSFORMED HYETOGRAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ANSFORMED HYETOGR RAIN) TIME mm/hr hrs hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with hrs with 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RAIN
mm/hr
13.20
11.37
11.37
10.03
10.03
9.00
9.00
8.19
8.19
7.53
7.53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RAIN
mm/hr
6.98
6.98
6.51
6.51
6.11
5.77
5.46
5.46
5.19
           ADD HYD ( 0110) |
1 + 2 = 3 |
ID1= 1 (200811):
+ ID2= 2 (200812):
                                                                                                                                                                                     AREA
(ha)
0.07
0.38
                                                                                                                                                                                                                        QPEAK
(cms)
0.030
0.147
                                                                                                                                                                                                                                                                              TPEAK R.V. (hrs) (mm) 1.33 74.84 1.33 71.71
                                              ID = 3 ( 0110): 0.45 0.178
                                                                                                                                                                                                                                                                                             1.33
                                                                                                                                                                                                                                                                                                                                                         72.20
                                 NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   164.22
5.00
0.84 (ii)
5.00
0.34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      118.16
5.00
4.19 (ii)
5.00
0.24
| CALIB | STANDHV (200822) | Area (ha) = 0.39 | D= 1 DT= 5.0 min | Total Imp(%) = 59.00 | Dir. Conn. (%) = 59.00 | DIRECTOR (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) | CONTROL (%) 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       *TOTALS*
0.030 (iii)
1.33
74.61
79.45
0.94
                          | The first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the first of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0.03
1.33
78.45
79.45
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0.00
1.33
56.03
79.45
0.71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             **** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                        NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                RANSFORMED HYETOC
RATN 'TIM
mynr hynr hynr
40,22 2,083
40,22 2,167
164,22 2,250
164,22 2,250
164,22 2,250
28,58 2,83
28,58 2,83
28,58 2,63
20,23 2,83
20,23 2,83
21,98 2,93
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21,58 2,9
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mm/hr
13.20
13.20
11.37
10.03
10.03
10.03
9.00
9.00
8.19
8.19
7.53
                                                                                                                                                                                                         TIME
hrs
1.083
1.167
1.250
1.333
1.417
                                                                                                                                                                                                                                                                                                                TIME
hrs
2.083
2.167
2.250
2.333
2.417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RAI
mm/h
6.98
6.98
6.51
6.51
                                                                                                                                                   RAIN
mm/hr
5.93
6.74
6.74
7.85
9.50
9.50
12.27
12.27
18.04
                                                                                                    TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                              TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | ADD HYD ( 0111)|
| 1 + 2 = 3 |
                                                                                                                                                                                                         1.417
1.500
1.583
1.667
1.750
1.833
1.917
2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6.11
5.77
5.77
5.46
5.46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AREA OPEAK (ha) (cms) 0.07 0.030 0.136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TPEAK
(hrs)
1.33
1.33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   R.V.
(mm)
74.61
69.24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ID1= 1 (200821):
+ ID2= 2 (200822):
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ID = 3 ( 0111):
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0.46 0.166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1.33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   70.06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
                                                                                                                                                                                                                                                                                118.16
10.00
) 8.62 (ii)
10.00
0.12
                             Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                                                                         164.22
5.00
1.40 (ii)
5.00
0.33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CALIB

STANDHYD ( 20102) | Area (ha)= 0.47

LD=1 DT= 5.0 min | Total Imp(%)= 74.00 Dir. Conn.(%)= 74.00

IMPERVIOUS PERVIOUS (i)
                                                                                                                                                                                                                                                                                                                                                                                              *TOTALS*
0.136 (iii)
1.33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Surface Area (ha)= 0.35 PERVIOUS (i)
                             PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
                                                                                                                                                                                                                        0.10
```

```
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                     1.00
1.00
55.98
0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RUNOFF VOLUME (mm)= 78.45
TOTAL RAINFALL (mm)= 79.45
RUNOFF COEFFICIENT = 0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^{\pm}=89.0 Ia = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                 RANNEGORNED HYETTOGE

RAIN | TIME

100 / 12 | 2.083

400 / 22 | 2.083

400 / 22 | 2.167

164 / 22 | 2.250

164 / 22 | 2.250

164 / 22 | 2.250

164 / 22 | 2.333

151 / 92 | 2.417

151 / 92 | 2.417

151 / 92 | 2.417

151 / 92 | 2.417

28 / 58 | 2.667

20 / 23 | 2.750

20 / 23 | 2.750

20 / 23 | 2.833

15.88 | 2.917

15.88 | 3.000
                                                                                                                                                                     ---- TR
TIME
hrs
1.083
1.167
1.250
1.333
1.417
1.500
1.583
1.667
1.750
1.833
1.917
2.000
                                                                                                                            RAIN
mm/hr
5.93
5.93
6.74
7.85
7.85
9.50
9.50
12.27
12.27
18.04
                                                                                     TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                       TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                        RAIN
mm/hr
6.98
6.98
6.51
6.51
6.11
5.77
5.77
5.46
5.46
5.19
                                                                                                                                                                                                                                                                                                                        RAIN
mm/hr
13.20
13.20
11.37
10.03
10.03
9.00
9.00
8.19
8.19
7.53
7.53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ADD HYD ( 0121) |
1 + 2 = 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ID = 3 ( 0121):
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0.72 0.294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1.33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
                        Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                               164.22
5.00
1.48 (ii)
5.00
0.33
                                                                                                                                                                                                                                       118.16
10.00
i) 5.64 (ii)
10.00
0.15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | CALIB | STANDHYD ( 20111) | Area (ha)= 0.87 | | ID= 1 DT= 5.0 min | Total Imp(%)= 67.00 Dir. Conn.(%)= 67.00
                                                                                                                                                                                                                                                                                                                                          *TOTALS*
0.187 (iii)
1.33
72.61
79.45
0.91
                         PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (ha)= IMPERVIOUS PERVIOUS (i)

(ha)= 0.58 0.29

(mm)= 1.00 1.00

(%)= 1.00 2.00

(m)= 76.16 40.00

= 0.013 0.290
                                                                                                                                                                                     0.16
1.33
78.45
79.45
0.99
                                                                                                                                                                                                                                                                0.03
1.42
56.03
79.45
0.71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                     * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0   Ia=\mathrm{Dep}. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RAIN | TIME RAIN | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
| CALIB | STANDHYD ( 20101) | Area (ha)= 0.25 | Total Imp(%)= 82.00 | Dir. conn.(%)= 82.00 | IMPERVIOUS | PERVIOUS (i)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         11.37
10.03
10.03
9.00
9.00
8.19
8.19
7.53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6.11
6.11
5.77
5.77
5.46
5.46
5.19
                        164.22 1
5.00 1.78 (ii)
5.00 0.32 0.27
1.33 78.45
79.45 0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          118.16
10.00
6.55
10.00
0.14
                                               NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                           TRANSFORMED HYETOGRAPH
TIME RAIN 'TIME
hrs mm/hr 'hrs m
1.083 40.22 | 2.083 13
1.167 40.22 | 2.167 13
1.250 164.22 | 2.250 11
1.250 164.22 | 2.333 11
1.437 51.92 | 2.410 10
1.437 51.92 | 2.410 10
1.437 51.92 | 2.410 10
1.437 51.92 | 2.410 10
1.583 28.38 | 2.583 | 2.583
1.667 28.58 | 2.667 9
1.750 | 20.23 | 2.750 8
1.833 | 20.23 | 2.833 88
1.833 | 20.23 | 2.833 88
1.833 | 20.23 | 2.833 88
1.837 | 2.838 | 3.900 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 *TOTALS*
0.328 (iii)
1.33
71.05
79.45
0.89
                                                                                     TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                       RAIN
mm/hr
13.20
11.37
11.37
10.03
9.00
9.00
8.19
8.19
7.53
7.53
                                                                                                                                                                                                                                                                                                                                                                      TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0.07
1.42
56.03
79.45
0.71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                 mm/hr
5.93
5.93
6.74
7.85
7.85
9.50
9.50
12.27
12.27
18.04
18.04
                                                                                                                                                                                                                                                                                                                                                                                                                        mm/h
6.98
6.98
6.51
6.11
5.77
5.46
5.19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \mathbb{CN}^p=89.0 Ia = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                               164.22
5.00
1.22 (ii)
5.00
0.33
                                                                                                                                                                                                                                                        118.16
5.00
4.67 (ii)
5.00
0.22
                         Max.Eff.Inten.(mm/hr)=

over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     *TOTALS*
0.107 (iii)
1.33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Surface Area (ha)= IMPERVIOUS PERVIOUS (i) 0.18
                                                                                                                                                                                                                                                                     0.01
                           PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
                                                                                                                                                                                            0.09
                           Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                         (mm)=
(%)=
(m)=
=
                                                                                                                                                                                   1.00
1.00
77.46
0.013
                                                                                                                                                                                                                                                              1.00
2.00
40.00
0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            78.45
79.45
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                               NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^\circ = 89.0 Ia = Dep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                         RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN |
                                                                                                                                                                                                                                                                                                                    RAIN
mm/hr
13.20 |
13.20 |
11.37 |
10.03
10.03
9.00
9.00
8.19
8.19
7.53
7.53
                                                                                       TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                       TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                          mm/h
6.98
6.98
6.51
6.51
6.11
5.77
5.46
5.46
5.19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                                               164.22
5.00
1.80 (ii)
5.00
0.32
                                                                                                                                                                                                                                                        118.16
10.00
5.43 (ii)
10.00
0.16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HYETOGR
TIME
hrs
2.083
2.167
2.250
2.333
2.417
2.500
2.583
2.667
2.750
2.833
2.917
3.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RAIN TIME mm/hr hrs 5.93 1.083 5.93 1.167 6.74 1.250 6.74 1.353 9.50 1.687 9.50 1.687 9.50 1.687 1.227 1.750 12.27 1.833 18.04 1.917 18.04 2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TRANSFORMED HYETOGRAF
                                                                                                                                                                                                                                                                                                                                              *TOTALS*
0.370 (iii)
1.33
73.97
79.45
0.93
                                                                                                                                                                                  0.33
1.33
78.45
79.45
0.99
                                                                                                                                                                                                                                                              0.05
1.42
56.03
79.45
0.71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RAIN
mm/hr
13.20
11.37
11.37
10.03
10.03
9.00
9.00
8.19
8.19
7.53
7.53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                         PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RAIN
mm/hr
6.98
6.51
6.51
6.11
5.77
5.46
5.46
5.19
        **** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                         (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^\circ=89.0 Ia = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    164.22
5.00
1.48 (ii)
5.00
0.33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           118.16
5.00
4.64 (ii)
5.00
0.22
*TOTALS*
0.204 (iii)
1.33
75.09
79.45
0.95
                                                                                                            PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0.18
1.33
78.45
79.45
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0.02
1.33
56.03
79.45
0.71
                         Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                        HYETOGRAPH

' TIME

' hrs m

2.083 13

2.167 13

2.250 11

2.333 11

2.417 10
                                                                                                                                                                                                                    ANSFORMED HYETOG

RAIN | TIMM

mm/hr | h

40.22 | 2.083

40.22 | 2.167

164.22 | 2.250

164.22 | 2.353

51.92 | 2.417

51.92 | 2.417

51.92 | 2.500

28.58 | 2.667

20.23 | 2.833

28.58 | 2.667

20.23 | 2.833

15.88 | 2.917

15.88 | 3.000
                                                                                                                                                                               TIME
hrs
1.083
1.167
1.250
1.333
1.417
                                                                                                                                                                                                                                                                                                                        RAIN
mm/hr
13.20
13.20
11.37
11.37
10.03
9.00
9.00
8.19
8.19
                                                                                                                                RAIN
mm/hr
5.93
6.74
6.74
7.85
9.50
9.50
12.27
12.27
18.04
                                                                                                                                                                                                                                                                                                                                                                                                                          RAI
mm/h
6.98
6.98
6.51
6.51
                                                                                       TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                      TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CALIB
| STANDHYD (201022)
|ID= 1 DT= 5.0 min |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Area (ha)= 0.47
Total Imp(%)= 85.00 Dir. Conn.(%)= 85.00
                                                                                                                                                                               1.417
1.500
1.583
1.667
1.750
1.833
1.917
2.000
                                                                                                                                                                                                                                                                                                                                                                                                                          6.11
5.77
5.77
5.46
5.46

        IMPERVIOUS
        PERVIOUS (i)

        0.40
        0.07

        1.00
        1.00

        1.00
        2.00

        55.98
        40.00

        0.013
        0.290

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (ha)=
(mm)=
(%)=
(m)=
                                                                                                                                                                               164.22
5.00
1.91 (ii)
5.00
0.31
                                                                                                                                                                                                                                               118.16
10.00
5.46 (ii)
10.00
0.16
                           Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | --- TRANSFORMED HYETOGRAPH --- | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RAIN | RA
                                                                                                                                                                                                                                                                                                                                            *TOTALS*
0.458 (iii)
1.33
                         PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
                                                                                                                                                                                            0.41
```

| 1.000 18.04 | 2.000 15.88 | 2.167 13.20 2.250 11.37 2.317 10.03 2.500 10.03 2.500 10.03 2.500 2.667 9.00 2.675 8.19 2.833 8.19 2.917 7.53 3.000 7.53 | 3.17 3.25 3.33 3.42 3.50 3.58 3.67 3.75 3.83 3.92 4.00 | 6.98 6.51 6.51 6.11 6.11 5.77 5.77 5.76 5.46 5.46 5.19 |
|---|---|---|---|--|
| DEAK ELOW (cms)- | 5.00 1.48 (ii) 5.00 0.33 0.18 1.33 78.45 79.45 0.99 | 0.02 1.33 56.03 79.45 0.71 | OTALS* 0.204 (iii) 1.33 75.09 79.45 0.95 |) |
| (i) CN PROCEDURE SELECT CN* = 89.0 TA (ii) TIME STEP (DT) SHOUL THAN THE STORAGE CO (iii) PEAK FLOW DOES NOT | ED FOR PERVIOUS = Dep. Storage LD BE SMALLER O EFFICIENT. INCLUDE BASEFLO | LOSSES: (Above) R EQUAL W IF ANY. | | |
| ADD HYD (0136) | REA QPEAK ha) (cms) .47 0.204 .47 0.204 .94 0.408 | TPEAK (hrs) (mm) 1.33 75.09 1.33 75.09 | | |
| | (ha)= 0.28 np(%)= 90.00 | Dir. Conn.(%)= | 90.00 | |
| NOTE: RAINFALL WAS TO | 0.25 1.00 1.00 43.20 0.013 RANSFORMED TO | 5.0 MIN. TIME S | | |
| TIME RAIN hrs mm/hr 0.683 53 0.167 5.93 0.250 6.74 0.333 6.74 0.417 7.85 0.500 7.85 0.500 7.85 0.6670 19.50 0.6670 19.77 0.917 18.04 | TRANSFORM TIME RAIN hrs mm/hr 1.083 40.22 1.167 40.22 1.250 164.22 1.333 164.22 1.417 51.92 1.500 51.92 1.583 28.58 1.750 20.23 1.833 20.23 1.917 15.88 | ED HYETOGRAPH 'ITIME | N TIME r hrs 3.08 3.17 3.25 3.33 3.42 3.50 3.58 3.67 3.75 3.83 3.92 4.00 | RAIN mm/hr 6.98 6.51 6.51 6.11 5.77 5.46 5.19 |
| Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= | 164.22 5.00 1.27 (ii) 5.00 0.33 | 118.16 5.00 3.89 (ii) 5.00 0.25 | OTAL CÈ | |
| PEAK FLOW (cms)= TIME TO PEAK (hrs)= | 0.11 1.33 | 0.01 1.33 | 0.124 (iiii) 1.33 |) |
| 0.667 9.50 0.750 12.27 0.833 12.27 0.917 18.04 | 1.500 51.92 1.583 28.58 1.667 28.58 1.750 20.23 1.833 20.23 1.917 15.88 | 2.167 13.20 2.250 11.37 2.333 11.37 2.417 10.03 2.500 10.03 2.583 9.00 2.667 9.00 2.750 8.19 2.833 8.19 2.917 7.53 3.000 7.53 | 3.17 3.25 3.33 3.42 3.50 3.58 3.67 3.75 3.83 3.92 4.00 | 6.98 6.51 6.51 6.11 5.77 5.77 5.46 5.46 5.19 |
| Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= PEAK FLOW (cms)= TIME TO BEAK (frs)- | 5.00 0.93 (ii) 5.00 0.34 0.04 | 0.00 | OTALS* 0.044 (iii) _1.33 |) |
| TIME TO PEAK (hrs)= RUNDFF VOLUME (mm)= TOTAL RAINFALL (mm)= RUNDFF COEFFICIENT = ***** WARNING: STORAGE COEFF. (i) CN PROCEDURE SELECTI | ED EOD DEDVIOUS | 79.45 0.71 TIME STEP! | 76.08 79.45 0.96 | |
| CN° = 89.0 Ia (ii) TIME STEP (DT) SHOUL THAN THE STORAGE CO (iii) PEAK FLOW DOES NOT | = Dep. Storage LD BE SMALLER O EFFICIENT. INCLUDE BASEFLO | (Above) R EQUAL W IF ANY. | | |
| : | IMPERVIOUS P | Dir. Conn.(%)= ERVIOUS (i) | 87.00 | |
| Dep. Storage (mm)= Dep. Storage (mm)= Average Slope (%)= Length (m)= Mannings n = NOTE: RAINFALL WAS TH | 0.10 1.00 1.00 27.08 0.013 | 0.01 1.00 2.00 40.00 0.290 5.0 MIN. TIME S | TEP. | |
| TIME RAIN | 1.163 40.22 1.167 40.22 1.250 164.22 1.333 164.22 1.417 51.92 1.500 51.92 1.583 28.58 1.667 28.58 1.750 20.23 1.833 20.23 | ED HYETOGRAPH | 3.08 3.17 3.25 3.33 3.42 3.50 3.58 3.67 3.75 | RAIN mm/hr 60,98 6.51 6.51 6.11 5.77 5.46 5.19 5.19 |
| Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= PEAK FLOW (cms)= TIME TO PEAK (hrs)= RUNOFF VOLUME (mm)= TOTAL RAINFALL (mm)= | 164.22 5.00 0.96 (ii) 5.00 0.34 0.04 1.33 78.45 | 0.00 1.33 56.03 | OTALS* 0.048 (iii) 1.33 75.52 |) |
| ***** WARNING: STORAGE COEFF. | 79.45 0.99 IS SMALLER THAN | 79.45 0.71 TIME STEP! | 75.52 79.45 0.95 | |
| (i) CN PROCEDURE SELECT CN* = 89.0 Ia (ii) TIME STEP (DT) SHOU THAN THE STORAGE CO. (iii) PEAK FLOW DOES NOT | = Dep. Storage LD BE SMALLER O EFFICIENT. INCLUDE BASEFLO | (ADOVE) R EQUAL W IF ANY. | | |

| | RUNOFF CO | NFALL EFFICIE | (mm)= (mm)= NT = | 78.45 79.45 0.99 | 7 | 6.03 9.45 0.71 | 76 79 0 | | |
|-------------------|--|--|--|--|--|--|--|---|---|
| **** | (i) CN I CN (ii) TIM THAI | PROCEDU = 8 E STEP N THE S | RE SELEC 9.0 I (DT) SHO TORAGE C | IS SMALLE TED FOR PE a = Dep. S ULD BE SMA DEFFICIENT INCLUDE B | RVIOUS L torage LLER OR | OSSES: (Above) EQUAL | ! | | |
| CAL STA | IB NDHYD (20 1 DT= 5.0 | 0121) | Area | (ha)= Imp(%)= 5 | 1.11 | ir. Conn | (%) F/ | | |
| | Surface A Dep. Stor Average S Length Mannings | rea age lope | (ha) = (mm) = (%) = (m) = = | IMPERVIOU 0.62 1.00 1.00 86.02 0.013 TRANSFORME | S PER | VIOUS (1) 0.49 1.00 2.00 0.00 0.290 |) | | |
| | | TIME hrs 0.083 0.167 0.250 0.333 0.417 0.500 0.583 0.667 0.750 0.833 0.917 1.000 | mm/hr 5.93 5.93 6.74 7.85 7.85 9.50 9.50 12.27 | 1.083 1.167 1.250 1.333 1.417 1.500 1.583 1.667 1.750 1.833 1.917 | NSFORMED RAIN mm/hr 40.22 40.22 164.22 151.92 51.92 28.58 28.58 20.23 20.23 15.88 15.88 | 2.417 2.500 2.583 2.667 2.750 2.833 2.917 | RAIN mm/hr 13.20 13.20 11.37 11.37 10.03 10.03 9.00 9.00 9.00 8.19 8.19 7.53 | TIME hrs 3.08 3.17 3.25 3.33 3.42 3.50 3.58 3.67 3.75 3.83 3.92 4.00 | RAIN mm/hr 6.98 6.98 6.51 6.51 6.11 5.77 5.46 5.46 5.19 |
| | Max.Eff.II Storage Co Unit Hyd. Unit Hyd. PEAK FLOW TIME TO PI RUNOFF VOI TOTAL RATI | over peff. Tpeak peak | (min) (min)= (min)= (cms)= | 164.22 5.00 1.91 5.00 0.31 0.28 1.33 | (ii) 1 | .8.16 .0.00 9.13 (ii) 0.00 0.12 0.11 1.42 | *TOT/ | 373 (iii) | |
| | RUNOFF CO | EFFICIE | NT = | 1.33 78.45 79.45 0.99 | 7 | 6.03 9.45 0.71 | | . 58 . 45 . 86 | |
| | (i) CN I CN (ii) TIMI THAI | PROCEDU = 8 E STEP | RE SELEC 9.0 I (DT) SHO | IS SMALLE TED FOR PE a = Dep. S ULD BE SMA DEFFICIENT INCLUDE B | RVIOUS L torage LLER OR | OSSES: (Above) EQUAL | • | | |
| CAL STA | .IB NDHYD (20 1 DT= 5.0 | 0111) min | Area Total | (ha)= Imp(%)= 8 | 0.10 | ir. Conn | . (%)= 89 | 9.50 | |
| | Surface A Dep. Stor Average S Length Mannings | rea age lope | (ha)= (mm)= (%)= (m)= = | IMPERVIOU 0.09 1.00 1.00 25.82 0.013 | S PER | VIOUS (1) 0.01 1.00 2.00 0.00 0.290 | | | |
| | NOTE: | | | TRANSFORME | | .0 MIN. | | | |
| | | TIME | RAIN | TIME | RAIN | · TTMF | RAIN | I TIME | RAIN |
| | | 0.083 | 5.93 | hrs 1.083 | 40.22 | HYETOGRA 'TIME 'hrs 2.083 | mm/hr 13.20 | hrs 3.08 | mm/hr 6.98 |
| | + ID2= 2 ====== ID = 3 | 0.083 | 1): | AREA QP | PEAK T ms) (144 144 148 1 | PEAK hrs) .33 74 .33 75 | mm/hr 13.20 R.V. (mm) 5.508 5.52 | 3.08 | mm/hr 6.98 |
| l CAI | ID1= 1 + ID2= 2 ID = 3 | 0.083 0.083 0.083 0.042) 0.0142) 0 | 1): 1): 2): S DO NOT | AREA QF (ha) (c 0.10 0.0 0.11 0.0 0.21 0.0 INCLUDE B (ha)= Imp(%)= 7 | PEAK T ms) (444 1148 1193 1293 1293 1293 1293 1293 1293 1293 | PEAK hrs) .33 7: .33 7: .33 7: .1F ANY. | R.V. (mm) 5.08 5.52 5.79 | | mm/hr 6.98 |
| CAL STA ID= | ID1= 1 + ID2= 2 ===== ID = 3 NOTE: PE IB NDHYD (20 1 DT= 5.0 Surface A Dep. Stora Average S Length Mannings | 0.083 0.142) 3 | 1): 1): 2): S DO NOT Area Total (ha)= (mm)= (%)= (m)= | AREA QF (ha) (c 0.10 0.0 0.11 0.0 0.21 0.0 | PEAK T ms) (144 148 148 148 148 148 148 148 148 148 | PEAK hrs) .33 7: .33 7: .33 7: | R.V. (mm) 5.08 5.08 5.22 5.79 | 9.00 | mm/hr 6.98 |
| CAL STA ID= | ID1= 1 + ID2= 2 ===== ID = 3 NOTE: PE IB NDHYD (20 1 DT= 5.0 Surface A Dep. Stora Average S Length Mannings | 0.083 0.083 0.0142) 3 | 1): 1): 2): S DO NOT Area Total (ha)= (mm)= (m)= ALL WAS S | AREA OF (ha) (c. 0.10 0.00) (l. | PEAK T ms) (144 144 144 148 193 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | PEAK hrs3 7. 33 7. 33 7. 33 7. 33 7. 31 FANY. bir. Conn vious (i) 0.02 2.00 0.00 2.00 0.00 2.00 0.00 1.200 | R.V. (mm) 5.08 5.52 ==== 5.79 .(%)= 79 | 9.00 9. | RAIN |
| CAL STA ID= | ID1= 1 + ID2= 2 ===== ID = 3 NOTE: PE IB NDHYD (20 1 DT= 5.0 Surface A Dep. Stora Average S Length Mannings | 0.083 0.083 0.0142) 3 3 3 3 3 3 3 3 3 | 1): 1): 2): S DO NOT Area Total (ha)= (mm)= (m)= ALL WAS S | AREA OF (ha) (c. 0.10 0.00) (l. | PEAK T ms) (144 144 144 148 193 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | PEAK hrs) .33 7: .33 7: .33 7: .33 7: .33 7: .33 7: .33 7: .33 7: .33 7: .33 7: .33 7: .33 7: .33 7: .33 7: .33 7: .33 7: .33 7: .417 .25 .20 .33 .20 .20 .20 .20 .20 .20 .20 .20 .20 .20 | R.V. (mm) .08 .08 .52 | 7.00 7.00 7.00 7.00 7.00 7.00 7.00 7.00 | |
| CAL STA ID= | ID1= 1 + ID2= 2 - ID2= 3 NOTE: PE. IIB NOHYD (200 1 DT= 5.0 Surface A: Dep. Storr, Average S: Length Mannings I: NOTE: | 0.083 3 | 1): 1): 2): S DO NOT Area Total (ha)= (mm)= (m)= (m)= (m)= (m)= (m)= (m)= (| AREA OF (ha) (Co. 10 0 . 0 . 0 . 11 0 . 0 . 0 . 0 . 0 . | PEAK T T ms) (444 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | PEAK hrs) 733 7: .33 7: .33 7: .33 7: .33 7: .33 7: .33 7: .33 7: .34 735 7: .4 FAWY5 15 16 16 16 17 1 | R.V. (mm) (nm) (nm) (nm) (nm) (nm) (nm) (nm) | 7.00 7.00 7.00 7.00 7.00 7.00 7.00 7.00 | RAIN mm/hr 6- 0.98 6- 0.51 6- 0.11 5- 7.77 6- 1.51 7- 1.51 |
| CALL | MAX.Eff.II Storage Cunit Hyd. PEAK FLOW MAX.Eff.II Storage Cunit Hyd. Unit Hyd. PEAK FLOW PE | 0.083 3 | 11): 22): S DO NOT Area Total (ha)= (mm)= ALL WAS RAINI (min)- (| AREA QF (ha) (c 0.10 0.0 0.11 0.0 0.12 0.0 0.21 0.0 0.12 0.0 0.18 (ha) = 7 IMPERVIOU 0.08 1.00 0.08 1.00 0.08 1.00 1.50 1.167 1.187 1.187 1.188 1.187 1.188 1.187 1.187 1.188 1.187 1.187 1.188 1.188 | PEAK T ms) (444 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | PEAK hrs) .33 7: .33 7: .33 7: .33 7: .33 7: .33 7: .33 7: .33 7: .33 7: .33 7: .33 7: .34 7: .35 7: .37 7: | R.V. (mm) 5.08 5.08 5.52 8.179 7.17 8.17 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1 | 7. TIME hrs 3.08 3.17 3.25 3.38 3.92 4.00 | RAIN mm/hr 6- 0.98 6- 0.51 6- 0.11 5- 7.77 6- 1.51 7- 1.51 |
| CALL | MAX.Eff.II Storage Cunit Hyd. Storage Cunit Hyd. HEART TO THE CONTROLL OF T | 0.083 3 | 1): 1): 2): S DO NOT Area Total (ha)= (mm)= (m)= 3 ALL WAS RAINI RAINI RAINI (min) (| AREA OF (ha) (Co. 10 0.0 0.11 0.0 0.0 0.11 0.0 0.0 0.11 0.0 0.0 | PEAK T ms) (444 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | PEAK hrs) .33 7: .33 7: .33 7: .33 7: .33 7: .33 7: .33 7: .33 7: .33 7: .33 7: .33 7: .34 7: .35 7: .37 7: | R.V. (mm) 5.08 5.08 5.52 8.179 7.17 8.17 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1 | 7.000 TIME 1.000 3.087 3.153 3.42 3.53 3.42 3.507 3.53 3.507 3.507 3.63 3.63 3.64 4.00 | RAIN mm/hr 6- 0.98 6- 0.51 6- 0.11 5- 7.77 6- 1.51 7- 1.51 |
| CAL | MAX.Eff.I Storage Cunit Hyd. Warning: O'C O'C Warning: O'C O'C Warning: O'C O'C O'C O'C O'C O'C O'C O'C O'C O'C | 0.083 10 10 10 10 10 10 10 1 | 1): | AREA QF (ha) C 0.10 0.0 0.11 0.0 0.11 0.0 0.11 0.0 0.11 0.0 0.12 0.0 0.00 1.00 0.00 1.00 1.00 1.00 1.00 | DEAK T ms) (444 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | PEAK hrs) .33 7: .33 7: .33 7: .33 7: .33 7: .33 7: .34 Any37 Any38 Any39 Any40 A | R.V. (mm) 5.08 5.52 8.79 (%) = 75 (%) = | 7.0000 7.00000 7.0000 7.0000 7.0000 7.00000 7.0000 7.0000 7.0000 7.0000 7.0000 7.00000 7.00000 | RAIN mm/hr 6- 0.98 6- 0.51 6- 0.11 5- 7.77 6- 1.51 7- 1.51 |
| CAL | Max.eff.II Max.eff.II Max.eff.II Max.eff.II Max.eff.II Max.eff.II Max.eff.II Mannings II Columnt II Colum | 0.083 0. | 1): 3 DO NOT Area Total (ha)= (mm)= (%)= (%)= (M)= ALL WAS RAINI RA | AREA QF (ha) (c 0.10 0.0 0.11 0.0 0.12 0.0 0.21 0.0 0.12 0.0 0.18 (ha) = 7 IMPERVIOU 0.08 1.00 0.08 1.00 0.08 1.00 1.509 0.013 TRANSFORME hrs 1.187 1.187 1.187 1.187 1.187 1.187 1.187 1.1883 1.187 1.187 1.1893 1.187 1.1893 1.187 1.1893 1.187 1.1893 1.1 | PEAK T THAN T I I S T T T T T T T T T T T T T T T T | PEAK hrs) .33 7: .33 7: .33 7: .33 7: .33 7: .33 7: .34 Any37 Any38 Any39 Any40 A | R.V. (mm) 6.08 5.52 8.79 (%) = | TIME hrs 3.08 3.17 3.25 3.342 3.567 3.76 3.75 3.42 4.00 | RAIN mm/hr 6- 0.98 6- 0.51 6- 0.11 5- 7.77 6- 1.51 7- 1.51 |

```
40.22 | 2.167
164.22 | 2.250
164.22 | 2.333
51.92 | 2.417
51.92 | 2.500
28.58 | 2.583
28.58 | 2.667
20.23 | 2.750
20.23 | 2.833
15.88 | 2.917
15.88 | 3.000
                                                                                                     5.93
6.74
6.74
7.85
7.85
9.50
9.50
12.27
12.27
18.04
18.04
                                                                                                                                                                                                                                                        13.20
11.37
11.37
10.03
10.03
9.00
9.00
8.19
8.19
7.53
7.53
                                                                        0.167
0.250
0.333
0.417
                                                                                                                                                                                                                                                                                                3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                        0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                              1.417
1.500
1.583
1.667
1.750
1.833
1.917
2.000
                                                                                                                                                                                                                                                                                                                                      6.11
5.77
5.77
5.46
5.46
5.19
                     Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                              164.22 118.16
5.00 5.00
1.01 (ii) 4.07
5.00
0.34 5.00
0.24
                                                                                                                                                                                                                                                                        *TOTALS*
0.057 (iii)
1.33
75.29
79.45
0.95
                     PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (MM)=
TOTAL RAINFALL (MM)=
RUNOFF COEFFICIENT =
                                                                                                                                                    0.05
1.33
78.45
79.45
0.99
                                                                                                                                                                                                               0.01
1.33
56.03
79.45
0.71
   ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \mathbb{C}\mathbb{N}^n=89.0. If a Pep. Storage (Above) (ii) TIME STEP (0.7) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFTICIENT. (iii) PHAN FILES NOT INCLUDE BASEFLOW IF ANY.
       ADD HYD ( 0145)|
1 + 2 = 3 |
                                                                                                                                                        QPEAK
(cms)
0.042
0.057
                                                                                                                                                                                                            TPEAK
(hrs)
1.33
1.33
                             ID1= 1 (200112):
+ ID2= 2 (200122):
                                   ID = 3 ( 0145):
                                                                                                                                0.23 0.099
                                                                                                                                                                                                            1.33
                       NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
                                V V
V V
V V
                                                              I SSSSS U U A L
I SS U U AA L
I SS U U AAAAA L
I SS U U AAAA L
I SS U U A A L
I SSSSS UUUUU A A LLLLL
***** DETAILED OUTPUT *****
           Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\VO2\voin.dat
Output filename: C:\User$\caef070146\Appoata\Loca\\civica\\H5\50564c49-8c07-4086-8157-8729fb3caba3\68534fb6
Summary filename: C:\User$\caef070146\Appoata\Loca\\civica\\H5\50564c9-8c07-4086-8157-8729fb3caba3\68534fb6
                                                                                                                                                                                                 TIME: 12:44:44
 USER:
            ANSFORMED HYETOGR RAIN | TIME mm/hr | hrs 45.22 | 2.083 | 45.22 | 2.167 | 180.15 | 2.250 | 180.15 | 2.250 | 31.96 | 2.667 | 22.45 | 2.750 | 22.45 | 2.833 | 17.52 | 2.833 | 17.52 | 2.917 | 17.52 | 3.000
                                                                                                        RAIN | TIME | mm/hr | hrs | 6.41 | 1.083 | 6.41 | 1.167 | 7.29 | 1.250 | 8.52 | 1.417 | 8.52 | 1.500 | 10.36 | 1.583 | 10.36 | 1.667 | 13.45 | 1.750 | 10.36 | 1.917 | 19.96 | 2.000
                                                                                                                                                                                                                                                        RAIN
mm/hr
14.50
14.50
12.44
12.44
10.94
10.94
9.80
9.80
8.90
8.90
8.16
8.16
                                                                                                                                                                                                                                                                                                                                   RAIN
mm/hr
7.56
7.56
7.04
7.04
6.60
6.60
6.22
6.22
5.89
5.89
                                                                       TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                 TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                     Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                          180.15 1
5.00
1.61 (ii)
5.00
0.32
                                                                                                                                                                                            134.19
5.00
i) 4.25 (ii)
5.00
0.24
                                                                                                                                                                                                                                                                        *TOTALS*
0.339 (iii)
1.33
84.04
87.58
0.96
                       PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                   0.31
1.33
86.58
87.58
0.99
                                                                                                                                                                                                              0.03
1.33
63.54
87.58
0.73
                          WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN° = 89.0 Ia = Dep. Storage (Above)
i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
LIPPEN FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                      Area (ha)= 0.43 
Total Imp(\%)= 90.00 Dir. Conn.(\%)= 90.00
                                                                                                                                  IMPERVIOUS
0.39
1.00
1.00
53.54
0.013
                                                                                                                                                                                                 PERVIOUS (i)
0.04
1.00
2.00
40.00
0.290
                        Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                  (ha)=
(mm)=
(%)=
(m)=
                                        NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP
                                                                                                                                                                  NSFORMED H
RAIN | 45.22 | 2
45.22 | 2
180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 180.15 | 1
                                                                                                                                                                                                           D HYETOGR

' TIME

' hrs

2.083

2.167

2.250

2.333

2.417

2.500

2.583

2.667

2.750

2.833

2.917

3.000
                                                                                                                                                                 TRANSFORMED HYETOGRAPH
                                                                                                          RAIN
mm/hr
6.41
7.29
8.52
8.52
10.36
10.36
13.45
13.45
19.96
                                                                                                                                              TIME
hrs
1.083
1.167
1.250
1.417
1.500
1.583
1.667
1.750
1.833
1.917
2.000
                                                                                                                                                                                                                                                        RAIN
mm/hr
14.50 |
14.50 |
12.44 |
12.44 |
10.94 |
9.80 |
9.80 |
8.90 |
8.90 |
8.16 |
8.16
                                                                                                                                                                                                                                                                                              TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                       TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.833
1.000
                                                                                                                                                                                                                                                                                                                                       RAIN
mm/hr
7.56
7.56
7.04
7.04
6.60
6.22
6.22
5.89
5.59
                       Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                               180.15
5.00
1.39 (ii)
5.00
0.33
                                                                                                                                                                                                        134.19
5.00
3.92
5.00
0.24
                                                                                                                                                                                                                                        (ii)
                                                                                                                                                                                                                                                                           *TOTALS*
0.209 (iii)
1.33
84.27
87.58
0.96
                        PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                   0.19
1.33
86.58
87.58
0.99
                                                                                                                                                                                                               0.02
1.33
63.54
87.58
0.73
  ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
```

READ STORM Filename: C:\Users\caef070146\AppD ata\Local\Temp\ 11403a02-80e0-48b3-97a8-b203216ba841\4c83eb39 Comments: 100-year, 4 hr-Chicago, City of Barrie RAIN | | mm/hr | | 14.50 | | 12.44 | | 10.94 | | 9.80 | | 8.90 | | 8.16 RAIN | mm/hr | 6.41 | 7.29 | 8.52 | 10.36 | 13.45 | 19.96 | RAIN | mm/hr | 45.22 | 180.15 | 58.54 | 31.96 | 22.45 | 17.52 | TIME hrs 2.17 2.33 2.50 2.67 2.83 3.00 TIME hrs 1.17 1.33 1.50 1.67 1.83 2.00 CALIB STANDHYD (20022) ID= 1 DT= 5.0 min Area (ha)= 0.80Total Imp(%)= 85.00 Dir. Conn.(%)= 85.00IMPERVIOUS 0.68 1.00 1.00 73.03 0.013 PERVIOUS (i) 0.12 1.00 2.00 40.00 0.290 Surface Area Dep. Storage Average Slope Length Mannings n (ha)= (mm)= (%)= (m)= NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. TRANSFORMED HYETOGRAP
TIME RAIN | TIME
hrs mm/hr | hrs |
1.083 45.22 | 2.083 |
1.167 45.22 | 2.167 |
1.250 180.15 | 2.250 |
1.250 180.15 | 2.333 |
1.410 58.54 | 2.417 |
1.503 31.66 | 2.503 |
1.503 31.66 | 2.667 |
1.504 33 |
1.503 33 |
1.504 2.503 |
1.503 33 |
1.504 2.503 |
1.503 33 |
1.504 2.503 |
1.505 2.503 |
1.505 33 |
1.506 2.503 |
1.507 2.650 |
1.508 2.650 |
1.509 3.650 |
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1.500 3.650 |
1.500 3.650 |
1.500 3.650 |
1.500 3.650 | RAIN mm/hr 14.50 12.44 12.44 10.94 10.94 9.80 9.80 8.90 8.90 8.16 8.16 TIME hrs 3.08 3.17 RAIN TIME mm/hr hrs 6.41 1.083 6.41 1.167 7.29 1.350 8.52 1.417 8.52 1.500 10.36 1.667 13.45 1.750 13.45 1.833 19.96 1.917 19.96 2.000 RAIN mm/hr 7.56 7.56 7.04 6.60 6.60 6.22 5.89 5.59 5.59 hrs 0.083 0.167 0.250 0.333 0.417 0.500 0.583 0.667 0.750 0.833 0.917 1.000 Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)= 180.15 1: 5.00 1.67 (ii) 5.00 0.32 134.19 5.00 i) 4.72 (ii) 5.00 0.22 *TOTALS* 0.381 (iii) 1.33 83.12 87.58 0.95 PEAK FLOW (Cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT = 0.34 1.33 86.58 87.58 0.99 0.04 1.33 63.54 87.58 0.73 WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^{\circ}=89.0$ Ia=Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. Area (ha)= 0.70 Total Imp(%)= 89.00 Dir. Conn.(%)= 89.00 IMPERVIOUS 0.62 1.00 1.00 68.31 0.013 PERVIOUS (i) 0.08 1.00 2.00 40.00 0.290 Surface Area Dep. Storage Average Slope (ha)= (mm)= (%)= (m)= Length Mannings n NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. CN* = 89.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. Area (ha)= 0.47Total Imp(%)= 87.00 Dir. Conn.(%)= 87.00IMPERVIOUS PERVIOUS (i) (ha)= (mm)= (%)= (m)= = 0.41 1.00 1.00 55.98 0.013 0.06 1.00 2.00 40.00 0.290 Dep. Storage Average Slope Length Mannings n NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

| | TRANSFORME |) HYETOGRAPH | | |
|--|----------------------------|--------------------|----------------------------|---------------|
| TIME RAIN hrs mm/hr | | ' TIME ' hrs m | RAIN TIME | RAIN mm/hr |
| 0.083 6.41 | 1.083 45.22 | 2.083 14 | 1.50 3.08 1.50 3.17 | 7.56 7.56 |
| | | | .44 3.25 | 7.04 |
| 0.333 7.29 | 1.333 180.15 | 2.333 12 | .44 3.33 | 7.04 |
| | | | .94 3.42 | 6.60 |
| 0.500 8.52 0.583 10.36 | 1.500 58.54 1.583 31.96 | | 0.94 3.50 0.80 3.58 | 6.60 |
| 0.667 10.36 | | | 0.80 3.67 | 6.22 |
| 0.750 13.45 | 1.750 22.45 | 2.750 8 | 3.90 i 3.75 | 5.89 |
| | | | 3.83 | 5.89 |
| | | | 3.16 3.92 3.16 4.00 | 5.59 5.59 |
| 1.000 19.96 | 2.000 17.32 | 3.000 8 | 3.16 4.00 | 3.39 |
| Max.Eff.Inten.(mm/hr)= | | 34.19 | | |
| over (min) Storage Coeff. (min)= | 5.00 1.43 (ii) | 5.00 4.28 (ii) | | |
| Unit Hyd. Tpeak (min)= | 5.00 | 5.00 | | |
| Unit Hyd. peak (cms)= | | 0.23 | | |
| | | | *TOTALS* | |
| PEAK FLOW (cms)= | 0.20 1.33 | 0.02 1.33 | 0.226 (iii) | |
| TIME TO PEAK (hrs)= RUNOFF VOLUME (mm)= | | 1.33 53.54 | 1.33 83.57 | |
| TOTAL RAINFALL (mm)= | | 37.58 | 87.58 | |
| RUNOFF COEFFICIENT = | 0.99 | 0.73 | 0.95 | |
| **** WARNING: STORAGE COEFF. | IS SMALLER THAN | TIME STEP! | | |

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $\mathrm{CN'} = 89.0$ IA = Dep. Storage (Above) (ii) TIME STEP (DT) SOURCE SUBJECT (ABOVE) THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Area (ha)= 0.35 Total Imp(%)= 89.00 Dir. Conn.(%)= 89.00 IMPERVIOUS 0.31 0.04 1.00 1.00 2.00 48.30 40.00 0.013 0.290 Surface Area Dep. Storage Average Slope Length (ha)= (mm)= (%)= (m)= Mannings n

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

| TIME | RAIN | TIME | RAIN | ' TIME | RAIN | TIME | RAIN |
|-------|-------|-------|--------|--------|---------|------|-------|
| hrs | mm/hr | hrs | mm/hr | ' hrs | mm/hr | hrs | mm/hr |
| 0.083 | 6.41 | 1.083 | 45.22 | 2.083 | 14.50 | 3.08 | 7.56 |
| 0.167 | 6.41 | 1.167 | 45.22 | 2.167 | 14.50 i | 3.17 | 7.56 |
| 0.250 | 7.29 | 1.250 | 180.15 | 2.250 | 12.44 | 3.25 | 7.04 |
| 0.333 | 7.29 | 1.333 | 180.15 | 2.333 | 12.44 | 3.33 | 7.04 |
| 0.417 | 8.52 | 1.417 | 58.54 | 2.417 | 10.94 i | 3.42 | 6.60 |
| 0.500 | 8.52 | 1.500 | 58.54 | 2.500 | 10.94 | 3.50 | 6.60 |
| 0.583 | 10.36 | 1.583 | 31.96 | 2.583 | 9.80 i | 3.58 | 6.22 |
| 0.667 | 10.36 | 1.667 | 31.96 | 2.667 | 9.80 | 3.67 | 6.22 |
| | | | | , | 00 | 0, | |

---- TRANSFORMED HYETOGRAPH ----

```
Surface Area
Dep. Storage
Average Slope
Length
                                                                                                                      13.45 | 1.750 | 22.45 | 2.750
13.45 | 1.833 | 22.45 | 2.833
19.96 | 1.917 | 17.52 | 2.917
19.96 | 2.000 | 17.52 | 3.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (ha)=
(mm)=
(%)=
(m)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0.23
1.00
1.00
43.97
0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0.06
1.00
2.00
40.00
0.290
                                                                                                                                                                                                                                                                                                       8.90 | 3.75
8.90 | 3.83
8.16 | 3.92
8.16 | 4.00
                       Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mannings n
                                                                                                                                                                          180.15 134.19

5.00 5.00

1.30 (ii) 3.95 (ii)

5.00 5.00

0.33 0.24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TRANSFORMED HYETOGR ME RAIN | TIME F 1883 45.22 | 2.083 31 180.15 | 2.250 31 180.15 | 2.253 31 180.15 | 2.533 31 180.15 | 2.533 31 180.15 | 2.533 31 180.15 | 2.533 31 180.15 | 2.533 31 180.15 | 2.533 31 180.15 | 2.533 31 22.45 | 2.533 31 22.45 | 2.533 31 22.45 | 2.633 31 22.45 | 2.833 31 71 71.75.2 | 2.917 00 | 17.52 | 3.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RAIN TIME
mm/hr hr hrs
6 441 1.083
6 441 1.167
7.29 1.333
8.52 1.417
8.52 1.500
10.36 1.687
10.36 1.687
13.45 1.833
10.36 1.833
10.36 1.917
19.96 2.000
                                                                                                                                                                                                                                                                                                                                 *TOTALS*
0.170 (iii)
1.33
84.04
87.58
0.96
                                                                                                                                                                          0.16
1.33
86.58
87.58
0.99
                                                                                                                                                                                                                                                      0.01
1.33
63.54
87.58
0.73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                          PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         mm/hr
14.50
14.50
12.44
12.44
10.94
9.80
9.80
8.90
8.90
8.16
8.16
                       * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                     (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   180.15 134.19
5.00 5.00
1.23 (ii) 4.91 (ii)
5.00 5.00
0.33 0.22
| CALIB
| STANDHYD ( 20042) | Area (ha) = 0.36
| ID = 1 DT = 5.0 min | Total Imp(%) = 85.00 | Dir. Conn.(%) = 85.00
| IMPERVIOUS | PERVIOUS (i) 0.05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            *TOTALS*
0.135 (iii)
1.33
81.50
87.58
0.93
                     PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0.11
1.33
86.58
87.58
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0.02
1.33
63.54
87.58
0.73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                             NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^\circ = 89.0 Ia = Dep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                     TRANSFORMED HYETOGRAPH
TIME RAIN | TIME |
hrs mm/hr | hrs mm
1.083 45.22 | 2.083 14
1.250 180.15 | 2.250 12
1.250 180.15 | 2.250 12
1.333 180.15 | 2.333 12
1.417 58.54 | 2.417 10
1.500 58.54 | 2.500 10
1.500 58.54 | 2.500 10
1.500 58.54 | 2.500 10
1.803 31.96 | 2.687 90
1.803 31.96 | 2.883 8
1.833 22.45 | 2.833 8
1.833 22.45 | 2.833 8
1.831 22.45 | 2.750 8
1.833 22.45 | 2.750 8
1.831 27.750 2.300 8
                                                                                  TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                         RAIN
mm/hr
6.41
7.29
7.29
8.52
8.52
10.36
13.45
13.45
19.96
                                                                                                                                                                                                                                                                                                                                                          3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                         mm/h
7.56
7.04
7.04
6.60
6.62
6.22
5.89
5.59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | CALIB | STANDHYO ( 20062) | Area (ha) = 0.73 | Dir. Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00 | Conn.(%) = 80.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (ha)= 80.00 Dir. Conn.(

IMPERVIOUS PERVIOUS (1)

(mm)= 0.58 0.15
(mm)= 1.00 2.00
(m)= 69.76
= 0.012
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                       Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                        180.15 134.19
5.00 5.00
1.32 (ii) 4.36 (ii)
5.00 5.00
0.33 0.23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TRANSFORMED HYETOGR
TIME RAIN | TIME
hrs mm/hr | hrs
1.083 45.22 2.083
1.167 45.22 2.167
1.250 180.15 2.250
1.333 180.15 2.331
1.417 58.54 2.417
1.500 38.96 2.503
1.407 31.96 2.503
1.500 38.26 2.503
1.500 32.26 2.503
1.503 32.245 2.503
1.750 22.45 2.750
1.833 22.45 2.750
1.833 22.45 2.833
1.917 17.52 2.937
2.000 17.52 3.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RAIN
mm/hr
14.50 |
14.50 |
12.44
10.94
10.94
19.80
9.80
9.80
8.90
8.90
8.16
8.16
                                                                                                                                                                                                                                                                                                                              *TOTALS*
0.172 (iii)
1.33
83.11
87.58
0.95
                                                                                                                                                                           0.15
1.33
86.58
87.58
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RAIN
mm/hr
6.41
7.29
8.52
8.52
10.36
10.36
13.45
19.96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                       PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                     0.02
1.33
63.54
87.58
0.73
                     * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                     (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^{\circ} = 89.0 Ia = Dep. Storage (Above) i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. THAN THE STORAGE TO TINCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      180.15
5.00
1.63 (ii)
5.00
0.32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              134.19
10.00
5.13 (ii)
10.00
0.16
 | CALIB | STANDHYD ( 20052) | Area (ha)= 0.29 | | Total Imp(%)= 78.00 | Dir. Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)= 78.00 | | Conn.(%)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            *TOTALS*
0.332 (iii)
                                                                                                                                                       IMPERVIOUS PERVIOUS (i)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PEAK FLOW (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0.29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0.04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6.41 | 1.083
6.41 | 1.167
7.29 | 1.250
7.29 | 1.333
8.52 | 1.417
8.52 | 1.500
10.36 | 1.583
10.36 | 1.667
13.45 | 1.750
13.45 | 1.833
19.96 | 1.917
19.96 | 2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           45.22
45.22
180.15
180.15
58.54
58.54
31.96
31.96
22.45
22.45
17.52
                       TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                              1.33
86.58
87.58
0.99
                                                                                                                                                                                                                                                      1.42
63.54
87.58
0.73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           14.50
14.50
12.44
12.44
10.94
9.80
9.80
8.90
8.90
8.16
8.16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2.417
2.500
2.583
2.667
2.750
2.833
2.917
3.000
                     * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0   Ia=\text{Dep}. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               180.15
5.00
1.56 (ii)
0.33
0.27
1.33
86.58
87.58
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (ms)=
PEAK FLOW (cms)=
PEAK FLOW (cms)=
RINGFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RINGFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      134.19
5.00
4.70 (ii)
5.00
0.22
                                                                                                   CALIB
STANDHYD ( 20061)
ID= 1 DT= 5.0 min
                                                                                                                      Area (ha)= 0.65 Total Imp(\%)= 85.00 Dir. Conn.(\%)= 85.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            *TOTALS*
0.304 (iii)
1.33
82.89
87.58
0.95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0.04
1.33
63.54
87.58
0.73
                     Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                             NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^{\pm}=89.0 Ia = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                       TRANSFORMED HYETOGRAPH
TIME RAIN | TIME
hrs mm/hr | hrs m
1.083 45.22 | 2.083 | 1
1.167 45.22 | 2.167 | 1
1.250 180.15 | 2.250 | 1
1.250 180.15 | 2.333 | 1
1.410 58.54 | 2.417 | 1
1.803 38.54 | 2.503 | 1
1.803 38.54 | 2.2867 | 1
1.803 38.30 | 2.2867 | 1
1.803 38.30 | 2.2867 | 2
1.833 | 22.45 | 2.2867 | 1
1.833 | 22.45 | 2.287 | 2
1.833 | 22.45 | 2.383 | 8
2.000 | 17.52 | 3.000 | 8
                                                                                                                         RAIN mm/hr 6.41 6.41 7.29 7.29 8.52 8.52 10.36 10.36 13.45 13.45 19.96 19.96
                                                                                                                                                                                                                                                                                                          RAIN
mm/hr
14.50
14.50
12.44
12.44
10.94
9.80
9.80
8.90
8.90
8.16
8.16
                                                                                                                                                                                                                                                                                                                                                                                                      RAIN
mm/hr
7.56
7.56
7.04
6.60
6.22
6.22
5.89
5.59
                                                                                    TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                            TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Surface Area (ha)= 0.49 0.09
Dep. Storage (mm)= 1.00 1.00
Average Slope (%)= 1.00 2.00
Length (m)= 62.18 40.00
Mannings n = 0.013 0.290
                       Max.Eff.Inten.(mm/hr) = over (min)
Storage Coeff. (min) = Unit Hyd. Tpeak (min) = Unit Hyd. peak (cms) =
                                                                                                                                                                       180.15 134.19
5.00 5.00
1.57 (ii) 4.62 (ii)
5.00
0.33 0.22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TIRANSFORMED HYETOGRAPH
TIME RAIN | TIME
RAIN | TIME
RAIN | TIME
| 1.083 45.22 | 2.083 1 |
1.167 45.22 | 2.167 1 |
1.250 180.15 | 2.250 1 |
1.333 180.15 | 2.333 1 |
1.417 58.54 | 2.417 1 |
1.583 38.05 | 2.583 1 |
1.417 58.54 | 2.417 1 |
1.583 38.05 | 2.583 1 |
1.687 31.96 | 2.587 2 |
1.683 32.45 | 2.667 2 |
1.833 22.45 | 2.687 2 |
1.833 22.45 | 2.833 |
1.917 17.52 | 2.917 2 |
2.000 17.52 | 3.000 8
                                                                                                                                                                                                                                                                                                                              *TOTALS*
0.310 (iii)
1.33
83.12
87.58
0.95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RAIN
mm/hr
14.50
12.44
12.44
10.94
9.80
9.80
8.90
8.90
8.16
8.16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RAIN | mm/hr | 6.41 | 6.41 | 7.29 | 7.29 | 8.52 | 8.52 | 10.36 | 10.36 | 13.45 | 13.45 | 19.96 | 19.96 |
                        PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                           0.28
1.33
86.58
87.58
0.99
                                                                                                                                                                                                                                                      0.03
1.33
63.54
87.58
0.73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN° = 89.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SMOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    180.15 134.19
5.00 5.00
1.52 (ii) 4.56 (ii)
5.00
0.33 0.23
 CALIB | Area (ha) = 0.64 | Dir. Conn.(%) = 84.00 | IMPERVIOUS | PERVIOUS (i) | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 | O.110 |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            *TOTALS*
0.277 (iii)
1.33
83.12
87.58
0.95
                                                                                                                  0.25
1.33
86.58
87.58
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0.03
                          Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                             NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = Dep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                         ---- TRANSFORMED HYETOGRAPH ----
TIME RAIN | TIME RAIN | ' TIME RAIN | TIME RAIN
hrs mm/hr | hrs mm/hr | hrs mm/hr | hrs mm/hr
```

RAIN mm/hr 7.56 7.56 7.04 6.60 6.60 6.22 6.22 5.89 5.59

RAIN mm/hr 7.56 7.56 7.04 6.60 6.60 6.22 6.22 5.89 5.59

7.56 7.56 7.04 7.04 6.60 6.22 6.22 5.89 5.59

RAIN mm/hr 7.56 7.56 7.04 6.60 6.60 6.22 5.89 5.59 5.59

```
Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       134.19
10.00
5.12 (ii)
  CALIB
| STANDHYD ( 20092)
|ID= 1 DT= 5.0 min
                                                                                                                  Area (ha)= 0.63
Total Imp(%)= 81.00 Dir. Conn.(%)= 81.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 *TOTALS*
0.179 (iii)
1.33
81.27
87.58
0.93
                                                                                                                                                                                                                               PERVIOUS (i)
0.12
1.00
2.00
40.00
0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0.15
1.33
86.58
87.58
0.99
                          Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                      0.51
1.00
1.00
64.81
0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                              NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = Dep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                        TRANSFORMED HYETOGRAPH
                                                                                                                                                                TRANSFORMED HYETOGR TIME RAIN | TIME hrs mm/hr | hrs mm/hr | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs |
                                                                                TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                 mm/hr
14.50
14.50
12.44
12.44
10.94
10.94
9.80
9.80
9.80
8.90
8.90
8.16
8.16
                                                                                                                        mm/hr
6.41
7.29
7.29
8.52
8.52
10.36
10.36
13.45
19.96
                                                                                                                                                                                                                                                                                                                                                                                         mm/hi
7.56
7.56
7.04
7.04
6.60
6.22
6.22
5.89
5.59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Area (ha)= 0.38 Total Imp(\%)= 70.00 Dir. Conn.(\%)= 70.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     IMPERVIOUS

0.27

1.00

1.00

50.33

0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PERVIOUS (i)
0.11
1.00
2.00
40.00
0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (ha)=
(mm)=
(%)=
(m)=
=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                         Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                  180.15
5.00
1.56 (ii)
5.00
0.33
                                                                                                                                                                                                                            134.19
5.00
4.97 (ii)
5.00
0.22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TRANSFORMED HYETOGRAPI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ANSFORMEI

RAIN

mm/hr

45.22

45.22

180.15

180.15

58.54

58.54

31.96

31.96

32.45

22.45

17.52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HYETOGR
TIME
hrs
2.083
2.167
2.250
2.333
2.417
2.500
2.583
2.667
2.750
2.833
2.917
3.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RAIN
mm/hr
6.41
7.29
7.29
8.52
8.52
10.36
10.36
13.45
13.45
13.96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TIME
hrs
1.083
1.167
1.250
1.333
1.417
1.500
1.583
1.667
1.750
1.833
1.917
2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RAIN
mm/hr
7.56
7.56
7.04
6.60
6.22
6.22
5.89
5.59
                          PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                        0.26
1.33
86.58
87.58
0.99
                                                                                                                                                                                                                                            0.04
1.33
63.54
87.58
0.73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RAIN
mm/hr
14.50
14.50
12.44
12.44
10.94
10.94
9.80
9.80
9.80
8.90
8.90
8.16
8.16
                 ** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = Dep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  180.15
5.00
1.34 (ii)
5.00
0.33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     134.19
10.00
5.68 (ii)
10.00
0.15
| CALTB | CALTB | STANDHYD ( 20091) | Area (ha) = 0.40 | Dir. Conn. (%) = 77.00 | Total Imp(%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) = 77.00 | Dir. Conn. (%) =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 *TOTALS*
0.163 (iii)
1.33
79.65
87.58
0.91
                                                                                                           PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0.13
1.33
86.58
87.58
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0.03
1.42
63.54
87.58
0.73
                         Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                            NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^\circ = 89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                ---- TRANSFORMED HYETOGRAPH
TIME RAIN | TIME |
hrs mm/hr | hrs mm
1.083 45.22 | 2.083 14.
1.250 180.15 | 2.250 12.
1.333 180.15 | 2.333 12.
1.417 58.54 | 2.417 10.
1.893 13.12 | 2.333 12.
1.647 31.96 | 2.667 9 9.
1.750 22.45 | 2.750 8.
1.833 22.45 | 2.833 8.
1.833 22.45 | 2.833 8.
1.833 22.45 | 2.833 8.
1.833 | 2.752 | 2.917 8.
1.834 | 2.752 | 3.000 8.
                                                                                                                                                                                                                                                                                               RAIN
mm/hr
14.50
14.50
12.44
10.94
10.94
9.80
9.80
9.80
8.90
8.90
8.16
8.16
                                                                                                                                                                                                                                                                                                                                                                                         RAIN
mm/hr
7.56
7.56
7.04
7.04
6.60
6.22
6.22
5.89
5.59
                                                                                 TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.563
0.750
0.750
0.833
0.917
1.000
                                                                                                                           RAIN
mm/hr
6.41
6.41
7.29
8.52
8.52
10.36
10.36
13.45
13.45
13.96
                                                                                                                                                                                                                                                                                                                                            TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     180.15
5.00
1.35 (ii)
5.00
0.33
                                            NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                       RAIN
mm/hr
6.41
7.29
7.29
8.52
10.36
10.36
13.45
13.45
13.45
                                                                                                                                                                                                                                                                                              RAIN
mm/hr
14.50
14.50
12.44
12.44
10.94
19.80
9.80
9.80
8.90
8.90
8.16
8.16
                                                                                                                                                                                                                                                                                                                                             TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^2=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. THAN THE STORAGE TO TINCLUDE BASEFLOW IF ANY.
                       Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                  180.15 134.19
5.00 5.00 13.95 (ii)
5.00 5.00 5.00 0.34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                *TOTALS*
0.033 (iii)
1.33
82.86
87.58
0.95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                            0.00
1.33
63.54
87.58
0.73
                                                                                                                                                                           0.03
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                        86.58
87.58
0.99
                             WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0   Ia=\text{Dep}. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TRANSFORMED HYETOGRAPH
ME RAIN | TIME
81 45.22 | 2.083 14
50 180.15 | 2.250 12
33 180.15 | 2.337 10
00 58.54 | 2.437 10
00 58.54 | 2.437 10
00 58.54 | 2.437 10
00 58.54 | 2.337 10
00 58.54 | 2.337 10
00 58.54 | 2.337 10
00 58.54 | 2.337 10
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00 58.54 | 2.337 10
00 58.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RAIN
mm/hr
14.50
14.50
12.44
12.44
10.94
10.94
9.80
9.80
8.90
8.90
8.16
8.16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.508
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TIME hrs 1.083 1.167 1.250 1.333 1.417 1.500 1.583 1.667 1.750 1.833 1.917 2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RAIN
mm/hr
7.56
7.56
7.04
7.04
6.60
6.22
6.22
5.89
5.59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        mm/hr
6.41
7.29
7.29
8.52
8.52
10.36
13.45
13.45
19.96
     ADD HYD ( 0110) |
1 + 2 = 3
                                                                                                                                                   AREA QPEAK (ha) (cms) 0.07 0.033 0.38 0.163
                                                                                                                                                                                                                                           TPEAK
(hrs)
1.33
1.33
                             ID1= 1 (200811):
+ ID2= 2 (200812):
                                      ID = 3 ( 0110):
                                                                                                                                                   0.45 0.197
                                                                                                                                                                                                                                            1.33
                                                                                                                                                                                                                                                                                      80.15
                         NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  180.15
5.00
0.80 (ii)
5.00
0.34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  134.19
5.00
4.04 (ii)
5.00
0.24
    CALIB
STANDHYD (200822)
ID= 1 DT= 5.0 min
                                                                                                                  Area (ha)= 0.39 Total Imp(\%)= 59.00 Dir. Conn.(\%)= 59.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 *TOTALS*
0.033 (iii)
1.33
82.63
87.58
0.94
                                                                                                               PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0.03
1.33
86.58
87.58
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0.00
1.33
63.54
87.58
0.73
                         Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                              NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 I a= bep. Storage (Above) (ii) TIME STEP (OT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                            HYETOGR
TIME
hrs
2.083
2.167
2.250
2.333
2.417
2.500
2.583
2.667
2.750
2.833
2.917
3.000
                                                                                                                                                                  TIME
hrs
1.083
1.167
1.250
1.333
1.417
1.500
1.583
1.667
1.750
1.833
1.917
2.000
                                                                                                                                                                                                       RAIN
mm/hr
45.22
180.15
180.15
58.54
58.54
31.96
31.96
22.45
22.45
17.52
                                                                                 hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                 mm/hi
14.50
14.50
12.44
12.44
10.94
9.80
9.80
8.90
8.90
8.16
8.16
                                                                                                                                                                                                                                                                                                                                             hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                         mm/hi
7.56
7.56
7.04
7.04
6.60
6.22
6.22
5.89
5.59
                                                                                                                           mm/hr
6.41
7.29
7.29
8.52
8.52
10.36
10.36
13.45
13.45
19.96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | ADD HYD ( 0111)|
| 1 + 2 = 3 |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AREA
(ha)
0.07
0.39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ID1= 1 (200821):
ID2= 2 (200822):
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0.46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0.184
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NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
                                                                                                                                 Area (ha)= 0.47 Total Imp(\%)= 74.00 Dir. Conn.(\%)= 74.00
                                                                                                                                                                      IMPERVIOUS
0.35
1.00
1.00
55.98
0.013
                                                                                                                                                                                                                                               PERVIOUS (i)
0.12
1.00
2.00
40.00
0.290
                            Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                 NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                              TRANSFORMED HYETOGRAPH
                                                                                                                                                                                   TRANSFORMED HYETOGR TIME RAIN | TIME hrs mm/hr | hrs mm/hr | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs |
                                                                                                                                                                                                                                                                                                                              RAIN
mm/hr
14.50 |
14.50 |
12.44 |
10.94
10.94
10.94
9.80
9.80
9.80
8.90
8.90
8.16
8.16
                                                                                                                                             RAIN
                                                                                                                                                                                                                                                                                                                                                                                     TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                         TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                      mm/hr
6.41
7.29
7.29
8.52
8.52
10.36
10.36
13.45
19.96
                                                                                                                                                                                                                                                                                                                                                                                                                                     mm/hi
7.56
7.56
7.04
7.04
6.60
6.22
6.22
5.89
5.59
                          Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                     180.15
5.00
1.43 (ii)
5.00
0.33
                                                                                                                                                                                                                                                        134.19
10.00
5.44 (ii)
10.00
0.16
                                                                                                                                                                                                                                                                                                                                                     *TOTALS*
0.207 (iii)
1.33
80.58
87.58
0.92
                            PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                            0.17
1.33
86.58
87.58
0.99
                                                                                                                                                                                                                                                                        0.04
1.42
63.54
87.58
0.73
***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^{\circ} = 89.0 Ia = Dep. Storage (Above) i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. THAN THE STORAGE TO TINCLUDE BASEFLOW IF ANY.
 | CALIB
| STANDHYD ( 20101) | Area (ha)= 0.25
| Total Imp(%)= 82.00 | Dir. conn.(%)= 82.00
| IMPERVIOUS | PERVIOUS (i)
                                                                                                                         (ha) = 0.20

(mm) = 1.00

(%) = 1.00

(m) = 40.82

= 0.013
                                                                                                                                                                                                                                                        PERVIOUS (i)
0.05
1.00
2.00
40.00
0.290
                            Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                 NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                  TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME R
                                                                                                                                                                                                                                                                                                                               RAIN
mm/hr
14.50
12.44
12.44
10.94
10.94
9.80
9.80
8.90
8.90
8.16
8.16
                                                                                                                                                                                                                                                                                                                                                                                 TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                     RAIN
mm/hr
7.56
7.56
7.04
6.60
6.60
6.22
6.22
6.25
5.89
5.59
                                                                                         TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.833
0.831
1.000
                                                                                                                                        RAIN
mm/hr
6.41
7.29
8.52
8.52
10.36
10.36
13.45
13.45
13.96
    CALIB
STANDHYD ( 20112)
ID= 1 DT= 5.0 min
                                                                                                                                Area (ha)= 0.90 Total Imp(\%)= 80.00 Dir. Conn.(\%)= 80.00
                                                                                                                            (ha)= 0.72

(mm)= 1.00

(%)= 1.00

(m)= 77.46

= 0.013
                                                                                                                                                                                                                                                         PERVIOUS (i)
0.18
1.00
2.00
40.00
0.290
                        Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                 NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                           TRANSFORMED HYETOGRAPH
TIME RAIN ' TIME '
hrs mm/hr ' hrs m
1.083 45.22 2.083 14.
1.167 45.22 2.167 14.
1.250 180.15 2.250 12.
1.333 180.15 2.333 12.
1.417 58.54 2.400 11.
1.580 31.96 2.667 9
1.580 22.45 2.750 8.
1.833 22.45 2.750 8.
1.833 22.45 2.833 8.
1.917 17.52 2.917 8.
                                                                                         TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                      RAIN
mm/hr
6.41
7.29
8.52
8.52
10.36
10.36
13.45
13.45
19.96
                                                                                                                                                                                                                                                                                                                               RAIN
mm/hr
14.50
12.44
12.44
10.94
19.80
9.80
8.90
8.90
8.16
8.16
                                                                                                                                                                                                                                                                                                                                                                                   TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                  RAIN
mm/hr
7.56
7.56
7.04
6.60
6.22
6.22
5.89
5.59
5.59
                          Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                                                  180.15
5.00
1.73 (ii)
5.00
0.32
                                                                                                                                                                                                                                            134.19
10.00
ii) 5.23 (ii)
10.00
0.16
                                                                                                                                                                                                                                                                                                                                                     *TOTALS*
0.409 (iii)
1.33
81.97
87.58
0.94
                                                                                                                                                                                            0.36
1.33
86.58
87.58
0.99
                            PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                       0.05
1.42
63.54
87.58
0.73
                          * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                          Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                   NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                               HYETOGRAPH
TIME
hrs m
2.083 14
2.167 14
2.250 12
2.333 12
2.417 10
2.583 9
2.667 6
2.750 8
2.833 8
2.917 8
                                                                                                                                                                                     TIME
hrs
1.083
1.167
1.250
1.333
1.417
1.500
1.583
1.667
1.750
1.833
1.917
2.000
                                                                                                                                                                                                                               RAIN
mm/hr
45.22
180.15
180.15
58.54
58.54
31.96
31.96
22.45
22.45
17.52
                                                                                                                                                                                                                                                                                                                                                                                     3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                         hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                   mm/hr
14.50
14.50
12.44
12.44
10.94
9.80
9.80
8.90
8.90
8.16
8.16
                                                                                                                                                                                                                                                                                                                                                                                                                                     mm/hi
7.56
7.56
7.04
7.04
6.60
6.22
6.22
5.89
5.59
                                                                                                                                          mm/hr
6.41
7.29
7.29
8.52
8.52
10.36
10.36
13.45
13.45
19.96
```

| Max.Eff.Inten.(nm/hr)= 180.15 134.19 over (min) 5.00 5.00 Storage Coeff. (min)= 1.18 (ii) 4.50 (ii) unit Hyd. Tpeak (min)= 5.00 5.00 unit Hyd. peak (cms)= 0.33 0.23 **TOTALS** PEAK FLOW (cms)= 0.10 0.02 0.118 (iii) TIME TO PEAK (hrs)= 1.33 1.33 1.33 RUNOFF OULLME (mm)= 86.58 63.54 82.42 TOTAL RAINFALL (mm)= 87.58 87.58 87.58 RUNOFF COEFFICIENT = 0.99 0.73 0.94 ****** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN* = 89.0 1 = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STERGAGE COEFFICIENT. |
|--|
| THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. |
| ADD HYD (0121) |
| CALIB STANDHYD (20111) Area (ha) = 0.87 Dir. Conn.(%) = 67.00 |
| Surface Area (ha)= 0.58 0.29 Dep. Storage (mm)= 1.00 1.00 Average Slope (%)= 1.00 2.00 Length (m)= 76.16 40.00 Mannings n = 0.013 0.290 NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. |
| TIME |
| Max.Eff.Inten.(mm/hr)= 180.15 134.19 Storage coeff. (min)= 1.71 (ii) 6.31 (ii) Unit hyd. Tpeak (min)= 5.00 10.00 Unit hyd. peak (cms)= 0.52 0.15 **TOTALS* |
| PEAK FLOW (cms)= 0.29 0.08 0.364 (iii) TIME TO PEAK (hrs)= 1.33 1.42 1.33 RNNOFF VOLUME (mm)= 86.58 63.54 78.97 TOTAL RAINFALL (mm)= 87.58 87.58 RNNOFF COEFFICIENT = 0.99 0.73 0.90 |
| ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: |
| Max.Eff.Inten.(mm/hr)= 180.15 134.19 over (min) 5.00 10.00 Storage coeff. (min)= 1.84 (ii) 5.26 (ii) |
| Storage Coeff. min = 1.84 (ii) 5.26 (ii) |
| PEAK FLOW (cms)= 0.45 0.06 0.506 (iii) |
| PEAK FLOW (cms) 0.45 0.06 "TOTALS" TIME TO PEAK (hrs) 1.33 1.42 1.506 (jii) TANDORF VOLUME (hrs) 1.33 1.42 1.20 TOTAL RAINFALL (mm) 8.6.58 63.54 82.20 TOTAL RAINFALL (mm) 8.7.58 87.5 |
| PEAK FLOW (cms) 0.45 0.06 "TOTALS" TIME TO PEAK (hrs)= 1.33 1.42 1.50 (iii) RUNDFF VOLUME (mm)= 86.58 63.54 82.20 TOTAL RATNFALL (mm)= 87.58 87.58 87.58 87.58 RUNDFF COREFICIENT = 0.99 0.73 0.94 ****** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN* = 89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFLICIENT. (iii) PPEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. CALIB STANDHYD (201021) Area (ha)= 0.47 STANDHYD (201021) ID= 1 DT= 5.0 min Total Imp(%)= 85.00 Dir. Conn.(%)= 85.00 |
| PEAK FLOW (cms) 0.45 0.06 "TOTALS" TIME TO PEAK (hrs)= 1.33 1.42 1.050 (iii) RUNDEF VOLUME (mm)= 86.58 63.54 2.20 TOTAL RAINFALL (mm)= 87.58 87.58 87.58 87.58 RUNDEF COLEFICIENT = 0.99 0.73 0.94 ****** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: (CN* = 89.0 In Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. CALIB STANDHYO (201021) Area (ha)= 0.47 ID= 1 DT= 5.0 min Total Imp(%) = 85.00 Dir. Conn. (%)= 85.00 Surface Area (ha)= 0.40 0.07 Dep. Storage (mm)= 1.00 1.00 Average Slope (%)= 1.00 1.00 Average Slope (%)= 55.98 44.00 Mannings n = 0.013 0.290 |
| PEAK FLOW |

** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^{\circ}=89.0$ I a= bep. Storage (Above) (ii) TIME STEP (OT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Surface Area Dep. Storage Average Slope Length

```
Mannings n
                                                                                                                                                                                             0.013
                                                                                                                                                                                                                                                                           0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                   NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                               ANSFORMED HYETOGE RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    *TOTALS*
0.136 (iii)
1.33
84.27
87.58
0.96
                                                                                                                                        RAIN
mm/hr
6.41
7.29
7.29
8.52
8.52
10.36
10.36
13.45
19.96
                                                                                                                                                                                        TIME
hrs
1.083
1.167
1.250
1.333
1.417
1.500
1.583
1.667
1.750
1.833
1.917
2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                              RAIN
mm/hr
7.56
7.56
7.04
7.04
6.60
6.60
6.22
6.22
5.89
5.59
                                                                                            TIME hrs 0.083 0.167 0.250 0.333 0.417 0.500 0.583 0.667 0.750 0.833 0.917 1.000
                                                                                                                                                                                                                                                                                                                                                                                            TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0.13
1.33
86.58
87.58
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = Dep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                        180.15 134.19
5.00 5.00
1.43 (ii) 4.47 (ii)
5.00
0.33 0.23
                           Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Area (ha)= 1.11 Total Imp(\%)= 56.00 Dir. Conn.(\%)= 56.00
                                                                                                                                                                                                                                                                                                                                                            *TOTALS*
0.225 (iii)
1.33
83.12
87.58
0.95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IMPERVIOUS PERVIOUS (i)

0.62 0.49

1.00 1.00

1.00 2.00

86.02 40.00

0.013 0.290
                         PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                               0.20
1.33
86.58
87.58
0.99
                                                                                                                                                                                                                                                                             0.02
1.33
63.54
87.58
0.73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (ha)=
(mm)=
(%)=
(m)=
=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                         (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^\circ = 89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TRANSFORMED HYETOGRAPI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ANSFORMEI

RAIN

mm/hr

45.22

45.22

180.15

180.15

58.54

58.54

31.96

31.96

32.45

22.45

17.52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HYETOGR
TIME
hrs
2.083
2.167
2.250
2.333
2.417
2.500
2.583
2.667
2.750
2.833
2.917
3.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RAIN
mm/hr
6.41
7.29
7.29
8.52
8.52
10.36
10.36
13.45
13.45
13.96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TIME
hrs
1.083
1.167
1.250
1.333
1.417
1.500
1.583
1.667
1.750
1.833
1.917
2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RAIN
mm/hr
14.50
14.50
12.44
12.44
10.94
10.94
9.80
9.80
9.80
8.90
8.90
8.16
8.16
        ADD HYD ( 0136)|
1 + 2 = 3 |
                                                                                                                                                                     0.94 0.449
                                                                                                                                                                                                                                                          1.33
                           NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                180.15
5.00
1.84 (ii)
5.00
0.32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           134.19
10.00
8.70 (ii)
10.00
0.12
 CALIB
STANDHYD ( 2005)
IDD= 1 DT= 5.0 min

Area (ha)= 0.28
Total Imp(%)= 90.00 Dir. Conn.(%)= 90.00

IMPERVIOUS PERVIOUS (i)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    *TOTALS*
0.417 (iii)
1.33
76.44
87.58
0.87
                                                                                                                    PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0.31
1.33
86.58
87.58
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0.12
1.42
63.54
87.58
0.73
                           Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                 NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^\circ = 89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                      ---- TRANSFORMED HYETOGRAPH
TIME RAIN | TIME R
hrs mm/hr | hrs m
1.083 45.22 | 2.083 14.
1.250 180.15 | 2.250 12.
1.250 180.15 | 2.250 12.
1.333 180.15 | 2.333 12.
1.417 58.54 | 2.417 180.
1.833 180.74 | 2.500 10.
1.883 13.196 | 2.667 9.
1.667 31.96 | 2.667 9.
1.750 22.45 | 2.750 8.
1.833 22.45 | 2.833 8.
1.833 22.45 | 2.833 8.
1.833 22.45 | 2.833 8.
1.833 22.45 | 2.833 8.
1.834 2.93 | 2.93 8.
1.835 2.93 | 2.93 8.
1.836 2.93 | 2.93 8.
1.837 2.93 8.
1.838 2.93 8.
1.839 2.93 8.
1.839 2.93 8.
                                                                                                                                                                                                                                                                                                                                       RAIN
mm/hr
14.50
14.50
12.44
10.94
10.94
9.80
9.80
9.80
8.90
8.90
8.16
8.16
                                                                                            TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.563
0.750
0.750
0.833
0.917
1.000
                                                                                                                                           RAIN
mm/hr
6.41
6.41
7.29
8.52
8.52
10.36
10.36
13.45
13.45
13.96
                                                                                                                                                                                                                                                                                                                                                                                          TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                              RAIN
mm/hr
7.56
7.56
7.04
7.04
6.60
6.22
6.22
5.89
5.59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PERVIOUS (i)
0.01
1.00
2.00
40.00
                           Mannings n
                                                                                                                                                                                               0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                               NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                      --- TRANSFORNED HYETOGR TIME RAIN | 'TIME hrs mm/hr ' hrs 1.083 45.22 | 2.083 | 1.167 45.22 | 2.165 | 1.167 45.22 | 2.165 | 1.167 45.22 | 2.165 | 1.167 45.22 | 2.167 | 1.163 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45.25 | 1.167 45
                                                                                                                                                                                                                                                                                                                                     RAIN
mm/hr
14.50
14.50
12.44
12.44
10.94
10.94
9.80
9.80
8.90
8.90
8.16
8.16
                                                                                            TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                      RAIN
mm/hr
6.41
7.29
7.29
8.52
10.36
10.36
13.45
13.45
13.45
                                                                                                                                                                                                                                                                                                                                                                                            TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                               RAIN
mm/hr
7.56
7.56
7.04
7.04
6.60
6.22
6.22
5.89
5.59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ADD HYD ( 0142) | 1 + 2 = 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ID = 3 ( 0142): 0.21 0.102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1.33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
                         Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                        180.15 134.19
5.00 5.00 134 3.48 (ii)
5.00 5.00 5.00 0.26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        *TOTALS*
0.049 (iii)
1.33
84.14
87.58
0.96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                               0.04
1.33
86.58
87.58
0.99
                                                                                                                                                                                                                                                                             0.00
1.33
63.54
87.58
0.73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                         (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^{\circ}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TRANSFORMED HYETOGRAPH
ME RAIN | TITIS |
ME RAIN | TITIS |
ME RAIN | TITIS |
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TIME hrs 1.083 1.1.167 9 1.250 9 1.333 2 1.417 2 1.500 6 1.667 1.750 6 1.675 6 1.833 6 1.917 6 12.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RAIN
mm/hr
14.50
14.50
12.44
12.44
10.94
10.94
9.80
9.80
8.90
8.90
8.16
8.16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.508
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RAIN
mm/hr
6.41
7.29
8.52
8.52
10.36
10.36
13.45
19.96
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                180.15
5.00
0.89 (ii)
5.00
0.34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        134.19
5.00
4.48 (ii)
5.00
0.23
                                                   NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                          TIME hrs 1.083 1.167 1.250 1 1.333 1.417 1.583 1.667 1.750 1.833 1.917 2.000
                                                                                                                                                                                                                 NSFORMED H

RAIN

mm/hr

45, 22

45, 22

180, 15

180, 15

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TIME
hrs
2.083
2.167
2.250
2.333
2.417
2.500
2.583
2.667
2.750
2.833
2.917
3.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    *TOTALS*
0.046 (iii)
1.33
81.73
87.58
0.93
                                                                                            TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.508
0.667
0.750
0.833
0.917
1.000
                                                                                                                                        RAIN
mm/hr
6.41
7.29
8.52
8.52
10.36
10.36
13.45
13.45
19.96
                                                                                                                                                                                                                                                                                                                                       RAIN
mm/hr
14.50
14.50
12.44
10.94
10.94
9.80
9.80
9.80
8.90
8.90
8.16
8.16
                                                                                                                                                                                                                                                                                                                                                                                                                                              RAIN
mm/hr
7.56
7.56
7.04
7.04
6.60
6.22
6.22
5.89
5.59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                         TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0.04
1.33
86.58
87.58
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0.01
1.33
63.54
87.58
0.73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 I a= bep. Storage (Above) (ii) TIME STEP (OT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                           Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                                                          180.15
5.00
0.92
5.00
0.34
                                                                                                                                                                                                                                                                     134.19
5.00
3.77 (ii)
5.00
0.25
                                                                                                                                                                                                                                  (ii)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Area (ha)= 0.13
Total Imp(%)= 86.00 Dir. Conn.(%)= 86.00
                                                                                                                                                                                                                                                                                                                                                          *TOTALS*
0.053 (iii)
1.33
83.56
87.58
0.95
                           PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                0.05
1.33
86.58
87.58
0.99
                                                                                                                                                                                                                                                                               0.01
1.33
63.54
87.58
0.73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IMPERVIOUS
0.11
1.00
1.00
29.44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PERVIOUS (i)
0.02
1.00
2.00
40.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Surface Area
Dep. Storage
Average Slope
Length
```

RAIN mm/hr 7.56 7.56 7.04 6.60 6.22 6.22 5.89 5.59

RAIN mm/hr 7.56 7.56 7.04 7.04 6.60 6.22 6.22 5.89 5.59 Mannings n = 0.013 0.290

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

| | | TR | ANSFORME | D HYETOGR | APH | - | |
|-------|-------|---------|----------|-----------|-------|------|-------|
| TIME | RAIN | TIME | RAIN | I' TIME | RAIN | TIME | RAIN |
| hrs | mm/hr | l hrs | mm/hr | ' hrs | mm/hr | hrs | mm/hr |
| 0.083 | 6.41 | 1.083 | 45,22 | 2.083 | 14.50 | 3.08 | 7.56 |
| 0.167 | 6.41 | 1.167 | 45.22 | 2.167 | 14.50 | 3.17 | 7.56 |
| 0.250 | 7.29 | 1.250 | 180.15 | 2.250 | 12.44 | 3.25 | 7.04 |
| 0.333 | 7.29 | 1.333 | 180.15 | 2.333 | 12.44 | 3.33 | 7.04 |
| 0.417 | 8.52 | 1.417 | 58.54 | 2.417 | 10.94 | 3.42 | 6.60 |
| 0.500 | 8.52 | i 1.500 | 58.54 | 2.500 | 10.94 | 3.50 | 6.60 |
| 0.583 | 10.36 | 1.583 | 31.96 | 2.583 | 9.80 | 3.58 | 6.22 |
| 0.667 | 10.36 | 1.667 | 31.96 | 2.667 | 9.80 | 3.67 | 6.22 |
| 0.750 | 13.45 | 1.750 | 22.45 | 2.750 | 8.90 | 3.75 | 5.89 |
| 0.833 | 13.45 | 1.833 | 22.45 | 2.833 | 8.90 | 3.83 | 5.89 |
| 0.917 | 19.96 | 1.917 | 17.52 | 2.917 | 8.16 | 3.92 | 5.59 |
| 1.000 | 19.96 | 2.000 | 17.52 | 3.000 | 8.16 | 4.00 | 5.59 |
| 1.500 | 15.50 | . 2.000 | 2 | , 5.500 | 0.10 | | 5.55 |
| | | | | | | | |

Max.Eff.Inten.(mm/hr) = wor (min)
Storage Coeff. (min) = Unit Hyd. Tpeak (min) = Unit Hyd. Tpeak (min) = Unit Hyd. peak (cms) = TIME TO PEAK (hrs.) = RUNOFF VOLUME (mm) = TOTAL RAINFALL (mm) = RUNOFF COEFFICIENT = *TOTALS* 0.063 (iii) 1.33 83.33 87.58 0.95 0.01 1.33 63.54 87.58 0.73

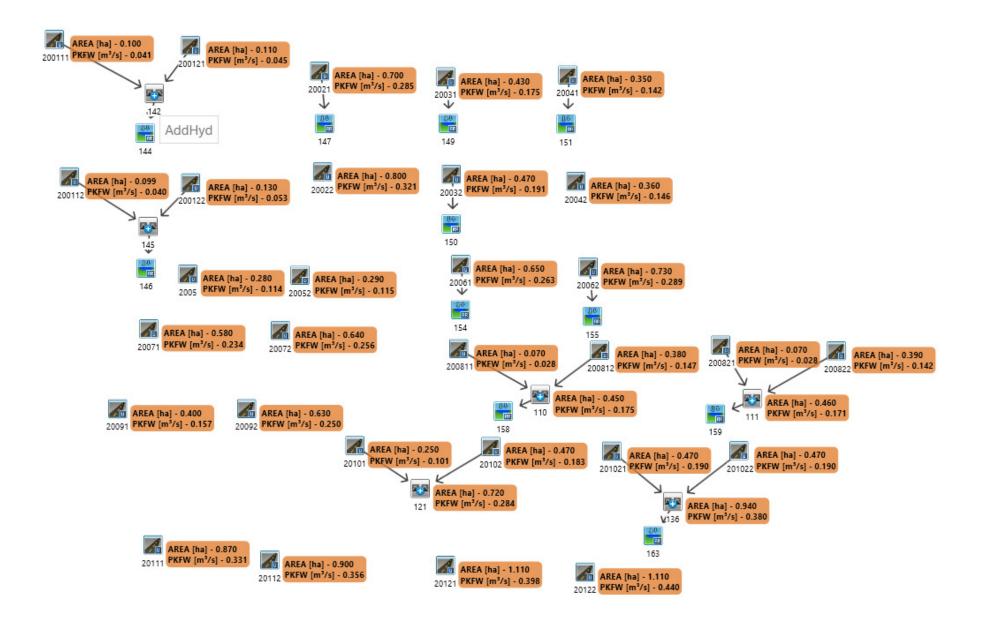
***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

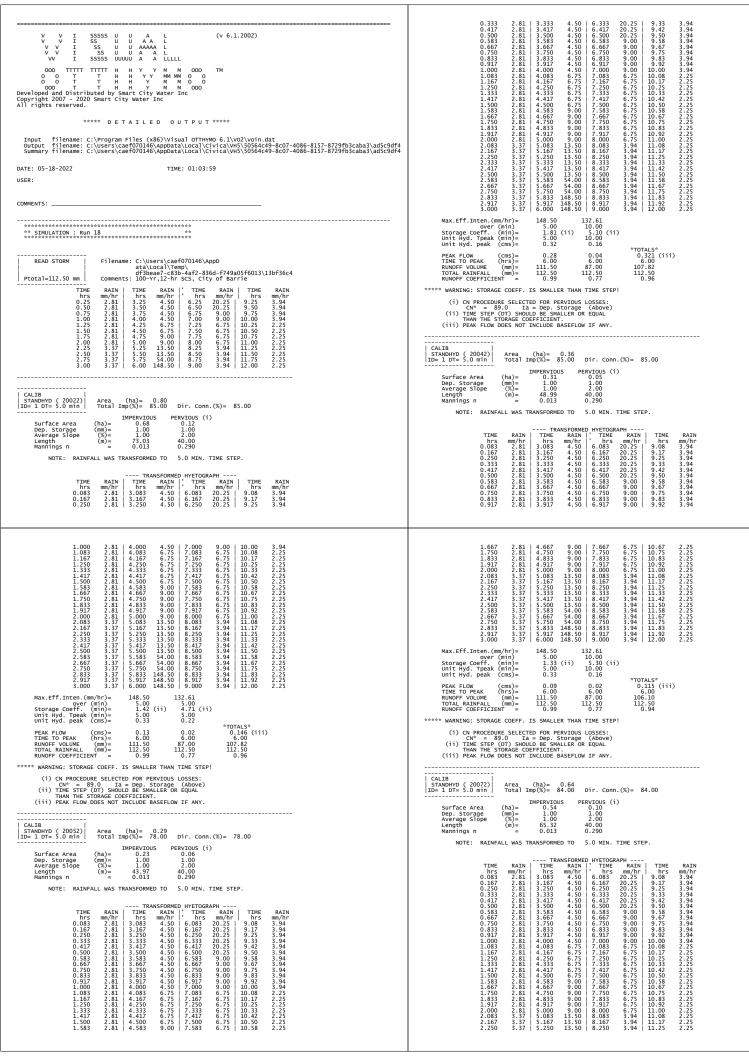
- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^2=89.0$ Ia = Dep. Storage (Above) if TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ADD HYD (0145) | AREA | QPEAK | TPEAK | R.V. |
|--------------------|------|-------|-------|-------|
| 1 + 2 = 3 | (ha) | (cms) | (hrs) | (mm) |
| ID1= 1 (200112): | 0.10 | 0.046 | 1.33 | 81.73 |
| + ID2= 2 (200122): | 0.13 | 0.063 | 1.33 | 83.33 |
| ID = 3 (0145): | 0.23 | 0.109 | 1.33 | 82.63 |

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

FINISH





| 2.500 2.583 | 3.37 3.37 3.37 | 5.333 5.417 5.500 | 13.50 13.50 13.50 | 8.333 8.417 8.500 8.583 | 3.94 3.94 3.94 | 11.33 11.42 11.50 | 2.25 2.25 2.25 2.25 2.25 |
|--|--|---|---|--|--|--|---|
| 2.667 2.750 2.833 2.917 3.000 | 3.37 3.37 3.37 3.37 3.37 | 5.667 5.750 5.833 5.917 6.000 | 54.00 54.00 148.50 148.50 148.50 | 8.667 8.750 8.833 8.917 9.000 | 3.94 3.94 3.94 3.94 3.94 3.94 | 11.42 11.50 11.58 11.67 11.75 11.83 11.92 12.00 | 2.25 2.25 2.25 2.25 2.25 2.25 |
| over Storage Coeff. Unit Hyd. Tpeak Unit Hyd. peak | (min) (min)= (min)= (cms)= (cms)= | 148.50 5.00 1.69 5.00 0.32 | (ii) | 10.00 5.08 (ii 10.00 0.16 | *TOT | ALS* 256 (iii) 5.00 | |
| PEAK FLOW TIME TO PEAK RUNOFF VOLUME TOTAL RAINFALL RUNOFF COEFFICIE ***** WARNING: STORAGE | (nrs)= (mm)= (mm)= NT = E COEFF. I | 6.00 111.50 112.50 0.99 S SMALLE | 1 R THAN 1 | 6.00 37.00 12.50 0.77 TIME STEP | 107 112 0 | | |
| (i) CN PROCEDU CN* = 8° (ii) TIME STEP THAN THE S' (iii) PEAK FLOW I | RE SELECTE 9.0 Ia: (DT) SHOUL TORAGE COE DOES NOT I | D FOR PE = Dep. S D BE SMA FFICIENT NCLUDE B | RVIOUS I torage LLER OR ASEFLOW | OSSES: (Above) EQUAL IF ANY. | | | |
| | Area Total Im | | | | | 85.00 | |
| Surface Area Dep. Storage Average Slope Length Mannings n NOTE: RAINF. | | | | | | :p | |
| TIME hrs | RAIN | TRA | NSFORMEI RAIN | HYETOGR | APH | TIME | RAIN mm/hr |
| 0.083 0.167 0.250 0.333 0.417 0.500 0.583 0.667 0.750 0.833 0.917 1.000 | 2.81 2.81 2.81 2.81 2.81 2.81 2.81 2.81 2.81 2.81 | nrs 3.083 3.167 3.250 3.333 3.417 3.500 3.583 3.667 3.750 3.833 3.917 4.000 4.083 4.167 | 4.50 4.50 4.50 4.50 4.50 4.50 4.50 4.50 | nrs 6.083 6.167 6.250 6.333 6.417 6.500 6.583 6.667 6.750 6.833 6.917 7.000 7.083 7.167 | 9.00 9.00 9.00 9.00 9.00 9.00 9.00 9.00 | 9.08 9.17 9.25 9.33 9.42 9.50 9.58 9.67 9.75 9.83 9.92 10.00 10.08 | 3.94 3.94 3.94 3.94 3.94 3.94 3.94 3.94 |
| 1.250 1.333 1.417 1.500 1.583 1.667 1.750 1.833 1.917 | 2.81 2.81 2.81 2.81 2.81 2.81 2.81 2.81 | 4.333 4.417 4.500 4.583 4.667 4.750 4.833 4.017 | 6.75 6.75 6.75 9.00 9.00 9.00 | 7.250 7.333 7.417 7.500 7.583 7.667 7.750 7.833 7.917 | 6.75 6.75 6.75 6.75 6.75 6.75 6.75 | 10.25 10.33 10.42 10.50 10.58 10.67 10.75 10.83 10.92 11.00 11.08 11.17 11.25 11.33 | 2.25 2.25 2.25 2.25 2.25 2.25 2.25 2.25 |
| 2.000 2.083 2.167 2.250 2.333 2.417 | 2.81 3.37 3.37 3.37 3.37 3.37 3.37 | 5.167 5.250 5.333 5.417 | 9.00 13.50 13.50 13.50 13.50 13.50 | 7.917 8.000 8.083 8.167 8.250 8.333 8.417 8.500 | 3.94 | 11.17 | 2.25 2.25 2.25 2.25 2.25 2.25 2.25 |
| 2.517 2.583 2.667 2.753 2.833 2.917 | 3.37 | 5.500 5.583 5.667 5.750 | 13.50 54.00 54.00 54.00 148.50 148.50 | 8.667 8.750 | 3.94 3.94 3.94 3.94 3.94 3.94 3.94 3.94 | 11.50 11.58 11.67 11.75 11.83 11.92 | 2.25 2.25 2.25 2.25 2.25 2.25 2.25 |
| | | | | | | | |
| PEAK FLOW TIME TO PEAK RUNOFF VOLUME TOTAL RAINFALL RUNOFF COEFFICIE | | | | | | 250 (iii) 5.00 5.84 2.50 9.95 | |
| **** WAPNING . STORAGE | | ⊃ ⊃MMLLE. | I DAN | | • | | |
| (i) CN PROCEDUI CN* = 8: (ii) TIME STEP THAN THE S' (iii) PEAK FLOW I | DE SELECTE | n END DE | RVIOUS I torage LLER OR ASEFLOW | (Above) EQUAL | | | |
| (i) CN PROCEDU CN° = 8' (ii) TIME STEP THAN THE S' (iii) PEAK FLOW | DE SELECTE | D FOR PE = Dep. S D BE SMA FFICIENT NCLUDE B | torage LLER OR ASEFLOW | OSSES: (Above) EQUAL IF ANY. | . (%)= 7 | 7.00 | |
| CN* = 8 (ii) TIME STEP THAN THE S (iii) PEAK FLOW I | RE SELECTE 9.0 IA: (DT) SHOULD TORAGE COE DOES NOT I Area Total Im (ha) = (%) = (m) = (%) = | D FOR PE = Dep. S D BE SMAFFICIENT NCLUDE B | O.40 | (Above) EQUAL IF ANY. Dir. Conn RVIOUS (i 0.09 1.00 2.00 40.00 0.290 |) | | |
| (i) CN PROCEDU (ii) TIME STEP THAN THE S (iii) PEAK FLOW I CALIB STANDHYD (20091) ID= 1 DT= 5.0 min Surface Area Dep. Storage Average Slope Length Mannings n NOTE: RAINF. | RE SELECTE 9.0 Ia: (DT) SHOUL TORAGE COE DOES NOT I Area Total Im (ha)= (mm)= (%)= (%)= (m)= ALL WAS TR. | D FOR PE = Dep. S D BE SMA FFICIENT NCLUDE B (ha) = p(%) = 7 MPERVIOU 0.31 1.00 1.00 1.00 51.64 0.013 | itorage LLER OR LASSEFLOW 0.40 7.00 IS PER | (Above) EQUAL IF ANY. Dir. Conn RVIOUS (i 0.09 1.00 2.00 40.00 0.290 5.0 MIN. |) TIME STE | | RAIN mm/hr |
| (i) CN PROCEDU (ii) TIME STEP THAN THE S (iii) PEAK FLOW (iii) PEAK FLOW CALIB STANDHYD (20091) ID= 1 DT= 5.0 min Surface Area Dep. Storage Average Slope Length Mannings n NOTE: RAINF. TIME hrs 0.083 0.167 0.250 0.331 0.401 | RE SELECTE 9.0 Ia: (DT) SHOUL TORAGE COE DOES NOT I Area Total Im (ha)= (mm)= (%)= (%)= (m)= ALL WAS TR. | D FOR PE = Dep. S D BE SMA FFICIENT NCLUDE B (ha) = p(%) = 7 MPERVIOU 0.31 1.00 1.00 1.00 51.64 0.013 | itorage LLER OR LASSEFLOW 0.40 7.00 IS PER | (Above) EQUAL IF ANY. Dir. Conn RVIOUS (i 0.09 1.00 2.00 40.00 0.290 5.0 MIN. |) TIME STE | TIME hrs 9.08 9.17 9.25 9.33 9.42 9.50 | mm/hr 3.94 3.94 3.94 3.94 3.94 3.94 |
| (i) CN PROCEDUM (ii) TIME STR (iii) TIME STR (iii) PEAK FLOW I CALIB STANDHYD (20091) I ID= 1 DT= 5.0 min ID= 1 DT= 5. | RE SELECTE 9.0 Ia: (DT) SHOUL TORAGE COE DOES NOT I Area Total Im (ha)= (mm)= (%)= (%)= (m)= ALL WAS TR. | D FOR PE = Dep. S D BE SMA FFICIENT NCLUDE B (ha) = p(%) = 7 MPERVIOU 0.31 1.00 1.00 1.00 51.64 0.013 | itorage LLER OR LASSEFLOW 0.40 7.00 IS PER | (Above) EQUAL IF ANY. Dir. Conn RVIOUS (i 0.09 1.00 2.00 40.00 0.290 5.0 MIN. |) TIME STE | P. TIME hrs 9.08 9.17 9.25 9.33 9.42 9.58 9.67 9.75 | mm/hr 3.94 3.94 3.94 3.94 3.94 3.94 3.94 3.94 |
| (i) CN PROCEDU (ii) TIME = 8 (iii) TIME THE S (iii) PEAK FLOW! CALIB STANDHYD (20091) ID= 1 DT= 5.0 min Surface Area Dep. Storage Average Slope Length Mannings n NOTE: RAINF. TIME hrs 0.0867 0.07 | RE SELECTE 9.0 Ia: (DT) SHOUL TORAGE COE DOES NOT I Area Total Im (ha)= (mm)= (%)= (%)= (m)= ALL WAS TR. | D FOR PE = Dep. S D BE SMA FFICIENT NCLUDE B (ha) = p(%) = 7 MPERVIOU 0.31 1.00 1.00 1.00 51.64 0.013 | itorage LLER OR LASSEFLOW 0.40 7.00 IS PER | (Above) EQUAL IF ANY. Dir. Conn RVIOUS (i 0.09 1.00 2.00 40.00 0.290 5.0 MIN. |) TIME STE | P. TIME hrs 9.08 9.17 9.25 9.50 9.58 9.67 9.75 9.67 9.75 10.00 10.17 | mm/hr 3.94 3.94 3.94 3.94 3.94 3.94 3.94 3.94 |
| (i) CN PROCEDU (ii) TIM THE S (iii) TIM THE S (iii) PEAK FLOW I CALIB STANDHYD (20091) ID= 1 DT= 5.0 min I Surface Area Dep. Storage Average Slope Length Mannings n NOTE: RAINF. TIME NOTE: RAINF. 10.500 0.163 0.167 0.167 0.167 0.167 0.167 0.168 0 | RE SELECTE | D FOR PEE $_{\rm p}$ = 0 Per $_{\rm p}$ = 0 | 10-140 (1-14-14-14-14-14-14-14-14-14-14-14-14-14 | (Above) EQUAL IF ANY | TIME STE APH RAIN RAIN mm/hr 20.25 20.25 20.25 20.25 20.25 20.25 9.00 9.00 9.00 9.00 9.00 6.75 | P. TIME TIME hrs 9.08 9.17 9.25 9.33 9.42 9.50 9.50 9.50 9.67 9.75 9.83 9.42 10.08 10.15 10.65 10.67 10.75 10.67 10.67 10.75 10.67 10.75 10.67 10.67 10.75 10.67 10.67 10.75 10.67 hr 3.94 3.94 3.94 3.94 3.94 3.94 3.94 3.94 |
| (i) CN PROCEDUM (ii) TIME THE ST 88 (iii) TIME THE ST 88 (iii) PEAK FLOW I CALIB STANDHYD (20091) ID= 1 DT= 5.0 min Surface Area Dep. Storage Area Dep. S | RE SELECTE 19 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | D FOR PER SWAN AND THE | 10.40 to 10.7 | (Above) EQUAL IF ANY |) TIME STE RATH TOTAL TO | TIME hrs 9.08 9.17 9.25 9.33 9.92 10.00 8 10.17 10.23 10.67 10.67 10.67 10.75 | mm/hr 3.94 3.94 3.94 3.94 3.94 3.94 3.94 3.94 |
| (i) CN PROCEDUM (ii) TIME ST 8 (iii) TIME ST 8 (iii) PEAK FLOW I CALIB STANDHYD (20091) IID= 1 DT= 5.0 min IID= 1 DT= 5.0 min IID= 1 DT= 5.0 min IID= 1 DT= 5.0 min IID= 1 DT= 5.0 min IID= 1 DT= 5.0 min IID= 1 DT= 5.0 min IID= 1 DT= 5.0 min IID= 1 DT= 5.0 min IID= 1 DT= 5.0 min IID= 1 DT= 5.0 min IID= 1 DT= 5.0 min IID= 1 DT= 5.0 min IID= 1 DT= 5.0 min IID= 1 DT= 5.0 min IID= 1 DT= 5.0 min IID= 5.0 min I | RE SELECTE TO THE SEL | D FOR PEE D FOR | 10.40 to 10.7 | (Above) EQUAL IF ANY | TIME STE RATH | 9.08 9.17 9.27 9.27 9.27 9.27 9.50 9.50 9.50 9.57 9.82 9.67 9.82 9.67 10.00 10.17 10.25 10.10 10.17 10.25 10.83 10.42 11.08 11.33 11.42 11.50 11.83 11.42 11.83 11.83 11.83 11.83 11.83 | mm/hr 3.94 |
| (i) CN PROCEDU (ii) TMR THE S (iii) TMR THE S (iii) PEAK FLOW I CALIB STANDHYD (20091) ID= 1 DT= 5.0 min Surface Area Dep. Storage Average Slope Mannings n NOTE: RAINF. TIME hrs 0.083 0.167 0.230 0.131 0.171 0.1 | RE SELECTE TO THE SEL | D FOR PEE D FOR | 10.40 to 10.7 | (Above) (Above | TIME STE APH RATIN mm/hr 20.25 | P. TIME TIME Phrs 9 9.07 9 9.27 9 9.29 9 | mm/hr 3.94 |

| | | 3.37 | | | | | 12.00 | 2.25 |
|--|---|---|--|--|---|--|---|--|
| Max.Eff. Storage Unit Hyd Unit Hyd | Inten.(mr over (Coeff. (. Tpeak (. peak (| n/hr)= (min) (min)= (min)= (cms)= | 148.50 5.00 1.64 5.00 0.32 | (ii) | 32.61 5.00 4.93 (ii) 5.00 0.22 | | | |
| PEAK FLO | W PEAK OLUME INFALL OEFFICIEN | () | 0.20 6.00 111.50 112.50 0.99 | 1 | 0.03 6.00 87.00 12.50 0.77 | 0. 6 107 112 | ALS* 234 (iii) .00 .82 .50 .96 | |
| **** WARNING | : STORAGE | COEFF. | ES SMALLE | R THAN | TIME STEP | | | |
| | | RE SELECTE 9.0 Ia (DT) SHOUL FORAGE COE DOES NOT I | | | | | | |
| CALIB | | | | | | | | |
| CALIB STANDHYD (ID= 1 DT= 5. | | Area Total In | (ha)= np(%)= 8 | 0.63 31.00 | Dir. Conn | . (%)= 8 | 1.00 | |
| Surface Dep. Sto Average Length Mannings | Area rage Slope n | (ha)= (mm)= (%)= (m)= = | 0.51 0.51 1.00 1.00 64.81 0.013 | JS PE | Dir. Conn RVIOUS (i) 0.12 1.00 2.00 40.00 0.290 |) | | |
| NOTE | : RAINFA | ALL WAS TE | RANSFORME | D TO | 5.0 MTN. 1 | TTME STE | Р. | |
| | TIME hrs 0.083 0.167 0.250 0.333 0.417 0.500 0.583 | RAIN mm/hr 2.81 2.81 2.81 2.81 2.81 2.81 2.81 | TIME hrs 3.083 3.167 3.250 3.333 3.417 3.500 3.583 | ANSFORMEI RAIN mm/hr 4.50 4.50 4.50 4.50 4.50 4.50 | D HYETOGR. TIME hrs 6.083 6.167 6.250 6.333 6.417 6.500 | RAIN mm/hr 20.25 20.25 20.25 20.25 20.25 20.25 | 9.23 | RAIN mm/hr 3.94 3.94 3.94 3.94 3.94 3.94 |
| | 0.333 0.417 0.500 0.583 0.667 0.750 0.833 0.917 1.000 1.083 1.167 1.250 | 2.81 2.81 2.81 2.81 2.81 2.81 2.81 2.81 | 3.083 3.167 3.250 3.333 3.417 3.500 3.583 3.667 3.750 4.083 4.167 4.250 4.250 4.333 4.4167 4.250 4.583 | 4.50 4.50 4.50 4.50 4.50 6.75 6.75 6.75 | 6.667 6.750 6.833 6.917 7.000 7.083 7.167 7.250 7.333 | 20.25 20.25 9.00 9.00 9.00 9.00 9.00 6.75 6.75 6.75 | 9. 42 9. 50 9. 58 9. 67 9. 75 9. 83 9. 92 10. 00 10. 08 10. 17 10. 25 10. 33 | 3.94 3.94 3.94 3.94 3.94 3.94 3.94 2.25 2.25 2.25 |
| | 1.417 1.500 1.583 1.667 1.750 1.833 1.917 | | 4.417 4.500 4.583 4.667 4.750 4.833 4.917 5.000 5.083 5.167 5.250 | 6.75 6.75 9.00 9.00 9.00 9.00 9.00 13.50 13.50 13.50 13.50 | D HYETOGR. TIME hrs hrs 6.083 6.167 6.350 6.447 6.583 6.967 7.000 7.083 7.167 7.250 7.157 | 6.75 6.75 6.75 6.75 6.75 6.75 6.75 6.75 | 10.42 10.50 10.58 10.67 10.75 10.83 10.92 11.00 11.08 11.17 | 2.25 2.25 2.25 2.25 2.25 2.25 2.25 2.25 |
| | 2.000 2.083 2.167 2.250 2.333 2.417 2.500 2.583 2.667 2.750 2.833 2.917 3.000 | 3.37 3.37 3.37 3.37 3.37 3.37 3.37 3.37 | 4.750 4.833 4.917 5.000 5.083 5.163 5.250 5.333 5.417 5.500 5.583 5.667 5.750 5.750 6.000 | 54.00 54.00 148.50 148.50 148.50 | 8.667 | 3.94 3.94 3.94 3.94 3.94 3.94 3.94 3.94 | 11.33 11.42 11.50 11.58 11.67 11.75 11.83 11.92 12.00 | 2.25 2.25 2.25 2.25 2.25 2.25 2.25 2.25 |
| Max.Eff. Storage Unit Hyd Unit Hyd | Inten.(mr over (Coeff. (. Tpeak (. peak (| n/hr)= (min)= (min)= (min)= (cms)= | 148.50 5.00 1.68 5.00 0.32 | (ii) | 32.61 10.00 5.37 (ii) 10.00 0.16 |) *тот | ALS* | |
| | | | | | | | | |
| (i) CN (ii) TI (iii) PF | PROCEDUR N* = 89 ME STEP I AN THE ST AK FLOW F | RE SELECTE | ED FOR PE = Dep. S _D BE SM/ EFFICIENT | ERVIOUS Storage ALLER OR F. BASEFIOW | LOSSES: (Above) EQUAL IF ANY. | | | |
| | | | | | | | | |
| CALIB STANDHYD (ID= 1 DT= 5. | 20102) 0 min | Area Total In | (ha)= np(%)= 7 | 0.47 74.00 | Dir. Conn | . (%)= 7 | 4.00 | |
| Surface Dep. Sto Average Length Mannings | Area rage Slope | (ha)= (mm)= (%)= (m)= = | EMPERVIOL 0.35 1.00 1.00 55.98 0.013 | JS PE | RVIOUS (1) 0.12 1.00 2.00 40.00 0.290 |) | | |
| | | ALL WAS TE | | | | TIME STE | Р. | |
| | TTMF | RATN | TRA | ANSFORMEI RATN | D HYETOGRA | APH | TIME | RAIN |

| NOTE: RAINFALL WAS TE | RANSFORME | D TO | 5.0 MIN. | TIME STE | P. | |
|---|----------------|------------------|-------------------|---------------|--------------------|---------------|
| | | | | | | |
| | TR/ | ANSFORME | HYETOGR | | | |
| TIME RAIN hrs mm/hr | TIME hrs | RAIN mm/hr | ' TIME ' hrs | RAIN mm/hr | | RAIN mm/hr |
| 0.083 2.81 | 3.083 | | 6.083 | 20.25 | 9.08 | 3.94 |
| 0.167 2.81 | 3.167 | 4.50 | 6.167 | 20.25 | | 3.94 |
| 0.250 2.81 | 3.250 | 4.50 | 6.250 | 20.25 | 9.25 | 3.94 |
| 0.333 2.81 | 3.333 | 4.50 | 6.333 | 20.25 | 9.33 | 3.94 |
| 0.417 2.81 0.500 2.81 | 3.417 | 4.50 | 6.417 | 20.25 | 9.42 9.50 | 3.94 3.94 |
| 0.583 2.81 | 3.583 | | 6.583 | 9.00 | 9.58 | 3.94 |
| 0.667 2.81 | 3.667 | 4.50 | 6.667 | 9.00 | 9.67 | 3.94 |
| 0.750 2.81 | 3.750 | | 6.750 | 9.00 | 9.75 | 3.94 |
| 0.833 2.81 0.917 2.81 | 3.833 3.917 | 4.50 4.50 | 6.833 | 9.00 | 9.83 9.92 | 3.94 3.94 |
| | 4.000 | 4.50 | 7.000 | 9.00 | 10.00 | 3.94 |
| 1.083 2.81 | 4.083 | 6.75 | 7.083 | 6.75 | 10.08 | 2.25 |
| 1.167 2.81 | 4.167 | 6.75 | 7.167 | 6.75 | | 2.25 |
| 1.250 2.81 1.333 2.81 | 4.250 | 6.75 6.75 | 7.250 7.333 | 6.75 | 10.25 | 2.25 |
| 1.417 2.81 | 4.333 | 6.75 | 7.417 | 6.75 | | 2.25 |
| 1.500 2.81 | | 6.75 | 7.500 | 6.75 | 10.50 | 2.25 |
| 1.583 2.81 | 4.583 | | 7.583 | 6.75 | | 2.25 |
| 1.667 2.81 1.750 2.81 | 4.667 | 9.00 | 7.667 | 6.75 | 10.67 10.75 | 2.25 |
| 1.833 2.81 | | 9.00 | 7.730 | 6.75 | | 2.25 |
| 1.917 2.81 | 4.917 | 9.00 | 7.917 | 6.75 | 10.92 | 2.25 |
| 2.000 2.81 | 5.000 | | 8.000 | 6.75 | 11.00 | 2.25 |
| 2.083 3.37 2.167 3.37 | 5.083 5.167 | 13.50 13.50 | 8.083 8.167 | 3.94 3.94 | 11.08 11.17 | 2.25 |
| 2.250 3.37 | 5.250 | | 8.250 | 3.94 | | 2.25 |
| 2.333 3.37 | 5.333 | 13.50 | 8.333 | 3.94 | 11.33 | 2.25 |
| 2.417 3.37 | 5.417 | | 8.417 | 3.94 | | 2.25 |
| 2.500 3.37 2.583 3.37 | 5.500 5.583 | 13.50 54.00 | 8.500 8.583 | 3.94 | 11.50 11.58 | 2.25 |
| 2.667 3.37 | 5.667 | 54.00 | 8 667 | 3.94 | 11.67 | 2.25 |
| 2.667 3.37 2.750 3.37 | 5.667 5.750 | 54.00 | 8.750 | 3.94 3.94 | 11.75 | 2.25 |
| 2.833 3.37 | 5.833 | 148.50 | 8.833 | 3.94 | 11.83 | 2.25 |
| 2.917 3.37 3.000 3.37 | 5.917 | 148.50 148.50 | 8.917 | 3.94 | 11.92 12.00 | 2.25 |
| | | | | 3.54 | 12.00 | 2.23 |
| Max.Eff.Inten.(mm/hr)= | 148.50 | 1 | 32.61 | | | |
| over (min) Storage Coeff. (min)= | 5.00 1.54 | | 10.00 5.87 (ii | | | |
| Unit Hyd. Tpeak (min)= | 5.00 | (11) | 10.00 | , | | |
| Unit Hyd. peak (cms)= | 0.33 | | 0.15 | | | |
| | | | | | ALS* | |
| PEAK FLOW (cms)= TIME TO PEAK (hrs)= | 0.14 6.00 | | 0.04 6.00 | | .183 (iii) 5.00 |) |
| RUNOFF VOLUME (mm)= | 111.50 | | 87.00 | | 5.13 | |
| TOTAL RAINFALL (mm)= | 112.50 | 1 | 12.50 | 112 | 2.50 | |
| RUNOFF COEFFICIENT = | 0.99 | | 0.77 | (| 0.93 | |
| ***** WARNING: STORAGE COEFF. 1 | ES SMALLE | R THAN | TIME STEP | ! | | |
| (i) CN PROCEDURE SELECTE CN* = 89.0 Ia | ED FOR PE | | | | | |
| (ii) TIME STEP (DT) SHOUL | D BE SMA | ALLER OR | | | | |
| THAN THE STORAGE COE | | | TE ANY | | | |
| (iii) PEAK FLOW DOES NOT 1 | INCLUDE E | MOEFLUW | IF ANY. | | | |

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| CALIB
| STANDHYD ( 20101)
| ID= 1 DT= 5.0 min |
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Area (ha)= 0.25 Total Imp(\%)= 82.00 Dir. Conn.(\%)= 82.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      IMPERVIOUS
0.20
1.00
1.00
40.82
0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PERVIOUS (i)
0.05
1.00
2.00
40.00
0.290
                                                                                                                                                                                                                                                                                                                                                                                                                              (ha)=
(mm)=
(%)=
(m)=
=
                                                                                                          Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                   NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NSFORMED HYETOGRAPH
RAIN | TIMES | MARCHAN | TIMES | MARCHAN | TIMES | MARCHAN | TIMES | MARCHAN | TIMES | MARCHAN | TIMES | MARCHAN | TIMES | MARCHAN | TIMES | MARCHAN | TIMES | MARCHAN | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | TIMES | T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TIME THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | TIME | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No. | No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       mm/hr
2.81
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over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
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                                                                                                    PEAK FLOW (Cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0.08
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111.50
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0.99
                                                                                                                     WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                               (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0   Ia=\text{Dep}. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
| ADD HYD ( 0121) |
| 1 + 2 = 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                QPEAK
(cms)
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0.183
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                                                                                                                     TD1= 1 ( 20101):
+ ID2= 2 ( 20102):
                                                                                                                                                       ID = 3 ( 0121):
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0.72
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                                                                                               Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   148.50 132.61
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1.87 (ii) 5.65
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0.32 0.15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   *TOTALS*
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                                                                                                    PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                     WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                               (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN° = 89.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                      CALIB | Area (ha) = 1.11 | Total Imp(%) = 81.00 | Dir. conn.(%) = 81.00 | IMPERVIOUS (i) | TOTAL IMPERVIOUS (i)
                                                                                                                                                                                                                                                                                                                                                                                                                                          Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                             NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
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NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY. Area (ha)= 0.87
Total Imp(%)= 67.00 Dir. Conn.(%)= 67.00 IMPERVIOUS 0.58 1.00 1.00 76.16 0.013 PERVIOUS (i) Surface Area Dep. Storage Average Slope Length Mannings n (ha)= (mm)= (%)= (m)= = 0.29 1.00 2.00 40.00 0.290 NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. TRANSFORMED HYETOGRAPH TIME hrs 6.083 6.167 6.250 6.333 6.417 6.508 6.583 6.667 6.750 6.833 7.008 7.008 7.167 7.250 7.333 7.417 TIME hrss 9.08 9.17 9.25 9.25 9.42 9.95 8.7 9.76 7.7 9.55 9.58 9.58 10.00 10.08 10.17 10.25 10.33 10.675 10.675 10.82 11.08 11.17 11.58 11 TIME hrs 0.083 0.0417 0.250 0.250 0.450 0. .81 .81 .81 .81 7.500 7.583 7.667 7.750 7.833 7.917 8.000 8.083 8.167 8.253 8.417 8.503 8.583 8.667 8.750 8.833 8.917 9.000 Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)= 148.50 5.00 1.85 (ii) 5.00 0.32 i) 132.61 10.00 6.81 (ii) 10.00 0.14 *TOTALS* 0.331 (iii) 6.00 103.41 112.50 0.92 PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT = 0.24 6.00 111.50 112.50 0.99 0.09 6.00 87.00 112.50 0.77 * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $\text{CN}^\circ = 89.0$ Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| 0.083 2.81 0.1650 2.81 0.0500 2.81 0.0500 2.81 0.0500 2.81 0.0500 2.81 0.0500 2.81 0.0500 2.81 1.0500 2.81 1.0500 2.81 1.0500 2.81 1.0500 2.81 1.1000 3.37 | 3.250 4.50 3.333 4.50 3.667 4.50 3.667 4.50 3.667 4.50 3.683 4.50 3.683 4.50 3.683 4.50 3.833 4.50 4.000 6.75 4.000 6.75 4.250 6.75 4.417 6.75 4.417 6.75 4.500 6.75 4.500 9.00 4.500 9.00 4.500 9.00 5.000 9.00 5.000 9.00 5.250 13.50 5.250 13.50 | TIME hrs 6.083 | RAIN 70.25 20. | TIME hrs 9.08 9.17 9.25 9.33 9.42 9.50 9.58 9.67 | 33.394 994 994 994 994 994 994 992 992 |
|--|---|---|--|---|--|
| Max.Eff.Inten.(mm/hr)- storage Coeff. Unit hyd. Tpeak (min)= Unit hyd. Tpeak (min)= Unit hyd. Tpeak (cms)= TIME TO PEAK (fms)= RUNOFF VOLUME (mm)= TOTAL RAINFALL (mm)= RUNOFF COEFFICIENT = | 0.37 6.00 111.50 111.50 112.50 0.99 | 0.00 5.68 (ii 10.00 0.15 0.07 6.00 87.00 12.50 0.77 | 0. 106 112 | FALS* .440 (iii) 5.00 5.84 2.50).95 |) |
| (i) CN PROCEDURE SELEC CN* = 89.0 I (ii) TIME STOP (DT) SHO THAN THE STORAGE C (iii) PEAK FLOW DOES NOT | TED FOR PERVIOUS a = Dep. Storage ULD BE SMALLER OR OEFFICIENT. INCLUDE BASEFLOW | TIME STEP LOSSES: (Above) EQUAL IF ANY. | ! | | |
| CALIB | IMPERVIOUS PE 0.25 1.00 1.00 43.20 | | | 90.00 | |
| NOTE: RAINFALL WAS | TRANSFORMED TO | 5.0 MIN. | TIME STE | EP. | |
| TIME RAIN hrs mm/hr 0.083 2.81 0.167 2.81 0.250 2.81 | TRANSFORME TIME RAIN hrs mm/hr 3.083 4.50 3.167 4.50 3.250 4.50 | D HYETOGR ' TIME ' hrs 6.083 6.167 6.250 | RAIN mm/hr 20.25 20.25 20.25 | TIME hrs 9.08 9.17 9.25 | RAIN mm/hr 3.94 3.94 3.94 |

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over (min)=
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
RUNOFF COEFFICIENT =
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0.398 (iii)
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                                                                                     Max.Eff.Inten.(mm/hr)=
over (min)=
storage Coeff. (min)=
unit Hyd. Tpeak (min)=
unit Hyd. Tpeak (min)=
unit Hyd. peak (ms)=
PEAK FLOW (cms)=
PEAK FLOW (cms)=
RINOFF FULNE (mm)=
RUNOFF COEFFICIENT =
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1.32 (ii) 4.05 (ii)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    *TOTALS*
0.114 (iii)
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CN° = 89.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                               WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^\circ=89.0 ia = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
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NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
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                    RAIN mm/hr 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 20.25 | 9.00 | 9.00 | 9.00 | 9.00 | 9.00 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 | 6.75 |
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME R
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hrs
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9.25
9.33
9.42
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9.67
9.75
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9.92
                                                                                                                                                                                                                                                                                          hrs
0.083
0.167
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0.333
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0.500
0.583
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0.750
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0.917
                                                                                                                                                                                                                                                                                                                                                                                                                                       9.00 | 7.667

9.00 | 7.750

9.00 | 7.783

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9.00 | 8.000

13.50 | 8.083

13.50 | 8.167

13.50 | 8.33

13.50 | 8.33

13.50 | 8.35

54.00 | 8.683

54.00 | 8.683

54.00 | 8.683

54.00 | 8.683

54.00 | 8.683

54.00 | 8.833

54.00 | 8.833

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148.50 | 9.000
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over (min)=
over (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
PEAK FLOW (cms)=
PEAK FLOW (cms)=
TIME FO PEAK (hrs)=
TOTAL RAINFALL (mm)=
TOTAL RAINFALL (mm)=
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0.045 (iii)
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0.96
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6.00
87.00
112.50
0.77
                                                                                     Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. Deak (cms)=
PEAK FLOW (cms)=
PEAK FLOW (cms)=
RINOFF VOLUME (mm)=
RINOFF FORENCE (mm)=
RINOFF FOREFICIENT =
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15.00 132.61

0.97 (ii) 3.76 (ii)

5.00 0.34 0.25

0.04 0.00

111.50 87.00

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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              *TOTALS*
0.041 (iii)
6.00
108.92
112.50
0.97
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          ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                          (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\pm}=89.0 Ia = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STRAGE COEFFICIENT. (iii) PEAK FLOW DDES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CALIB STANDHYD (200121) Area (ha)= 0.11 Total Imp(%)= 87.00 Dir. Conn.(%)= 87.00
                                                                                          | Typestyle="background-color: blue; color: 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESERVOIR( 0144)|
IN= 2---> OUT= 1 |
DT= 5.0 min |
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OUTFLOW STORAGE | OUTFLOW (cms) (ha.m.) (cms) 0.0000 | 0.0830
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 0.0000 | 0.0000 | 0.0830 | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 | | 0.0830 |
                                                                                                                                                                 NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
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TIME SHIFT OF PEAK FLOW (min)= 0.00
MAXIMUM STORAGE USED (ha.m.)= 0.0025
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TIME hrs 3.083 3.167 3.250 3.333 3.417 3.500 3.583 3.667 3.750 4.333 4.167 4.500 4.583 4.417 4.503 4.417 4.503 4.417 5.000 5.083 5.167 5.250
                                                                                                                                                                                                                                                                                               TIME hrs 0.083 30.167 0.250 0.333 0.417 0.500 0.583 0.917 0.0750 0.750 0.750 1.000 1.083 1.167 1.250 1.331 1.417 1.500 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1.750 1
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mm/hr
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20.2520.25
20.259
9.000
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| hrss
| 9.08
| 9.17
| 9.25
| 9.38
| 9.58
| 9.67
| 9.75
| 9.83
| 9.92
| 10.08
| 10.075
| 10.58
| 10.675
| 10.75
| 10.83
| 10.92
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STANDHYD (200112)
ID= 1 DT= 5.0 min
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Area (ha)= 0.10
Total Imp(%)= 79.00 Dir. Conn.(%)= 79.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TRANSFORMED HYETOGR.
ME RAIN | 'TIME
'S mm/hr | 'hrs
53 4.50 | 6.083
77 4.50 | 6.250
33 4.50 | 6.333
17 4.50 | 6.417
00 4.50 | 6.500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RAIN
mm/hr
2.81
2.81
2.81
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2.81
2.81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TIME
hrs
3.083
3.167
3.250
3.333
3.417
3.500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RAPH ----

RAIN | TIME
| mm/hr | hrs
20.25 | 9.08
20.25 | 9.17
20.25 | 9.25
20.25 | 9.33
20.25 | 9.42
20.25 | 9.50
```

```
0.583

0.667

0.750

0.817

1.000

1.083

1.167

1.250

1.333

1.417

1.500

1.583

1.917

2.083

2.167

2.250

2.333

2.167

2.250

2.333

2.2667

2.750

2.833

2.917

2.500

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                                                            Max.Eff.Inten.(mm/hr)=
over (min)=
storage Coeff. (min)=
unit Hyd. Tpeak (min)=
unit Hyd. peak (min)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                             148.50 132.61
5.00 5.00
0.96 (ii) 4.84 (ii)
5.00 5.00
0.34 0.22
                                                                                                                                                                                                                                                                                                                                                                                                                                0.03
6.00
111.50
112.50
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                *TOTALS*
0.040 (iii)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0.01
6.00
87.00
112.50
0.77
                                                            * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                    (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
           CALIB
STANDHYD (200122)
Area (ha)= 0.13
ID= 1 DT= 5.0 min Total Imp(%)= 86.00 Dir. Conn.(%)= 86.00
                                                                NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                         THANSFORMED HYETOGRAPH
TIME RAIN | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TIME | TI
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9.33
9.42
9.50
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9.67
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9.92
10.00
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10.17
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20.25
20.25
9.00
9.00
9.00
9.00
9.00
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0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
1.083
1.167
                                                                                                                                                                                                                                                                                                                          NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ANSFORMED HYETTOMA RAIN 'TIME mm/hr 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIME hrs 'h TIM
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TIME hrss 9.088 9.17 9.25 9.332 9.508 9.67 9.83 9.67 9.83 10.00 11.08 10.58 10.65 10.58 10.92 11.08 11.17 11.25
                                                                                                                                                                                                                hrs 0.083 0.167 0.500 0.187 0.500 0.187 0.500 0.187 0.500 0.183 0.667 0.500 0.183 0.667 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.180 0.
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11.42
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11.58
11.67
11.75
11.83
11.92
12.00
                                                            Max.Eff.Inten.(mm/hr)=
over (min)=
storage Coeff. (min)=
unit Hyd. Tpeak (min)=
unit Hyd. peak (cms)=
PEAK FLOW (cms)=
TIME FO PEAK (hrs)=
TOTAL RAINFALL (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                         148.50 132.61
5.00 5.00
1.74 (ii) 4.59
5.00 5.00
0.32 0.23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                *TOTALS*
0.285 (iii)
6.00
108.80
112.50
0.97
                                                                                                                                                                                                                                                                                                                                                                                                                                0.26
6.00
111.50
112.50
0.99
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6.00
87.00
112.50
0.77
                                                        * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                      RESERVOIR( 0147) |
IN= 2---> OUT= 1 |
DT= 5.0 min |
                                                                                                                                                                                                                                                                                                           OVERFLOW IS OFF
                                                                                                                                                                                                                                                                                                                  OUTFLOW STORAGE | OUTFLOW (cms) (ha.m.) (cms) 0.0000 | 0.2820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STORAGE
(ha.m.)
0.0040
                                                                                                                                                                                                                                                                                                                                                                                                                                AREA QPEAK TPEAK (ha) (cms) (hrs) 0.700 0.285 6.00 0.700 0.283 6.00
                                         INFLOW: ID= 2 ( 20021)
OUTFLOW: ID= 1 ( 0147)
                                                                                                                                                                                                                                                      PEAK FLOW REDUCTION [Qout/Qin](%)= 99.58
TIME SHIFT OF PEAK FLOW (min)= 0.00
MAXIMUM STORAGE USED (ha.m.)= 0.0040
| CALIB |
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6.75
6.75
9.00
9.00
9.00
9.00
13.50
13.50
13.50
13.50
148.50
                                    1.333
1.417
1.500
1.583
1.667
1.750
1.833
1.917
2.0083
2.167
2.250
2.333
2.417
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2.500
2.750
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2.750
2.750
2.750
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7.417
7.500
7.583
7.667
7.750
7.833
7.917
8.000
8.083
8.167
8.583
8.417
8.583
8.667
8.750
8.833
8.917
9.000
                                                                      4.583
4.667
4.750
4.833
4.917
5.0083
5.167
5.250
5.333
5.417
5.500
5.583
5.667
5.750
5.833
5.917
6.000
          Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                       148.50 132.61
5.00 5.00
1.05 (ii) 4.23 (ii)
5.00 5.00
0.34 0.24
                                                                                                                                    *TOTALS*
0.053 (iii)
6.00
108.06
112.50
0.96
          PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                      0.05
6.00
111.50
112.50
0.99
                                                                                                   0.01
6.00
87.00
112.50
0.77
 ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
          (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = bep. Storage (Above) (ii) TIME STEP (OT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
   RESERVOIR( 0146)
IN= 2---> OUT= 1 |
DT= 5.0 min
                                                    OVERFLOW IS OFF
                                                      OUTFLOW STORAGE | OUTFLOW (cms) (ha.m.) (cms) 0.0000 | 0.0910
                                                                                                                                       (ha.m.)
0.0027
                                                           AREA QPEAK TPEAK
(ha) (cms) (hrs)
0.229 0.092 6.00
0.229 0.087 6.00
       INFLOW: ID= 2 ( 0145)
OUTFLOW: ID= 1 ( 0146)
                                          PEAK FLOW REDUCTION [Qout/Qin](%)= 94.15
TIME SHIFT OF PEAK FLOW (min)= 0.00
MAXIMUM STORAGE USED (ha.m.)= 0.0027
                                                  Area (ha)= 0.70 Total Imp(\%)= 89.00 Dir. Conn.(\%)= 89.00
                                                Surface Area
Dep. Storage
Average Slope
Length
Mannings n
Dep. Storage
Average Slope
           Length
Mannings n
```

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

| NOTE: RAI | INFALL WAS II | KANSFURME | ו טו ט | O.U MIN. | ITME SIE | Р. | |
|--|--|--|---|---|--|---|---|
| TI 0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.7 0.8 0.7 0.7 0.8 0.7 1.1 1.2 1.2 1.4 1.6 2.2 2.2 2.2 2.2 2.2 2.2 2.2 2.2 2.2 2 | ME RAIN 175 mm/h/m 187 mm/h/m 187 mm/h/m 187 mm/h/m 187 mm/h/m 187 mm/h/m 187 mm/h/m 187 mm/h 187 | TIME 3.063 3.053 3.053 3.053 3.053 3.350 3 | NSFORMET RAIN 14,500 4,500 4,500 4,500 4,500 4,500 4,500 4,500 4,500 6,75 6,75 6,75 9,00 9,00 9,00 9,00 13,5 | HYETOGR. TIME 6 0.1657 6 0.1657 6 0.250 6 0.250 6 0.5837 6 0.407 6 0.5837 7 0.003 7 1.250 7 7.3533 7 7.150 8 0.003 | APH | 9.08 9.17 9.25 9.37 9.33 9.47 9.50 9.50 9.57 9.83 9.67 9.82 10.10 10.17 10.25 10.67 10.83 10.46 11.08 11.18 11.18 11.18 11.18 11.18 11.18 | RAIN mm/,94 3 3 9 9 4 3 3 3 9 9 4 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 |
| 1.8 2.0 2.0 2.1 2.2 2.3 2.4 2.5 2.5 | 333 2.81 117 2.81 100 2.81 100 3.81 100 3.37 150 3.37 151 3.37 100 3.37 101 3.37 100 3.37 101 3.37 101 3.37 100 3.37 | 4.833 4.917 5.000 5.083 5.167 5.250 5.333 5.417 5.500 5.583 5.667 5.750 5.833 5.917 | 9.00 9.00 13.50 13.50 13.50 13.50 13.50 13.50 13.50 54.00 54.00 54.00 148.50 148.50 | 7.833 7.917 8.000 8.083 8.167 8.250 8.333 8.417 8.500 8.583 8.667 8.750 8.833 8.917 | 6.75 6.75 6.75 3.94 3.94 3.94 3.94 3.94 3.94 | 10.83 10.92 11.00 11.08 11.17 11.25 11.33 11.42 11.50 11.58 11.67 11.75 11.83 11.92 | 2.25 2.25 2.25 2.25 2.25 2.25 2.25 2.25 |
| | er (min) (min)= ak (min)= | 5.00 1.50 5.00 0.33 | | 5.00 4.23 (ii) 5.00 0.24 | | | |
| PEAK FLOW TIME TO PEAK RUNOFF VOLUME TOTAL RAINFALL RUNOFF COEFFIC | | 0.16 6.00 111.50 112.50 0.99 | | 0.02 6.00 37.00 12.50 0.77 | 0. 6 109 112 | ALS* 175 (iii) 5.00 0.05 2.50 0.97 | |

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $\text{CN}^{\circ} = 89.0$ Ia = Dep. Storage (Above) i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. THAN THE STORAGE TO TINCLUDE BASEFLOW IF ANY.

RESERVOIR(0149) OVERFLOW IS OFF INN 2 − → OUT= 1 OUTFLOW OFF OUTFLOW C(ms) (ha.m.) (cms) (ha.m.) (cms) (0.0000 (0.0000) (0.1420 STORAGE (ha.m.) 0.0094 AREA QPEAK TPEAK (ha) (cms) (hrs) (hrs) 0.430 0.175 6.00 R.V. (mm) 109.05

```
OUTFLOW: ID= 1 ( 0149)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0.430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0.133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              6.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       109.02
                                                                                                                                                                                                                                                                                                                                                                                              PEAK FLOW REDUCTION [Qout/Qin](%)= 75.92
TIME SHIFT OF PEAK FLOW (min)= 0.00
MAXIMUM STORAGE USED (ha.m.)= 0.0094
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Area (ha)= 0.47 Total Imp(\%)= 87.00 Dir. Conn.(\%)= 87.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IMPERVIOUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PERVIOUS (i)
                                                                                               Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0.41
1.00
1.00
55.98
0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0.06
1.00
2.00
40.00
0.290
                                                                                                                                                                                         NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TIME hrs 0.083 0.063 0.167 0.250 0.167 0.250 0.167 0.250 0.167 0.250 0.167 0.250 0.167 0.250 0.167 0.250 0.167 0.250 0.167 0.250 0.167 0.250 0.167 0.250 0.167 0.250 0.167 0.250 0.167 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.250 0.2
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RAIN mm/hr 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 20, 25 200, 25 200, 20 200, 20 200, 20 200, 20 200, 20 200, 20 200, 20 200, 20 200, 20 200, 20 200, 20 200, 20 200, 20 200, 20 200, 20 200, 20 200, 20 200, 20 200, 20 200, 20 200, 20 200, 20 200, 20 200, 20 200, 20 200, 20 200, 20 200, 20 200, 20 200, 20 200, 20 200, 20 200, 20 200, 20 200, 20 200, 20 200, 20 200, 20 200, 20 200, 20 200, 20 200, 20 200, 20 200, 20 200, 20 200, 20 200, 20 200, 20 200, 20 200, 20 200, 20 200, 20 200, 20 200, 20 200, 20 2000, 20 2000, 20 2000, 20 2000, 20 2000, 20 2000, 20 2000, 20 20000, 20 2000, 20 2000, 20 2000, 20 2000, 20 2000, 20 2000, 20 2000
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Max.Eff.Inten.(mm/h)
over (min)
storage Coeff. (min)=
unit Hyd. Tpeak (min)=
unit Hyd. peak (min)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           148.50
5.00
1.54 (ii)
5.00
0.33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   132.61
5.00
4.62 (ii)
5.00
0.22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               *TOTALS*
0.191 (iii)
6.00
108.31
112.50
0.96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0.17
6.00
111.50
112.50
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0.02
6.00
87.00
112.50
0.77
***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                               (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = bep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                               (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: (\text{ii)} \quad \text{Time} = 89.0 \quad \text{Ia} = \text{Dep. Storage} \quad (\text{Above}) (ii) The set of the smaller or equal than the storage coefficient. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                       RESERVOIR( 0151) |
IN= 2---> OUT= 1 |
DT= 5.0 min
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          OVERFLOW IS OFF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            OUTFLOW STORAGE ( (cms) (ha.m.) | 0.0000 | 0.0000 |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (cms)
0.1350
                                                     AREA (ha)
INFLOW: ID= 2 ( 20041) 0.350
OUTFLOW: ID= 1 ( 0151) 0.350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           QPEAK
(cms)
0.142
0.128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TPEAK
(hrs)
6.00
6.00
                                                                                                                                                                                                                                                                                                                                                                                              PEAK FLOW REDUCTION [Qout/Qin](%)= 90.12
TIME SHIFT OF PEAK FLOW (min)= 0.00
MAXIMUM STORAGE USED (ha.m.)= 0.0051
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Area (ha)= 0.65
Total Imp(%)= 85.00 Dir. Conn.(%)= 85.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                         NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
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                                                                                               Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           148.50 132.61
5.00 5.00
1.70 (ii) 4.99 (ii)
5.00 5.00
```

| IN= 2> OUT= 1 DT= 5.0 min | OUTFLOW (cms) 0.0000 | | GE OUT .) (0 | FLOW STO ms) (ha 1540 (| DRAGE 1.m.) 0.0102 | |
|--|--|--|---|---|--|---|
| INFLOW: ID= 2 (2 OUTFLOW: ID= 1 (| | AREA ((ha) (0.470 | OPEAK T (cms) (0.191 | PEAK hrs) 6.00 | R.V. (mm) 108.31 | |
| OUTFLOW: ID= 1 (| 0150) (EAK FLOW ME SHIFT OF XXIMUM STOR | 0.470 REDUCTION PEAK FLOW | 0.144 N [Qout/Qir N (| 6.00](%)= 75.58 min)= 0.00 | 108.28 | |
| M/ | XIMUM STOR | AGE USEI |) (ha | .m.)= 0.01 | .02 | |
| CALIB STANDHYD (20041) ID= 1 DT= 5.0 min | Area (I Total Imp | ha)= 0.3 (%)= 89.0 | 35 00 Dir. C | conn.(%)= 8 | 9.00 | |
| Surface Area Dep. Storage Average Slope Length Mannings n | (ha)= (mm)= (%)= (m)= = | 0.31 1.00 1.00 48.30 0.013 | 0.04 1.00 2.00 40.00 0.290 | | _ | |
| NOTE: RAIN | FALL WAS TRAI | NSFORMED T | TO 5.0 MI | N. IIME SIE | | |
| TIM hr: 0.08: 0.16: 0.25(0.33: 0.31: 0.31: 0.32(0.32(0.32(0.33: 0.32(0.32 | 2.81 2. | 4.167 4.250 4.250 6.4333 4.417 4.500 6.4583 4.667 4.750 6.4783 4.833 4.833 4.917 5.000 5.083 5.083 5.167 1.55.250 1.55 | 5.75 7.16 5.75 7.25 5.75 7.35 5.75 7.35 5.75 7.41 5.75 7.50 9.00 7.56 9.00 7.56 9.00 7.83 9.00 7.83 9.00 7.83 9.00 7.83 9.00 8.08 8.08 8.08 8.16 8.50 8.25 8.350 8.26 | 3 6.75 7 6.75 0 6.75 3 3.94 | 10.17 10.25 10.33 10.42 10.50 10.58 10.67 10.75 10.83 10.92 11.00 | RAIN mm/hr 3 3 94 4 4 3 94 94 94 94 94 9 9 9 9 9 9 |
| 2.585 2.667 2.750 | 3.37 3.37 3.37 3.37 3.37 3.37 | 5.417 1 | 3.50 8.41 3.50 8.50 4.00 8.58 4.00 8.66 4.00 8.75 8.50 8.83 8.50 8.91 8.50 9.00 | 7 3.94 0 3.94 3 3.94 7 3.94 0 3.94 | 11.17 11.25 11.33 11.42 11.50 11.58 11.67 11.75 11.83 11.92 | 2.25 2.25 2.25 2.25 |
| 2.83 2.91 3.000 | 3.37 3.37 3.37 | 5.833 148 5.917 148 6.000 148 | 8.50 8.83 8.50 8.91 8.50 9.00 | 0 3.54 | 11.83 11.92 12.00 | 2.25 2.25 2.25 2.25 |
| Max.Eff.Inten.(r over Storage Coeff. Unit Hyd. Tpeak Unit Hyd. peak | m/hr)= (min) (min)= (min)= (cms)= | 148.50 5.00 1.41 (ii 5.00 0.33 | 132.61 5.00 4.26 5.00 0.23 | (ii) | | |
| PEAK FLOW TIME TO PEAK RUNOFF VOLUME TOTAL RAINFALL RUNOFF COEFFICIE | (cms)= (hrs)= (mm)= (mm)= ENT = | 0.13 6.00 111.50 112.50 0.99 | 0.01 6.00 87.00 112.50 0.77 | 0. 108 112 | ALS* 142 (iii) 5.00 8.80 9.50 9.97 | |
| ***** WARNING: STORAG | GE COEFF. IS | SMALLER 7 | THAN TIME S | TEP! | | |
| PEAK FLOW TIME TO PEAK RUNOFF VOLUME TOTAL RAINFALR RUNOFF COEFFICIT ***** WARNING: STORAG (i) CN PROCEDIO (i) TIME STEP THAN THE ((ii) PEAK FLOW | (cms)= (hrs)= (mm)= (mm)= ENT = GE COEFF. IS URE SELECTED 19.0 Ia = (DT) SHOULD STORAGE COEF | 0.23 6.00 111.50 112.50 0.99 SMALLER T FOR PERVI Dep. Stoll BE SMALLE FICIENT. | 0.03 6.00 87.00 112.50 0.77 THAN TIME S TOUS LOSSES rage (Abover OR EQUAL | 0. 107 112 0. TEP! :: | ALS* 263 (iii) .00 .82 .50 | |
| RESERVOIR(0154) | OVERFLO | w IS OFF | | | | |
| IN= 2> OUT= 1 DT= 5.0 min | OUTFLOW (cms) 0.0000 | STORAC (ha.m. 0.000 | GE OUT .) (0 00 0. | | RAGE 1.m.) 0.0099 | |
| INFLOW: ID= 2 (2 OUTFLOW: ID= 1 (| 20061) 0154) | (ha) (0.650 0.650 REDUCTION | (cms) (0.263 0.230 N [Qout/Qir | PEAK hrs) 6.00 6.00 | (mm) 107.82 107.81 | |
| T: M/ | EAK FLOW IME SHIFT OF XXIMUM STOR | PEAK FLOW | v (ha | m.)= 0.00 | , 199 | |
| CALIB STANDHYD (20062) ID= 1 DT= 5.0 min | | | | | 80.00 | |
| Surface Area Dep. Storage Average Slope Length Mannings n | (ha)= (mm)= (%)= (m)= = | | 0.15 1.00 2.00 40.00 0.290 | | | |
| NOTE: RAIN | | | | | | |
| TIM hrs. 0.08 0.16 0.25(0.33 0.41; 0.50(0.58; 0.66 0.75(0.81) | RAIN | TIME hrs mm 3.083 4.05 | RAIN TI n/hr 6 4.50 6.16 4.50 6.25 4.50 6.33 4.50 6.33 4.50 6.50 4.50 6.50 4.50 6.66 4.50 6.75 4.50 6.83 | ME RAIN rs mm/hr 3 20.25 77 20.25 0 20.25 7 20.25 0 20.25 7 20.25 7 20.25 0 20.25 7 9.00 0 9.00 3 9.00 7 9.00 | TIME hrs 9.08 9.17 9.25 9.33 9.42 9.50 9.58 9.67 9.75 9.83 9.92 | RAIN mm/hr 3.94 3.94 3.94 3.94 3.94 3.94 3.94 3.94 |
| 1.08 1.16 1.25(1.33 1.41 1.50(1.58) 1.66(1.75(1.83) | 2.81 2.81 3 2.81 3 3 2.81 3 7 2.81 4 9 2.81 4 1 2.81 4 1 2.81 4 | 3-917 4-000 4-083 4-167 4-250 4-333 6-4-417 4-417 4-500 4-583 4-667 4-750 4-833 4-833 4-833 4-833 4-817 | 4.50 6.91 4.50 7.00 5.75 7.08 6.75 7.16 6.75 7.26 6.75 7.33 6.75 7.33 6.75 7.33 6.75 7.33 6.75 7.33 6.75 7.33 7.50 7.50 9.00 7.58 9.00 7.58 9.00 7.58 9.00 7.88 9.00 7.88 9.00 7.88 9.00 8.00 8.00 8.00 8.00 8.00 | 6.75 6.75 0 6.75 3 6.75 7 6.75 | 9.92 10.00 10.08 10.17 10.25 10.33 10.42 10.50 10.58 10.67 10.75 10.83 10.92 11.00 11.08 | 3.94 2.25 2.25 2.25 2.25 2.25 2.25 2.25 2.2 |
| 2.000 2.08 2.16 2.250 | 3.37 | 5.000 5.083 5.167 5.250 15.333 | 9.00 8.00 9.00 8.00 3.50 8.08 3.50 8.16 | 0.75 0.675 3.94 7.3.94 0.3.94 3.94 7.3.94 10.3.94 13.94 13.94 17.3.94 | 11.00 11.08 11.17 | 2.25 2.25 2.25 |

| RESERVOIR(0150)| | IN= 2---> OUT= 1 |

OVERFLOW IS OFF

```
2.81 | 5.000 | 9.00 | 3.37 | 5.083 | 3.50 | 3.50 | 3.57 | 5.250 | 3.57 | 5.250 | 3.57 | 5.250 | 3.57 | 5.250 | 3.57 | 5.250 | 3.57 | 5.250 | 3.57 | 5.250 | 3.57 | 5.250 | 3.57 | 5.250 | 3.57 | 5.250 | 3.57 | 5.250 | 3.57 | 5.250 | 3.57 | 5.250 | 3.57 | 5.250 | 3.57 | 5.250 | 3.57 | 5.250 | 3.57 | 5.250 | 3.57 | 5.250 | 3.57 | 5.250 | 3.57 | 5.250 | 3.57 | 5.250 | 3.57 | 5.250 | 3.57 | 5.250 | 3.57 | 5.250 | 3.57 | 5.250 | 3.57 | 5.250 | 3.57 | 5.250 | 3.57 | 5.250 | 3.57 | 5.250 | 3.57 | 5.250 | 3.57 | 5.250 | 3.57 | 5.250 | 3.57 | 5.250 | 3.57 | 5.250 | 3.57 | 5.250 | 3.57 | 5.250 | 3.57 | 5.250 | 3.57 | 3.550 | 3.57 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.550 | 3.
                                                                                                                                                                                   3.37 | 5.750 | 54.00 | 8.750 | 3.94 | 11.75
3.37 | 5.833 | 148.50 | 8.833 | 3.94 | 11.83
3.37 | 5.917 | 148.50 | 8.917 | 3.94 | 11.92
3.37 | 6.000 | 148.50 | 9.000 | 3.94 | 12.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8.000
8.083
8.167
8.250
8.333
8.417
8.500
8.583
8.667
8.750
8.833
8.917
9.000
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11.17
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11.33
11.42
11.50
11.58
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11.75
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11.92
12.00
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2.167
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2.833
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3.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3.94
3.94
3.94
3.94
3.94
3.94
3.94
3.94
                                                                                                                                                                                                                            148.50 132.61

5.00 10.00

1.76 (ii) 5.54 (ii)

5.00 10.00

0.32 0.16

0.24 0.05

6.00 6.00

111.50 87.00

112.50 0.77
                                  Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     *TOTALS*
0.289 (iii)
6.00
106.60
112.50
0.95
                                    PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             148.50 132.61
5.00 10.00
1.44 (ii) 6.14 (ii)
5.00 10.00
0.33 0.15
                         ** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                               (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = Dep. Storrage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 *TOTALS*
0.147 (iii)
6.00
104.14
112.50
0.93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PEAK FLOW (Cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0.11
6.00
111.50
112.50
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0.04
6.00
87.00
112.50
0.77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
      RESERVOIR( 0155) |
IN= 2---> OUT= 1 |
DT= 5.0 min
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                        OUTFLOW STORAGE OUTFLOW STORAGE (cms) (ha.m.) (cms) (ha.m.) 0.0000 0.0000 0.2430 0.0135
                  | CALIB | STANDHYD (200811) | Area (ha) = 0.07 | ID= 1 DT= 5.0 min | Total Imp(%) = 84.00 | Dir. Conn.(%) = 84.00 | IMPERVIOUS | PERVIOUS (i)
                                                                                                                                               PEAK FLOW REDUCTION [Qout/Qin](%)= 78.52
TIME SHIFT OF PEAK FLOW (min)= 0.00
MAXIMUM STORAGE USED (ha.m.)= 0.0135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                  Surface Area (ha)= 0.27 0.11

Dep. Storage (mm)= 1.00 1.00

Average Slope (%)= 1.00 2.00

Average Slope (%)= 1.00 2.00

Average Slope (%)= 1.00 2.00

Mannings n = 0.013 0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | TANSFORMED | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | HYETOGR | H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    hrs
3.083
3.167
3.250
3.333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.917
1.083
1.167
1.250
1.333
1.417
1.500
1.833
1.917
2.008
2.083
2.167
2.250
2.250
2.250
2.250
2.258
                                                                  NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                        3.417
3.5803
3.583
3.667
3.750
3.833
3.917
4.000
4.083
4.4167
4.250
4.250
4.833
4.417
4.583
4.667
4.833
4.917
5.000
5.083
5.083
5.250
5.250
5.250
5.250
5.583
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9.50

9.58

9.67

9.75

10.00

10.08

10.17

10.55

10.58

10.55

10.75

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11.00

11.08

11.17

11.25

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11.42

11.58
                                                                                                                                                                                                                                                     TIME
3.083
3.167
3.250
3.333
3.417
3.500
3.583
3.667
3.750
3.837
4.003
4.083
4.167
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4.333
4.417
4.500
4.583
4.467
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4.750
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hrs
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0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
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9.17
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1.667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2.81 | 3.917 | 4.50 | 6.917 | 2.81 | 4.000 | 4.50 | 7.000 | 3.70 | 2.81 | 4.003 | 6.75 | 7.083 | 2.81 | 4.167 | 6.75 | 7.163 | 2.81 | 4.167 | 6.75 | 7.163 | 2.81 | 4.167 | 6.75 | 7.150 | 2.81 | 4.250 | 6.75 | 7.250 | 2.81 | 4.250 | 6.75 | 7.353 | 2.81 | 4.417 | 6.75 | 7.417 | 2.81 | 4.500 | 6.73 | 7.500 | 7.567 | 2.81 | 4.500 | 6.73 | 7.500 | 7.567 | 2.81 | 4.500 | 9.00 | 7.752 | 2.81 | 4.853 | 9.00 | 7.752 | 2.81 | 4.853 | 9.00 | 7.752 | 2.81 | 4.853 | 9.00 | 7.833 | 2.81 | 4.650 | 9.00 | 7.833 | 2.81 | 4.516 | 9.00 | 7.833 | 2.81 | 4.516 | 9.00 | 7.833 | 3.75 | 5.67 | 3.50 | 8.053 | 3.37 | 5.687 | 3.50 | 8.167 | 3.375 | 5.583 | 3.150 | 8.167 | 3.375 | 5.583 | 3.150 | 8.167 | 3.375 | 5.583 | 3.150 | 8.353 | 3.37 | 5.567 | 3.50 | 8.533 | 3.37 | 5.567 | 3.50 | 8.533 | 3.37 | 5.567 | 3.50 | 8.533 | 3.37 | 5.755 | 3.40 | 8.653 | 3.37 | 5.755 | 3.40 | 8.653 | 3.37 | 5.375 | 3.40 | 8.653 | 3.37 | 5.375 | 3.40 | 8.583 | 3.37 | 5.375 | 3.40 | 8.583 | 3.37 | 5.375 | 3.40 | 8.583 | 3.37 | 5.375 | 3.40 | 8.583 | 3.37 | 5.375 | 3.40 | 8.583 | 3.37 | 5.375 | 3.40 | 8.595 | 3.37 | 5.750 | 3.40 | 8.650 | 8.333 | 3.37 | 5.750 | 3.40 | 8.650 | 8.750 | 3.37 | 5.750 | 3.40 | 8.650 | 8.750 | 3.37 | 5.750 | 3.40 | 8.650 | 8.750 | 3.37 | 5.750 | 3.40 | 8.650 | 8.750 | 3.37 | 5.750 | 3.40 | 8.650 | 8.750 | 3.37 | 5.750 | 3.40 | 8.650 | 8.750 | 3.37 | 5.750 | 3.40 | 8.650 | 8.750 | 3.37 | 5.750 | 3.40 | 8.650 | 8.750 | 3.37 | 5.750 | 3.40 | 8.650 | 8.750 | 3.37 | 5.750 | 3.40 | 8.650 | 8.750 | 3.37 | 5.750 | 3.40 | 8.650 | 8.750 | 3.37 | 5.750 | 3.40 | 8.650 | 8.750 | 3.37 | 5.750 | 3.40 | 8.650 | 8.750 | 3.37 | 5.750 | 3.40 | 8.650 | 8.750 | 3.37 | 5.750 | 3.40 | 8.650 | 8.750 | 3.37 | 5.750 | 3.40 | 8.650 | 8.750 | 3.37 | 5.750 | 3.40 | 8.650 | 8.750 | 3.37 | 5.750 | 3.40 | 8.650 | 8.750 | 3.37 | 5.750 | 3.40 | 8.650 | 8.750 | 3.37 | 5.750 | 3.40 | 8.650 | 8.750 | 3.37 | 5.750 | 3.40 | 8.650 | 8.750 | 3.37 | 5.750 | 3.40 | 8.650 | 3.750 | 3.750 | 3.750 | 3.750 | 3.750 | 3.750 | 3.750 | 3.750 | 3.750 | 3.750 | 3.750 | 3.750 | 3.750 
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3.94 | 11.83
3.94 | 11.92
3.94 | 12.00
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9.00 | 10.00

6.755 | 10.08

6.755 | 10.58

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1.417
1.500
1.580
1.750
1.750
1.833
2.167
2.083
2.167
2.2533
2.417
2.583
2.675
2.750
2.833
2.917
3.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                   148.50 132.61
5.00 5.00
0.87 (ii) 4.26 (ii)
5.00 5.00
0.34 0.23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                *TOTALS*
0.028 (iii)
6.00
107.57
112.50
0.96
                                                                                                                                                                                                                                 0.02
5.92
111.50
112.50
0.99
                                    PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                     0.00
6.00
87.00
112.50
0.77
                      ** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                               (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN° = 89.0 Ia = Dep. Storage (Above).

(i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL.

THAN THE STORAGE COEFFICIENT.

(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Max.Eff.Inten.(mm/hr) = 0ver (min) 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 10.00 1
    *TOTALS*
0.142 (iii)
                                    ID = 3 ( 0110): 0.45 0.175 6.00 104.68
                      NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
         RESERVOIR( 0158) | OVERFLOW IS OFF | IN= 2---> QUT= 1 | OUTFLOW STORAG | Cms) | (cms) | (ha.m.)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^{\pm}=89.0 Ia = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                        OUTFLOW STORAGE | OUTFLOW STORAGE (cms) (ha.m.) | (cms) (ha.m.) 0.0000 | 0.0750 0.0162
                                                                                                                                                                                                                 AREA QPEAK TPEAK (ha) (cms) (hrs) 0.450 0.175 6.00 0.450 0.074 6.08
                  INFLOW: ID= 2 ( 0110)
OUTFLOW: ID= 1 ( 0158)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PEAK FLOW REDUCTION [Qout/Qin](%)= 42.25
TIME SHIFT OF PEAK FLOW (min)= 5.00
MAXIMUM STORAGE USED (ha.m.)= 0.0162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0.06 0.01
1.00 1.00
1.00 2.00
21.60 40.00
0.013 0.290
NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                               Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TRANSFORMED HYETOGR RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN | TIM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | TIME
| hrs
| 9.08
| 9.17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RAIN
mm/hr
20.25
20.25
20.25
20.25
20.25
20.25
20.25
9.00
9.00
9.00
9.00
9.00
9.00
6.75
6.75
6.75
6.75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.750
0.750
0.750
1.000
1.083
1.167
1.250
1.333
                                                                  NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TRANSFORMED HYETOGRAPH
TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 'TIME RAIN 
                                                                                                                                                                                                                                                                                                                                                                                                                                                     RAIN
mm/hr
20.25
20.25
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20.25
9.00
9.00
9.00
                                                                                                                                                                                      TIME
hrs
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9.42
9.50
9.58
9.67
9.75
9.83
                                                                                                                          hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
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9.75
9.83
9.92
10.00
10.08
10.17
10.25
10.33
10.42
10.50
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9.00 | 7.583

9.00 | 7.667

9.00 | 7.650

9.00 | 7.833

9.00 | 7.917

9.00 | 8.003

13.50 | 8.007

13.50 | 8.250

13.50 | 8.333

13.50 | 8.417

13.50 | 8.433

13.50 | 8.440

13.50 | 8.440

13.50 | 8.440

14.60 | 8.583

14.00 | 8.583

14.00 | 8.660

148.50 | 8.333

14.80 | 8.660

148.50 | 8.333

14.80 | 8.660

148.50 | 8.333

14.80 | 8.660

148.50 | 8.333

148.50 | 9.000
                                                                                                                                                                                                                           4.583
4.667
4.750
4.833
                                                                                                           1.583
1.667
1.750
1.833
1.917
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5.417
5.500
5.583
5.667
5.750
5.833
5.917
6.000
                            Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                         148.50
5.00
0.87 (ii)
5.00
0.34
                                                                                                                                                                                                                                                                                                                  132.61
5.00
4.36 (ii)
5.00
0.23
                                                                                                                                                                                                                                                                                                                                                                                                                            *TOTALS*
0.028 (iii)
6.00
107.32
112.50
0.95
                                PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                           0.02
5.92
111.50
112.50
0.99
                                                                                                                                                                                                                                                                                                                        0.00
6.00
87.00
112.50
0.77
                      ** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                              (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^\circ=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
  ADD HYD ( 0111) |
1 + 2 = 3 |
                                                                                                                                                                                                     AREA
(ha)
0.07
0.39
                                                                                                                                                                                                                                           QPEAK
(cms)
0.028
0.142
                                                                                                                                                                                                                                                                                                                             TPEAK R.V.
(hrs) (mm)
6.00 107.32
6.00 101.44
                                    ID1= 1 (200821):
+ ID2= 2 (200822):
                                    ID = 3 ( 0111):
                                                                                                                                                                                                                                                     0.171
                                                                                                                                                                                                                                                                                                                               6.00 102.34
                                                                                                                                                                                                     0.46
                            NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
      RESERVOIR( 0159)
IN= 2---> OUT= 1
DT= 5.0 min
                                                                                                                                                                          OVERFLOW IS OFF
                                                                                                                                                                        OUTFLOW STORAGE | OUTFLOW (cms) (ha.m.) (cms) 0.0000 | 0.0850
                                                                                                                                                                                                                                                                                                                                                                                                                                  STORAGE
(ha.m.)
0.0141
                                                                                                                                                                                                                         AREA
(ha)
0.460
0.460
                                                                                                                                                                                                                                                                                      QPEAK TPEAK (hrs) 0.171 6.00 0.083 6.08
                                                                                                                                                                                                                                                                                                                                                                                                                                                      R.V.
(mm)
102.34
102.26
              INFLOW: ID= 2 ( 0111)
OUTFLOW: ID= 1 ( 0159)
                                                                                                                                PEAK FLOW REDUCTION [Qout/Qin](%)= 48.79
TIME SHIFT OF PEAK FLOW (min)= 5.00
MAXIMUM STORAGE USED (ha.m.)= 0.0141
| CALIB
| STANDHYD (201021)
|ID= 1 DT= 5.0 min |
                                                                                                                                                          Area (ha)= 0.47 
Total Imp(\%)= 85.00 Dir. Conn.(\%)= 85.00
                                                                                                                                                                                                                                                                                                            PERVIOUS (i)
0.07
1.00
2.00
40.00
0.290
                                                                                                                                                    Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                        NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                  2.81 | 3.500 | 4.50 | 6.500 | 6.583 | 3.583 | 4.50 | 6.6853 | 6.565 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 6.665 | 
                                                                                                         0.500
0.583
0.917
1.000
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9.00 | 9.83

9.00 | 9.83

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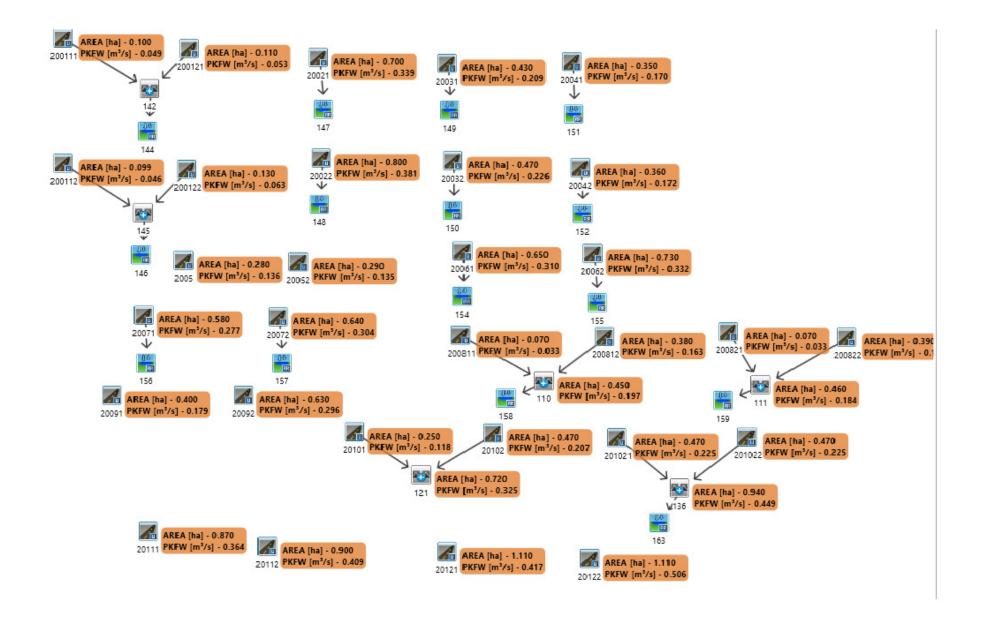
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9.00 | 9.00 | 9.00 | 9.00 | 9.00 | 9.00 | 9.00 | 9.00 | 9.00 | 9.00 | 9.00 | 9.00 | 9.00 | 9.00 | 9.00 | 9.00 | 9.00 |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
PEAK FLOW (cms)=
PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RINOFF VOLUME (mm)=
TOTAL MAINFALL (mm)=
RINOFF COEFFICIENT =
                                                                                                                                                                                                                         148.50 132.61
5.00 5.00
1.54 (ii) 4.83 (ii)
5.00 5.00
0.33 0.22
                                                                                                                                                                                                                                                                                                                                                                                                                            *TOTALS*
0.190 (iii)
6.00
107.82
112.50
0.96
                                                                                                                                                                                                                           0.16
6.00
111.50
112.50
0.99
                                                                                                                                                                                                                                                                                                                        0.03
6.00
87.00
112.50
0.77
                            * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                            (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
    ADD HYD ( 0136) |
1 + 2 = 3 |
ID1= 1 (201021):
+ ID2= 2 (201022):
                                                                                                                                                                                                                                         QPEAK
(cms)
0.190
0.190
                                                                                                                                                                                                                                                                                                                             TPEAK R.V.
(hrs) (mm)
6.00 107.82
6.00 107.82
                                                                                                                                                                                                     AREA
(ha)
0.47
0.47
                                              ID = 3 ( 0136):
                                                                                                                                                                                                     0.94 0.380
                                                                                                                                                                                                                                                                                                                               6.00
                                                                                                                                                                                                                                                                                                                                                                               107.82
                            NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
      RESERVOIR( 0163)
IN= 2---> OUT= 1
DT= 5.0 min
                                                                                                                                                                        OVERFLOW IS OFF
                                                                                                                                                                        OUTFLOW STORAGE | OUTFLOW (cms) (ha.m.) (cms) 0.0000 | 0.3400
                                                                                                                                                                                                                                                                                                                                                                                                                                  STORAGE
(ha.m.)
0.0159
                                                                                                                                                                                                                         AREA QPEAK TPEAK (ha) (cms) (hrs) 0.940 0.380 6.00 0.940 0.322 6.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                R.V.
(mm)
107.82
107.81
              INFLOW: ID= 2 ( 0136)
OUTFLOW: ID= 1 ( 0163)
                                                                                                                                PEAK FLOW REDUCTION [Qout/Qin](%)= 84.82
TIME SHIFT OF PEAK FLOW (min)= 0.00
MAXIMUM STORAGE USED (ha.m.)= 0.0159
  FINISH
```

| | TRANSFORME | D HYFTOGRAPH | |
|---|--|---|--|
| TIME RAIN hrs mm/hr 0.083 2.81 0.167 2.81 0.250 2.81 0.333 2.81 0.417 2.81 | TRANSFORMEI TIME RAIN hrs mm/hr 3.083 4.50 3.167 4.50 3.250 4.50 3.333 4.50 3.417 4.50 3.500 4.50 3.583 4.50 3.667 4.50 3.750 4.50 3.750 4.50 3.833 4.50 3.833 4.50 4.50 3.750 4.50 3.833 4.50 4.600 4.50 4.600 4.50 | TIME RAIN hrs mm/hr 6.083 20.25 6.167 20.25 6.250 20.25 6.333 20.25 6.417 20.25 | TIME RAIN mm/hr 9.08 3.94 9.17 3.94 9.25 3.94 9.33 3.94 9.42 3.94 |
| 0.500 2.81 0.883 2.81 0.667 2.81 0.750 2.81 0.833 2.81 0.917 2.81 1.000 2.81 | 3.500 | 6.500 20.25 6.583 9.00 6.667 9.00 6.750 9.00 6.833 9.00 6.917 9.00 | 9.50 3.94 9.58 3.94 9.67 3.94 9.75 3.94 9.83 3.94 9.92 3.94 10.00 3.94 |
| 1.083 2.81 1.167 2.81 1.250 2.81 1.333 2.81 1.417 2.81 1.500 2.81 | 4.083 6.75 4.167 6.75 4.250 6.75 4.333 6.75 4.417 6.75 4.500 6.75 | 7.083 6.75 7.167 6.75 7.250 6.75 7.333 6.75 7.417 6.75 7.500 6.75 | 10.08 2.25 10.17 2.25 10.25 2.25 10.33 2.25 10.42 2.25 10.50 2.25 |
| 1.583 2.81 1.667 2.81 1.750 2.81 1.833 2.81 1.917 2.81 2.000 2.81 2.083 3.37 2.167 3.37 | 3.833 4.50 3.917 4.50 4.003 6.75 4.167 6.75 4.1250 6.75 4.250 6.75 4.333 6.75 4.417 6.75 4.383 9.00 4.667 9.00 4.833 9.00 4.833 9.00 4.833 9.00 5.083 13.50 5.250 13.50 5.25 | 7.583 6.75 7.667 6.75 7.750 6.75 7.833 6.75 7.917 6.75 8.000 6.75 8.083 3.94 | 10.58 2.25 10.67 2.25 10.75 2.25 10.83 2.25 10.92 2.25 11.00 2.25 11.08 2.25 |
| 2.167 3.37 2.250 3.37 2.333 3.37 2.417 3.37 2.500 3.37 2.583 3.37 2.667 3.37 | 5.167 13.50 5.250 13.50 5.333 13.50 5.417 13.50 5.500 13.50 5.583 54.00 | 8.167 3.94 8.250 3.94 8.333 3.94 8.417 3.94 8.500 3.94 8.583 3.94 | 11.17 2.25 11.25 2.25 11.33 2.25 11.42 2.25 11.50 2.25 11.58 2.25 11.67 2.25 |
| 2.007 3.37 2.750 3.37 2.833 3.37 2.917 3.37 3.000 3.37 | 5.067 | 8.750 | 11.07 2.25 11.83 2.25 11.92 2.25 12.00 2.25 |
| over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)= | 5.00 1.54 (ii) 5.00 0.33 | 5.00 4.83 (ii) 5.00 0.22 | rai c÷ |
| PEAK FLOW (cms)= TIME TO PEAK (hrs)= RUNOFF VOLUME (mm)= TOTAL RAITALL (mm)= RUNOFF COEFFICIENT = | 0.16 6.00 111.50 112.50 0.99 | 0.03 0 6.00 0 87.00 10 12.50 11 0.77 0 | .190 (iii) 5.00 |
| **** WARNING: STORAGE COEFF. | IS SMALLER THAN | TIME STEP! | |
| (i) CN PROCEDURE SELEC CN* = 89.0 I (ii) TIME STEP (DT) SHO THAN THE STORAGE C (iii) PEAK FLOW DOES NOT | TED FOR PERVIOUS I a = Dep. Storage ULD BE SMALLER OR OEFFICIENT. INCLUDE BASEFLOW | LOSSES: (Above) EQUAL IF ANY. | |
| CALIB STANDHYD (201022) Area ID= 1 DT= 5.0 min Total | | | 35.00 |
| Surface Area (ha)= Dep. Storage (mm)= Average Slope (%)= Length (m)= Mannings n = | IMPERVIOUS PER 0.40 1.00 1.00 55.98 0.013 | RVIOUS (i) 0.07 1.00 2.00 40.00 0.290 | |
| NOTE: RAINFALL WAS | TRANSFORMED TO | 5.0 MIN. TIME ST | EP. |
| TIME RAIN hrs mm/hr 0.083 2.81 0.167 2.81 0.250 2.81 0.333 2.81 | TIME RAIN hrs mm/hr 3.083 4.50 3.167 4.50 3.250 4.50 3.333 4.50 3.417 4.50 | D HYETOGRAPH | TIME RAIN hrs mm/hr 9.08 3.94 9.17 3.94 9.25 3.94 9.33 3.94 |
| 0.417 2.81 | 3.417 4.50 | 6.417 20.25 | 9.42 3.94 |



```
13.45 | 1.833 | 22.45 | 2.833 | 8.90 | 3.83 | 5.89
19.96 | 1.917 | 17.52 | 2.917 | 8.16 | 3.92 | 5.59
19.96 | 2.000 | 17.52 | 3.000 | 8.16 | 4.00 | 5.59
                                                          I SSSSS U U A L
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I SSSS UUUUU A A L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 180.15
5.00
1.23
5.00
0.33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            134.19
5.00
(ii) 4.91 (ii)
5.00
0.22
                                     w
*TOTALS*
0.135 (iii)
1.33
81.50
87.58
0.93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0.11
1.33
86.58
87.58
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0.02
1.33
63.54
87.58
0.73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                             ***** DETAILED OUTPUT *****
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^\circ = 89.0 Ia = Dep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
         Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.1\V02\voin.dat
Output filename: C:\User$\caef070146\Apppata\Loca\\Civica\\H5\\0564c49-8c07-4086-8157-8729fb3caba3\&c053552
summary filename: C:\User$\caef070146\Apppata\Loca\\Civica\\H5\\0564c49-8c07-4086-8157-8729fb3caba3\&c053552
 DATE: 05-18-2022
                                                                                                                                                                                TIME: 01:00:02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | CALIB | STANDHYD ( 20092) | Area (ha) = 0.63 | Dir. Conn.(%) = 81.00 | IMPERVIOUS | PERVIOUS (i)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | IMPERVIOUS | PERVIOUS (1) | (ha) = 0.51 | 0.11 | 0.11 | (mm) = 1.00 | 1.00 | 1.00 | (%) = 1.00 | 2.00 | (m) = 64.81 | 40.00 | = 0.013 | 0.290 |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Surface Area
Dep. Storage
Average Slope
Length
Mannings n
           ** SIMULATION : Run 06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RAIN | TIME
mm/hr | hrs
6.41 | 1.083
6.41 | 1.167
7.29 | 1.333
8.52 | 1.417
8.52 | 1.500
10.36 | 1.687
10.36 | 1.687
13.45 | 1.833
10.36 | 1.917
13.45 | 1.833
19.96 | 2.000
                                                                                              Filename: C:\Users\caef070146\AppD
ata\Local\Temp\
nif7ca31-3446-4039-a87f-5fd84ced39d0\4c83eb39
Comments: 100-year, 4 hr-chicago, City of Barrie
                 READ STORM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RAIN
mm/hr
14.50
14.50
12.44
12.44
10.94
10.94
10.94
9.80
9.80
9.80
8.90
8.90
8.16
8.16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RAIN
mm/hr
7.56
7.56
7.04
6.60
6.22
6.22
5.89
5.59
5.59
                                                                                            RAIN | TIME | RAIN | TIME | RAIN | TIME | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TAIN | TA
                                                                      TIME
hrs
0.17
0.33
0.50
0.67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              180.15
5.00
1.56 (ii)
5.00
0.33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   134.19
5.00
4.97 (ii)
5.00
0.22
   | CALIB | | STANDHYD ( 20052) | | ID= 1 DT= 5.0 min |
                                                                                             Area (ha) = 0.29
Total Imp(\%) = 78.00 Dir. Conn.(\%) = 78.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                *TOTALS*
0.296 (iii)
1.33
82.19
87.58
0.94
                                                                                                                     IMPERVIOUS (1) 0.23 0.06 1.00 1.00 2.00 43.97 40.00 0.013 0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0.26
1.33
86.58
87.58
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0.04
1.33
63.54
87.58
0.73
                                                                                           (ha)=
(mm)=
(%)=
(m)=
=
                      Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                     NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \mathbb{CN}^{9}=89.0 Ia = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                               TIME RAIN | hrs mm/hr | 1.083 45.22 | 1.167 45.22 | 1.167 45.22 | 1.250 180.15 | 1.333 180.15 | 1.417 58.54 | 1.500 58.54 | 1.583 31.96 | 1.667 31.96 | 1.750 22.45
                                                                                                                                                                                       MED HYETOGRAPH
N | ' TIME
r | ' hrs n
2 | 2.083 14
2 | 2.167 14
5 | 2.250 12
5 | 2.250 12
6 | 2.333 12
4 | 2.417 10
6 | 2.583 9
6 | 2.583 9
6 | 2.583 9
6 | 2.583 9
                                                                                                                                                                                                                                                                       TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
                                                                                                                                                                                                                                     RAIN
mm/hr
14.50
14.50
12.44
12.44
10.94
10.94
9.80
9.80
8.90
                                                                                                  RAIN
mm/hr
6.41
6.41
7.29
7.29
8.52
8.52
10.36
10.36
13.45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Surface Area (ha)= IMPERVIOUS PERVIOUS (i) 0.09
                       Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RUNOFF VOLUME (mm) =
TOTAL RAINFALL (mm) =
RUNOFF COEFFICIENT =
                                                                                          (mm)=
(%)=
(m)=
=
                                                                                                                                                                                           1.00
2.00
40.00
0.290
                                                                                                                                     1.00
1.00
51.64
0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    86.58
87.58
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       80.58
87.58
0.92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   **** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                     NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = Dep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                           RAIN | TIME
mm/hr | hrs
6.41 | 1.083
6.41 | 1.167
7.29 | 1.250
7.29 | 1.333
8.52 | 1.417
8.52 | 1.500
10.36 | 1.667
13.45 | 1.833
10.36 | 1.67
13.45 | 1.833
19.96 | 2.000
                                                                                                                                                                                          D HYETOGR

' TIME

' hrs

2.083

2.167

2.250

2.333

2.417

2.500

2.583

2.667

2.750

2.833

2.917

3.000
                                                                                                                                                                                                                                   RAIN
mm/hr
14.50
14.50
12.44
12.44
10.94
10.94
9.80
9.80
8.90
8.90
8.16
8.16
                                                                 TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                            RAIN
mm/hr
45.22
45.22
180.15
180.15
58.54
58.54
31.96
31.96
22.45
22.45
22.45
21.52
                                                                                                                                                                                                                                                                        hr:
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                          mm/h
7.56
7.56
7.04
7.04
6.60
6.22
6.22
5.89
5.59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALIB | CALI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Dep. Storage
Average Slope
Length
Mannings n
                     Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                  180.15
5.00
1.36 (ii)
5.00
0.33
                                                                                                                                                                                      134.19
10.00
5.12
10.00
0.16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TRANSFORMED HYETOGRAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RANSFORME
RAIN
mm/hr
45.22
180.15
180.15
58.54
58.54
31.96
22.45
17.52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HYETOGR
TIME
hrs
2.083
2.167
2.250
2.333
2.417
2.500
2.583
2.667
2.750
2.833
2.917
3.000
                                                                                                                                                                                                                                                    *TOTALS*
0.179 (iii)
1.33
81.27
87.58
0.93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RAIN
mm/hr
7.56
7.56
7.04
7.04
6.60
6.60
6.22
6.22
                                                                                                                                    0.15
1.33
86.58
87.58
0.99
                                                                                                                                                                                           0.03
1.42
63.54
87.58
0.73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RAIN
mm/hr
6.41
7.29
7.29
8.52
8.52
10.36
13.45
13.45
19.96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TIME hrs
1.083
1.167
1.250
1.333
1.417
1.500
1.583
1.667
1.750
1.833
1.917
2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RAIN
mm/hr
14.50
14.50
12.44
10.94
10.94
9.80
9.80
8.90
8.90
8.16
8.16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                      PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
          *** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^\circ=89.0 Ia = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               180.15
5.00
1.18 (ii)
5.00
0.33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   134.19
5.00
4.50 (ii)
5.00
0.23
   *TOTALS*
0.118 (iii)
1.33
82.42
87.58
0.94
                                                                                                            IMPRIVIOUS PERVIOUS (i) = 0.35 0.1.00 1.00 = 1.00 2.00 = 55.98 40.00 = 0.013 0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0.10
1.33
86.58
87.58
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0.02
1.33
63.54
87.58
0.73
                                                                                   (ha)=
(mm)=
(%)=
(m)=
=
                     Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        *** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                      NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                            ANSFORMED HYETOG

RAIN | TIMM

mm/hr | har

45.22 | 2.083

45.22 | 2.167

180.15 | 2.250

180.15 | 2.333

58.54 | 2.417

58.54 | 2.500

31.96 | 2.687

31.96 | 2.667

22.45 | 2.833

17.52 | 2.917

17.52 | 3.000
                                                                                                                                                                                                                                   RAIN
mm/hr
14.50
14.50
12.44
10.94
10.94
9.80
9.80
8.90
8.90
                                                                                                                                  TIME
hrs
1.083
1.167
1.250
1.333
1.417
                                                                                                 RAIN
mm/hr
6.41
7.29
7.29
8.52
8.52
10.36
10.36
13.45
                                                                                                                                                                                                   'TIME
hrs
2.083
2.167
2.250
2.333
2.417
                                                                  TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                       TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                          RAIN
mm/hi
7.56
7.56
7.04
7.04
6.60
6.22
6.22
5.89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | ADD HYD ( 0121)|
| 1 + 2 = 3 |
                                                                                                                                  1.417
1.500
1.583
1.667
1.750
1.833
1.917
2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AREA
(ha)
0.25
0.47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         OPEAN
(cms)
0.118
0.207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TPEAK
(hrs)
1.33
1.33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          R.V.
(mm)
82.42
80.58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ID1= 1 ( 20101):
+ ID2= 2 ( 20102):
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ID = 3 ( 0121):
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0.72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1.33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0.325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          81.22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
                                                                                                                                  180.15
5.00
1.43 (ii)
5.00
0.33
                                                                                                                                                                                  134.19
10.00
5.44 (ii)
10.00
0.16
                       Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CALIB

STANDHYD ( 20111) | Area (ha)= 0.87

ID= 1 DT= 5.0 min | Total Imp(%)= 67.00 bir. Conn.(%)= 67.00
                                                                                                                                                                                                                                                   *TOTALS*
0.207 (iii)
1.33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Surface Area (ha)= IMPERVIOUS PERVIOUS (i)
0.58 0.29
                      PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
```

```
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                       1.00
1.00
76.16
0.013
                                                                                                                                          RANNEORMED HYETOGR

RAIN | TIME

1 TIME

1 TIME

1 TIME

1 TIME

2 083

445,22 2,167

445,22 2,167

180.15 2,250

180.15 2,250

180.15 2,233

196 2,247

22.45 2,500

21.96 2,667

22.45 2,750

22.45 2,833

17.52 2,833

17.52 2,937

17.52 2,937
                                                                                                                     TIME
hrs
1.083
1.167
                                                                                                                                                                                                                                              TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                         TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                      RAIN
mm/hr
6.41
7.29
8.52
8.52
10.36
10.36
13.45
13.45
19.96
                                                                                                                                                                                                               RAIN
mm/hr
14.50
14.50
12.44
10.94
10.94
9.80
9.80
8.90
8.90
8.16
8.16
                                                                                                                                                                                                                                                                               RAIN
mm/hr
7.56
7.56
7.04
7.04
6.60
6.22
6.22
5.89
5.59
                                                                                                                    1.167
1.250
1.333
1.417
1.500
1.583
1.667
1.750
1.833
1.917
2.000
                Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                   180.15
5.00
1.71 (ii)
5.00
0.32
                                                                                                                                                        134.19
10.00
i) 6.31 (ii)
10.00
0.15
                                                                                                                                                                                                                           *TOTALS*
0.364 (iii)
1.33
78.97
87.58
0.90
                PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                       0.29
1.33
86.58
87.58
0.99
                                                                                                                                                                         0.08
1.42
63.54
87.58
0.73
***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0   Ia=\mathrm{Dep}. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
 PERVIOUS (i)
0.18
1.00
2.00
40.00
0.290
                                NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                   ---- TRANSFORMED HYETOGRAPH
TIME RAIN | TIME |
hrs mm/hr | hrs mm
1.083 45.22 | 2.083 | 14.
1.250 | 180.15 | 2.250 | 12.
1.333 | 180.15 | 2.333 | 12.
1.333 | 180.15 | 2.333 | 12.
1.417 | 58.54 | 2.500 | 10.
1.883 | 11.94 | 2.500 | 10.
1.883 | 11.96 | 2.667 | 9.
1.667 | 31.96 | 2.667 | 9.
1.750 | 22.45 | 2.750 | 8.
1.833 | 22.45 | 2.833 | 8.
1.833 | 22.45 | 2.833 | 8.
1.833 | 22.45 | 2.300 | 8.
1.834 | 2.300 | 3.000 | 8.
                                                         TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                      RAIN
mm/hr
6.41
7.29
8.52
8.52
10.36
10.36
13.45
13.45
19.96
                                                                                                                                                                                                             RAIN
mm/hr
14.50
14.50
12.44
12.44
10.94
19.80
9.80
8.90
8.90
8.16
8.16
                                                                                                                                                                                                                                                                              RAIN
mm/hr
7.56
7.56
7.04
7.04
6.60
6.22
6.22
5.89
5.59
                                                                                                                                                                                                                                             TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                 Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                    180.15
5.00
1.73 (ii)
5.00
0.32
                                                                                                                                                                    134.19
10.00
5.23 (ii)
10.00
0.16
                                                                                                                                                                                                                            *TOTALS*
0.409 (iii)
1.33
                  PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
                                                                                                                                                                             0.05
                                                                                                                             0.36
                                                                                                              1.167
1.250
1.333
1.417
1.500
1.583
1.667
1.750
1.833
1.917
2.000
                                                                                                                                             45.22 | 2.167
180.15 | 2.250
180.15 | 2.333
58.54 | 2.500
31.96 | 2.583
31.96 | 2.667
22.45 | 2.750
22.45 | 2.833
17.52 | 2.917
17.52 | 3.000
                                                                                    6.41
7.29
7.29
8.52
8.52
10.36
10.36
13.45
13.45
19.96
                                                                                                                                                                                                              14.50
12.44
12.44
10.94
10.94
9.80
9.80
8.90
8.90
8.16
8.16
                                                          0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                               3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                              7.56
7.04
7.04
6.60
6.22
6.22
5.89
5.89
                 Max.Eff.Inten.(mm/hr)= 180.15 134.19 over (min) 5.00 5.00 5.00 Storage Coeff. (min)= 1.22 (ii) 3.75 (ii) unit hyd. Tpeak (min)= 5.00 5.00 Unit hyd. Tpeak (cms)= 0.33 0.25
                                                                                                                                                                                                                           *TOTALS*
0.136 (iii)
1.33
84.27
87.58
0.96
                 PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                  0.13
1.33
86.58
87.58
0.99
                                                                                                                                                                        0.01
1.33
63.54
87.58
0.73
***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN° = 89.0 Ia = Dep. Storage (Above)

ITAM STEP (DT) SHOULD BE SMALLER OR EQUAL

THAN THE STORAGE COEFFICIENT.

(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
 Area (ha)= 1.11
Total Imp(%)= 56.00 Dir. Conn.(%)= 56.00
                                                                                                          IMPERVIOUS PERVIOUS (i)
0.62 0.49
1.00 1.00
2.00
86.02 40.00
0.013 0.290
                                NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                   TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                             RAIN
mm/hr
14.50
14.50
12.44
10.94
10.94
9.80
9.80
8.90
8.90
8.16
8.16
                                                                                       RAIN
mm/hr
6.41
7.29
7.29
8.52
8.52
10.36
10.36
13.45
13.45
19.96
                                                                                                                    TIME
hrs
1.083
1.167
1.250
1.333
1.417
1.500
1.583
1.667
1.750
1.833
1.917
2.000
                                                                                                                                                                                                                                            TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                              RAIN
mm/hr
7.56
7.56
7.04
7.04
6.60
6.62
6.22
5.89
5.59
                Max.Eff.Inten.(mm/hr)=
over (min)
Storage Cover (min)
Storage Cover (min)=
Unit Hyd. Tyeak (min)=
Unit Hyd. peak (cms)
PEAK FLOW
TIME TO PEAK (hrs)=
RUNOFF VOLUME
TO RACKPELL (mm)=
RUNOFF COFFCICIENT
                                                                                                                    180.15
5.00
1.84 (ii)
5.00
0.32
                                                                                                                                                                    134.19
10.00
8.70 (ii)
10.00
0.12
                                                                                                                                                                                                                           *TOTALS*
0.417 (iii)
1.33
76.44
87.58
0.87
                                                                                                                      0.31
1.33
86.58
87.58
0.99
                                                                                                                                                                         0.12
1.42
63.54
87.58
0.73
                 * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (OT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
```

| RUNOFF VOLUME (mm)= 86.58 TOTAL RAINFALL (mm)= 87.58 RUNOFF COEFFICIENT = 0.99 | 63.54 81.97 87.58 87.58 0.73 0.94 |
|--|---|
| ***** WARNING: STORAGE COEFF. IS SMALLER (i) CN PROCEDURE SELECTED FOR PERV | |
| (i) CN PROCEDURE SELECTED FOR PERV CN* = 89.0 I A= Dep. SELECTED FOR PERV (ii) TIME STEP (DT) SHOULD BE SMALL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BAS | rage (ADOVE) ER OR EQUAL EFLOW IF ANY. |
| CALIB STANDHYD (20122) Area (ha)= 1. ID= 1 DT= 5.0 min Total Imp(%)= 81. | 11 00 Dir. Conn.(%)= 81.00 |
| TMPERVIOUS | PERVIOUS (i) |
| Surface Area (ha)= 0.90 Dep. Storage (mm)= 1.00 Average Slope (%)= 1.00 Length (m)= 86.02 Mannings n = 0.013 | 0.21 1.00 2.00 40.00 0.290 |
| NOTE: RAINFALL WAS TRANSFORMED | |
| TRANS TIME RAIN TIME hrs mm/hr hrs m | FORMED HYETOGRAPH RAIN TIME RAIN TIME RAIN m/hr hrs mm/hr hrs mm/hr 5 22 2 083 14 50 3 08 7 56 |
| 0.083 6.41 1.083 4 0.167 6.41 1.167 4 0.250 7.29 1.250 18 0.333 7.29 1.333 1 0.417 8.52 1.417 5 | m/hr hrs mm/hr hrs hrs hrs hrs hrs hrs hrs hrs hrs hrs |
| 0.300 0.32 1.300 3 | 1 06 2 502 0 00 2 50 6 22 |
| 0.667 10.36 1.667 3 0.750 13.45 1.750 2 | 1.96 2.667 9.80 3.67 6.22 2.45 2.750 8.90 3.75 5.89 |
| 0.833 13.45 1.833 2 0.917 19.96 1.917 1 1.000 19.96 2.000 1 Max.Eff.Inten.(mm/hr)= 180.15 | 2.45 2.833 8.90 3.83 5.89 7.52 2.917 8.16 3.92 5.59 7.52 3.000 8.16 4.00 5.59 134.19 |
| Storage Coeff (min) 5.00 | 10.00 i) 5.26 (ii) 10.00 0.16 *TOTALS* |
| PEAK FLOW (cms)= 0.45 TIME TO PEAK (hrs)= 1.33 RUNOFF VOLUME (mm)= 86.58 TOTAL RAINFALL (mm)= 87.58 RUNOFF COEFFICIENT = 0.99 | 0.06 0.506 (iii) 1.42 1.33 63.54 82.20 87.58 87.58 |
| RUNOFF COEFFICIENT = 0.99 ***** WARNING: STORAGE COEFF. IS SMALLER | 0.73 0.94 THAN TIME STEP! |
| (i) CN PROCEDURE SELECTED FOR PERV CN* = 89.0 Ia = Dep. Sto (ii) TIME STEP (DT) SHOULD BE SMALL THAN THE STORAGE COEFFICIENT. | IOUS LOSSES: rage (Above) ER OR EQUAL |
| THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BAS | EFLOW IF ANY. |
| CALIB | 28 00 Dir. Conn.(%)= 90.00 |
| TMPERVTOUS | PERVIOUS (i) |
| Surface Area (ha)= 0.25 Dep. Storage (mm)= 1.00 Average Slope (%)= 1.00 | 0.03 1.00 2.00 |
| Length (m)= 43.20 Mannings n = 0.013 | 40.00 0.290 |
| NOTE: RAINFALL WAS TRANSFORMED | TO 5.0 MIN. TIME STEP. |
| NOTE: RAINFALL WAS TRANSFORMED TRANS | |
| | TO 5.0 MIN. TIME STEP. FORMED HYETOGRAPH RAIN TIME RAIN TIME RAIN hrs mm/hr hrs mm/hr 5.22 2.083 14.50 3.08 7.56 |
| | |
| TIME RAIN TIME hrs mm/hr hrs m 0.083 6.41 1.083 4 | |
| | FORMED HYETOGRAPH RAIN TIME RAIN TIME RAIN M/hr hrs mm/hr hrs mm/hr 5.22 2.083 14.50 3.08 7.56 |
| TIME RAIN TIME | FORMED HYETOGRAPH RAIN 'TIME RAIN TIME RAIN h' h 'hs mm/hr hrs mm/hr 5.22 2.083 14.50 3.08 7.56 |
| TIME RAIN TIME | FORMED HYETOGRAPH RAIN 'TIME RAIN TIME RAIN h' h 'hs mm/hr hrs mm/hr 5.22 2.083 14.50 3.08 7.56 |
| TIME RAIN TIME | FORMED HYETOGRAPH RAIN TIME RAIN |
| TIME RAIN TIME | FORMED HYETOGRAPH RAIN 'TIME RAIN TIME RAIN m/hr hrs mm/hr hrs mm/hr 5.22 2.083 14.50 3.08 7.56 11 00 Dir. Conn.(%)= 87.00 PERVIOUS (i) 1.00 2.00 40.00 0.290 0.5.0 MIN. TIME STEP. FORMED HYETOGRAPH RAIN 'TIME RAIN TIME RAIN RAIN TIME RAIN TIME RAIN |
| TIME RAIN TIME | FORMED HYETOGRAPH RAIN TIME RAIN TIME RAIN Mm/hr hr's mm/hr hr's mm/hr 1.22 2.083 14.50 3.08 7.56 1100 Dir. Conn.(%)= 87.00 PERVIOUS (i) 0.01 1.00 2.00 40.00 0.290 TO 5.0 MIN. TIME STEP. FORMED HYETOGRAPH RAIN TIME RAIN Mm/hr hr's mm/hr hr's mm/hr |
| TIME RAIN TIME | FORMED HYETOGRAPH RAIN TIME RAIN TIME RAIN Mm/hr hr's mm/hr hr's mm/hr 1.22 2.083 14.50 3.08 7.56 1100 Dir. Conn.(%)= 87.00 PERVIOUS (i) 0.01 1.00 2.00 40.00 0.290 TO 5.0 MIN. TIME STEP. FORMED HYETOGRAPH RAIN TIME RAIN Mm/hr hr's mm/hr hr's mm/hr |
| TIME RAIN TIME Hrs Mm/hr Hrs Mm/hr Hrs Mm/hr Hrs Mm/hr Hrs Mm/hr Hrs Mm/hr Hrs Mm/hr Hrs Mm/hr Hrs Mm/hr Hrs Mm/hr Hrs Mm/hr Hrs Mm/hr Hrs Mm/hr Hrs Mm/hr Hrs Mm/hrs ORMED HYETOGRAPH RAIN 'TIME RAIN TIME RAIN R/hr 'he's mm/hr hr's mm/hr S.22 2.083 14.50 3.08 7.56 1100 Dir. Conn. (%) = 87.00 PERVIOUS (i) 0.01 1.00 40.00 40.00 0.290 TO 5.0 MIN. TIME STEP. FORMED HYETOGRAPH |
| TIME RAIN TIME hrs mm/hrs mm/hr hrs mm/hr hrs mm/hr hrs mm/hr hrs mm/hrs mm/hr hrs mm/ | FORMED HYETOGRAPH RAIN 'TIME RAIN TIME RAIN R/A 'he's mm/hr hr's mm/hr 3.22 2.083 14.50 3.08 7.56 1100 Dir. Conn. (%) = 87.00 PERVIOUS (i) 0.01 1.00 40.00 0.290 TO 5.0 MIN. TIME STEP. FORMED HYETOGRAPH RAIN 'TIME RAIN hr's mm/hr 1.22 2.083 14.50 3.08 7.56 FORMED HYETOGRAPH FORMED HYETOGR |
| TIME RAIN TIME hrs mm/hrs mm/hr hrs mm/hr hrs mm/hr hrs mm/hr hrs mm/hrs mm/hr hrs mm/ | FORMED HYETOGRAPH RAIN 'ITME RAIN TIME RAIN |
| TIME RAIN TIME hrs mm/hr hrs m | FORMED HYETOGRAPH |
| TIME RAIN TIME hrs mm/hr hrs mm/kr hrs | FORMED HYETOGRAPH |
| TIME RAIN TIME | FORMED HYETOGRAPH |
| TIME RAIN TIME | FORMED HYETOGRAPH |
| TIME RAIN TIME hrs mm/hr hrs mm/hr hrs mm/hr hrs mm/hr hrs mm/hr hrs mm/hr hrs mm/hr hrs mm/hr hrs mm/hr hrs mm/hr hrs mm/hr hrs mm/hr hrs mr/hr hrs mm/hr hrs m | FORMED HYETOGRAPH |
| TIME RAIN TIME hrs mm/hr hrs mm/hr hrs mm/hr hrs mm/hr hrs mm/hr hrs mm/hr hrs mm/hr hrs mm/hr hrs mm/hr hrs mm/hr hrs mm/hr hrs mm/hr hrs mr/hr hrs mm/hr hrs m | FORMED HYETOGRAPH |
| TIME RAIN TIME | FORMED HYETOGRAPH |
| TIME | FORMED HYETOGRAPH |

TIME hrs 0.083 0.167 0.250 0.333 0.417 0.500 0.583 0.667 0.750 0.833 0.917 RAIN | TIME mm/hr | hrsn 6.41 | 1.083 6.41 | 1.167 7.29 | 1.250 7.29 | 1.333 8.52 | 1.417 8.52 | 1.500 10.36 | 1.583 10.36 | 1.687 13.45 | 1.750 13.45 | 1.833 19.96 | 1.917

TRANSFORMED HYETOGRAPH
ME RAIN | TISS
mm/hr | hrs m
83 45.22 | 2.083 14
67 45.22 | 2.167 14
50 180.15 | 2.250 12
33 180.15 | 2.333 12
17 58.54 | 2.411 10
0 58.54 | 2.431 | 10
0 58.54 | 2.533 39
67 31.196 | 2.633 39
67 31.75 | 2.250 8
33 22.45 | 2.353 8
00 17.52 | 3.000 8

RAIN mm/hr 14.50 14.50 12.44 12.44 10.94 9.80 9.80 8.90 8.90 8.16 8.16 RAIN mm/hr 7.56 7.56 7.04 6.60 6.60 6.22 6.22 5.89 5.59

TIME hrs 3.08 3.17 3.25 3.33 3.42 3.50 3.58 3.67 3.75 3.83 3.92 4.00

```
Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
PEAN FLOW
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
RUNOFF COEFFICIENT =
RUNOFF COEFFICIENT =
                                                                                                            180.15 134.19
5.00 5.00
0.90 (ii) 3.48 (ii)
5.00 5.00
0.34 0.26
                                                                                                                                                                                                                                                                                                                                                                                                                         Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5.00
0.34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5.00
0.24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                *TOTALS*
0.063 (iii)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0.06
1.33
86.58
87.58
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0.01
1.33
63.54
87.58
0.73
                                                                                                                                                                                                                                                                                                                                                                                                                        PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                        *TOTALS*
0.049 (iii)
1.33
84.14
87.58
0.96
                                                                                                            0.04
1.33
86.58
87.58
0.99
                                                                                                                                                          0.00
1.33
63.54
87.58
0.73
                                                                                                                                                                                                                                                                                                                                                                                                                           WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^{\pm}=89.0 Ia = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                     WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                           CALIB
| STANDHYD (200112)
|ID= 1 DT= 5.0 min |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Area (ha)= 0.10
Total Imp(%)= 79.00 Dir. Conn.(%)= 79.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ADD HYD ( 0142) | 1 + 2 = 3
                                                                                                                                                                                                                                                                                                                                                                                                                        Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                AREA QPEAK (ha) (cms) 0.10 0.049 0.11 0.053
                                                                                                                                                         TPEAK R.V.
(hrs) (mm)
1.33 84.14
1.33 83.56
                     ID1= 1 (200111):
+ ID2= 2 (200121):
                       ID = 3 ( 0142):
                                                                                             0.21 0.102
                                                                                                                                                        1.33
                                                                                                                                                                                   83.84
                                                                                                                                                                                                                                                                                                                                                                                                                                       NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                    NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TRANSFORMED HYETOGRAP
TIME RAIN | TIME
hrs mm/hr | hrs
1.083 45.22 | 2.083 1
1.167 45.22 | 2.167 1
1.250 180.15 | 2.250 1
1.250 180.15 | 2.333 1
1.410 58.54 | 2.417 1
1.833 180.55 | 2.580 1
1.410 58.54 | 2.417 1
1.833 18.54 | 2.417 1
1.833 13.95 | 2.583 1
1.431 33.95 | 2.583 1
1.432 2.245 | 2.750 1
1.833 32.245 | 2.833 1
1.917 17.52 | 2.833 1
1.917 17.52 | 2.937 2
1.000 17.52 | 3.000
      RESERVOIR( 0144)|
IN= 2---> OUT= 1 |
DT= 5.0 min |
                                                                                 OVERFLOW IS OFF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RAIN TIME
mm/hr hrs
6.411 1.083
6.411 1.163
7.29 1.353
8.52 1.417
8.52 1.500
10.36 1.583
10.36 1.583
13.45 1.833
19.96 1.917
19.96 2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RAIN
mm/hr
14.50
14.50
12.44
12.44
10.94
9.80
9.80
8.90
8.90
8.16
8.16
                                                                                                                                                                                                                                                                                                                                                                                                                                                              hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                  OUTFLOW STORAGE | OUTFLOW (cms) (ha.m.) (cms) 0.0000 | 0.0980
          PEAK FLOW REDUCTION [Qout/Qin](%)= 86.25
TIME SHIFT OF PEAK FLOW (min)= 0.00
MAXIMUM STORAGE USED (ha.m.)= 0.0025
                                                                                                                                                                                                                                                                                                                                                                                                                        Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 180.15 134.19
5.00 5.00
0.89 (ii) 4.48 (ii)
5.00 5.00
0.34 0.23
  | CALIB
| STANDHYD (200122)
|ID= 1 DT= 5.0 min
                                                                           Area (ha)= 0.13 Total Imp(\%)= 86.00 Dir. Conn.(\%)= 86.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               *TOTALS*
0.046 (iii)
1.33
81.73
87.58
0.93
                 PEAK FLOW (Cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0.04
1.33
86.58
87.58
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0.01
                                                                                                                                                                                                                                                                                                                                                                                                                             WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                              NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^\circ=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                    TRANSFORMED HYETOGRA
TIME RAIN ' TIME
hrs mm/hr ' hrs
1.083 45.22 2.083
1.167 45.22 2.167
1.250 180.15 2.250
1.333 180.15 2.333
1.417 58.54 2.410
1.580 3.36 2.667
1.580 3.36 2.667
1.750 2.245 2.250
1.833 22.45 2.250
1.833 22.45 2.833
1.917 17.52 2.391
2.000 17.52 3.000
                                                     TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                        hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                               mm/hr
6.41
7.29
7.29
8.52
8.52
10.36
10.36
13.45
19.96
                                                                                                                                                                                                                                                     mm/h
7.56
7.56
7.04
7.04
6.60
6.22
6.22
5.89
5.59
                                                                                                                                                                                                                                                                                                                                                                                                             ADD HYD ( 0145) | 1 + 2 = 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0.23 0.109
                                                                                                                                                                                                                                                                                                                                                                                                                        NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
                Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
                                                                                                          180.15 134.19
5.00 5.00
0.97 (ii) 3.92 (ii)
                                                                                                                                                                                                                                                                                                                                                                                                         | RESERVOIR( 0146)| OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT= 5.0 min |
                                                                                                                        STORAGE
(ha.m.)
0.0000
                                                                                                                                                                    OUTFLOW
(cms)
0.1070
                                                                                    OUTFLOW
(cms)
0.0000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Area (ha)= 0.80
Total Imp(%)= 85.00 Dir. Conn.(%)= 85.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IMPERVIOUS (1) 0.68 0.12 1.00 1.00 1.00 73.03 40.00 0.013
                                                                                                                                                                            TPEAK
(hrs)
1.33
1.33
                                                                                                          AREA
(ha)
0.229
0.229
                                                                                                                                         QPEAK
(cms)
0.109
0.097
                                                                                                                                                                                                                                                                                                                                                                                                                        Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (ha)=
(mm)=
(%)=
(m)=
=
           INFLOW: ID= 2 ( 0145)
OUTFLOW: ID= 1 ( 0146)
                                                               PEAK FLOW REDUCTION [Qout/Qin](%)= 89.01 TIME SHIFT OF PEAK FLOW (min)= 0.00 MAXIMUM STORAGE USED (ha.m.)= 0.0024
                                                                                                                                                                                                                                                                                                                                                                                                                                       NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TRANSFORMED HYETOGRAPH
ME RAIN | TIME
83 45.22 2.083 14
67 45.22 2.167 14
50 180.15 2.250 12
33 180.15 2.333 12
17 52 8.54 2.410 10
80 55.54 2.410 10
80 55.54 2.410 10
80 55.54 2.333 82
17 7 19.6 2.667 31
80 22.45 2.833 8
31 22.45 2.833 8
17 17.52 3.300 8
   RAIN | TIME | mm/hr | hrs | 6.41 | 1.083 | 6.41 | 1.167 | 7.29 | 1.250 | 1.333 | 8.52 | 1.417 | 8.52 | 1.500 | 10.36 | 1.583 | 10.36 | 1.667 | 13.45 | 1.750 | 13.45 | 1.833 | 19.96 | 1.917 | 19.96 | 2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RAIN
mm/hr
14.50
14.50
12.44
10.94
10.94
9.80
9.80
9.80
8.90
8.90
8.16
8.16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                              hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                          Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                              NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                              RANSFORMED HYETOGR RAIN | 'ITMB mn/hr | 'hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | h
                                                                                                                         TRANSFORMED HYFTOGRAPH
                                                                                                                                                                                                                                                                                                                                                                                                                       Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 180.15 | 34.19
5.00 | 5.00
1.67 (ii) | 4.72 (ii)
5.00 | 0.32 | 0.22
                                                                                                                                                                                         RAIN
mm/hr
14.50
12.44
12.44
10.94
10.94
9.80
9.80
9.80
8.90
8.90
8.16
8.16
                                                                           RAIN | TIME | mm/hr | hrs | 6.41 | 1.083 | 6.41 | 1.167 | 7.29 | 1.250 | 7.29 | 1.250 | 7.29 | 1.250 | 7.29 | 1.250 | 7.29 | 1.250 | 7.29 | 1.333 | 8.52 | 1.417 | 8.52 | 1.503 | 10.36 | 1.583 | 10.36 | 1.667 | 13.45 | 1.750 | 13.45 | 1.750 | 13.45 | 1.917 | 19.96 | 2.000
                                                                                                                                                                                                                         TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                      hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.567
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               *TOTALS*
0.381 (iii)
1.33
83.12
87.58
0.95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0.34
1.33
86.58
87.58
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0.04
1.33
63.54
87.58
0.73
                                                                                                                                                                                                                                                                                                                                                                                                                                   ARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^2 = 89.0 Ia = Dep. Storage (Above) if TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                 Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                    180.15 134.19
5.00 5.00
1.61 (ii) 4.25
5.00 5.00
0.32 0.24
                                                                                                                                                                                                       *TOTALS*
0.339 (iii)
1.33
84.04
87.58
0.96
                  PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                           0.31
1.33
86.58
87.58
0.99
                                                                                                                                             0.03
1.33
63.54
87.58
0.73
                                                                                                                                                                                                                                                                                                                                                                                                              RESERVOIR( 0148)|
IN= 2---> OUT= 1 |
DT= 5.0 min
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                OVERFLOW IS OFF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         OUTFLOW STORAGE | (cms) (ha.m.) | 0.0000 |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            OUTFLOW
(cms)
0.3660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STORAGE
(ha.m.)
0.0084
               * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                  AREA (ha)
INFLOW: ID= 2 ( 20022) 0.800
OUTFLOW: ID= 1 ( 0148) 0.800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         QPEAK
(cms)
0.381
0.333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TPEAK
(hrs)
1.33
1.33
                 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^\circ = 89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PEAK FLOW REDUCTION [Qout/qin](%)= 87.23 TIME SHIFT OF PEAK FLOW (min)= 0.00 MAXIMUM STORAGE USED (ha.m.)= 0.0084
      OUTFLOW STORAGE | OUTFLOW (cms) (ha.m.) (cms) 0.0000 | 0.3660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Area (ha)= 0.43 
Total Imp(\%)= 90.00 Dir. Conn.(\%)= 90.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (ha)= 0.39 PERVIOUS (i) (mm)= 1.00 1.00 (%)= 1.00 2.00 (%)= 1.00 2.00 (m)= 53.54 40.00 0.290
          AREA (ha)
INFLOW: ID= 2 ( 20021) 0.700
OUTFLOW: ID= 1 ( 0147) 0.700
                                                                                                                                                                       TPEAK
(hrs)
1.33
1.33
                                                                                                                                                                                                                                                                                                                                                                                                                         Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                               PEAK FLOW REDUCTION [Qout/qin](%)= 88.14 TIME SHIFT OF PEAK FLOW (min)= 0.00 MAXIMUM STORAGE USED (ha.m.)= 0.0074
```

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

RAIN mm/hr 7.56 7.56 7.04 6.60 6.60 6.22 6.22 5.89 5.59

RAIN mm/hr 7.56 7.56 7.04 6.60 6.60 6.22 5.89 5.59 5.59

```
ANSFORMED HYETOGR RAIN | 'TIME mm/hr | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs
                                                                                                                                  TIME hrs 1.083 1.167 1.250 1.333 1.417 1.500 1.583 1.667 1.750 1.833 1.917 2.000
                                                                    TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                         TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                  mm/hi
14.50
14.50
12.44
12.44
10.94
10.94
9.80
9.80
9.80
8.90
8.90
8.16
8.16
                                                                                                                                                                                                                                                                                                                              mm/hr
7.56
7.56
7.04
7.04
6.60
6.22
6.22
5.89
5.59
                                                                                                  mm/hr
6.41
6.41
7.29
8.52
8.52
10.36
10.36
13.45
13.45
19.96
                  Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                        180.15 134.19

5.00 5.00

1.39 (ii) 3.92 (ii)

5.00 5.00

0.33 0.24
                                                                                                                                                                                                                                                                  *TOTALS*
0.209 (iii)
1.33
84.27
87.58
0.96
                  PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                            0.19
1.33
86.58
87.58
0.99
                                                                                                                                                                                                       0.02
1.33
63.54
87.58
0.73
           *** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \mathbb{C}^{N^2}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
     RESERVOIR( 0149) |
IN= 2---> OUT= 1 |
DT= 5.0 min |
                                                                                              OVERFLOW IS OFF
                                                                                                       OUTFLOW STORAGE (ha.m.) 0.0000 0.0000
                                                                                                                                                                                                                    OUTFLOW
(cms)
0.1590
                                                                                                                                                                                                                           TPEAK
(hrs)
1.33
1.42
           INFLOW: ID= 2 ( 20031)
OUTFLOW: ID= 1 ( 0149)
                                                                               PEAK FLOW REDUCTION [Qout/Qin](%)= 66.51
TIME SHIFT OF PEAK FLOW (min)= 5.00
MAXIMUM STORAGE USED (ha.m.)= 0.0080
Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                    NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                     ---- TRANSFORMED HYETOGRAPH
TIME RAIN ' TIME I
1.083 45.22 2.083 14
1.167 45.22 2.167 14
1.250 180.15 2.250 12
1.333 180.15 2.250 12
1.410 58.54 2.241 10
1.410 58.54 2.241 10
1.633 31.96 2.667 9
1.667 31.96 2.667 9
1.675 22.45 2.50 8
1.833 22.45 2.833 8
1.833 22.45 2.833 8
2.000 17.52 3.000 8
                                                                                                                                                                                                                                                                                       TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                            RAIN
mm/hr
7.56
7.56
7.04
7.04
6.60
6.60
6.22
5.89
5.89
5.59
                                                                  TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.833
0.831
1.000
                                                                                                      RAIN
mm/hr
6.41
7.29
8.52
8.52
10.36
10.36
13.45
13.45
13.96
                                                                                                                                                                                                                                                   RAIN
mm/hr
14.50
14.50
12.44
12.44
10.94
10.94
9.80
9.80
9.80
8.90
8.90
8.16
8.16
                  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \mathbb{CN}^n = 89.0 I a = bep. Storage (Above) (ii) TIME STEP (0.7) SHOULD BE SMALLER OR EQUAL THAN THAN FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
     RESERVOIR( 0151) |
IN= 2---> OUT= 1 |
DT= 5.0 min |
                                                                                                       OVERFLOW IS OFF
                                                                                                        OUTFLOW STORAGE | OUTFLOW (cms) (ha.m.) (cms) 0.0000 | 0.1490
                                                                                                                                                                       QPEAK TPEAK (cms) (hrs) 0.170 1.33 0.131 1.33
                                                                                                                       AREA
(ha)
0.350
0.350
                                                                                                                                                                                                                                                                                  R.V.
           INFLOW: ID= 2 ( 20041)
OUTFLOW: ID= 1 ( 0151)
                                                                               PEAK FLOW REDUCTION [Qout/Qin](%)= 77.28
TIME SHIFT OF PEAK FLOW (min)= 0.00
MAXIMUM STORAGE USED (ha.m.)= 0.0051
 CALIB
STANDHYD ( 20042)
ID= 1 DT= 5.0 min
                                                                                                 Area (ha)= 0.36 Total Imp(\%)= 85.00 Dir. Conn.(\%)= 85.00
                                                                                            (ha)= UNDUS
(ha)= 0.31
(mm)= 1.00
(%)= 1.00
(m)= 48.99
= 0.013
                                                                                                                                                                                    PERVIOUS (i)
0.05
1.00
2.00
40.00
0.290
                 Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                   NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                       RAIN
mm/hr
14.50 |
12.44 |
12.44 |
10.94 |
10.94 |
9.80 |
9.80 |
9.80 |
8.90 |
8.90 |
8.16 |
8.16 |
                                                                  TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                  RAIN
mm/hr
6.41
7.29
7.29
8.52
10.36
10.36
13.45
13.45
19.96
                                                                                                                                                                                                                                                                                        TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                              RAIN
mm/hr
7.56
7.56
7.04
7.04
6.60
6.62
6.22
5.89
5.59
5.59
                  Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                        180.15 134.19
5.00 5.00 1.32 (ii) 4.36 (ii)
5.00 5.00 0.33 0.23
                                                                                                                                                                                                                                                                 *TOTALS*
0.172 (iii)
1.33
83.11
87.58
0.95
                     PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                             0.15
1.33
86.58
87.58
0.99
                                                                                                                                                                                                       0.02
1.33
63.54
87.58
0.73
                     WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                    (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0   Ia=Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
     RESERVOIR( 0152) |
IN= 2---> OUT= 1 |
DT= 5.0 min
                                                                                                           OVERFLOW IS OFF
                                                                                                          OUTFLOW STORAGE | OUTFLOW (cms) (ha.m.) (cms) 0.0000 | 0.1670
                                                                                                                                                                                                                                                                      STORAGE
(ha.m.)
0.0038
                                                                                                                                         AREA QPEAK TPEAK
                                                                                                                                                                                                                                                                            R.V.
```

| Max.Eff.Inten.(mm/hr) = over (min) |
|--|
| ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN = 89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. |
| RESERVOIR(0150) |
| AREA QPEAK TPEAK R.V. (ha) (cms) (hrs) (mm) (mm) (ln) (cms) (hrs) (mm) (ln) (ln) (ln) (ln) (ln) (ln) (ln) (ln |
| CALIB STANDHYD (20041) Area (ha)= 0.35 ID= 1 DT= 5.0 min Total Imp(%)= 89.00 Dir. Conn.(%)= 89.00 |
| Surface Area (ha) = 0.31 |
| TIME RAIN TH |
| Max.Eff.Inten.(mm/hr)= 180.15 134.19 over (min) 5.00 5.00 Storage Coeff. (min)= 1.30 (ii) 3.95 (ii) Unit Hyd. Tpeak (min)= 5.00 5.00 Unit Hyd. peak (cms)= 0.33 0.24 *TOTALS* PEAK FLOW (cms)= 0.16 0.01 0.170 (iii) TIME TO PEAK (hrs)= 1.33 1.33 1.33 1.33 RUNOFF VOLUME (mm)= 86.58 63.54 84.04 TOTAL RAINFALL (mm)= 87.58 87.58 RUNOFF COEFFICIENT = 0.99 0.73 0.96 |
| INFLOW: ID= 2 (20042) |
| CALIB STANDHYD (20061) Area (ha)= 0.65 ID= 1 DT= 5.0 min Total Imp(%)= 85.00 Dir. Conn.(%)= 85.00 IMPERVIOUS PERVIOUS (i) |
| Surface Area (ha)= 0.55 |
| TIME RAIN THE RAIN THE RAIN THE RAIN THE RAIN THE RAIN RAIN RAIN RAIN RAIN RAIN RAIN RAIN |
| 1.000 19.96 2.000 17.52 3.000 8.16 4.00 5.59 |
| Max.Eff.Inten.(mm/hr)= 180.15 134.19 over (min) 5.00 5.00 Storage Coeff. (min)= 1.57 (ii) 4.62 (ii) Unit Hyd. Tpeak (min)= 5.00 5.00 Unit Hyd. neak (ms)= 0.33 0.22 |
| Max.Eff.Inten.(mm/hr)= 180.15 134.19 vover (min) 5.00 5.00 Storage Coeff (min)= 1.57 (ii) 4.62 (ii) Unit Hyd. Tpeak (min)= 1.57 (ii) 4.62 (ii) Unit Hyd. peak (cms)= 0.33 0.22 PEAK FLOW (cms)= 0.28 0.03 0.310 (iii) TIME TO PEAK (hrs)= 1.33 1.33 1.33 RUNOFF VOLUME (mm)= 86.58 63.54 83.12 TOTAL RAINFALL (mm)= 86.58 63.54 83.12 RUNOFF COEFFICIENT = 0.99 0.73 0.95 |
| Max.Eff.Inten.(mm/hr)= 180.15 134.19 vover (min) 5.00 5.00 Storage Coeff. (min)= 1.57 (ii) 4.62 (ii) Unit Hyd. Tpeak (min)= 0.33 0.22 Unit Hyd. peak (cms)= 0.33 0.22 PEAN FLOW (cms)= 0.28 0.03 132 (iii) TIME TO PEAK (hrs)= 1.33 1.33 1.33 1.31 (iii) RINOFF VOLUME (mm)= 86.58 63.54 83.32 RINOFF VOLUME (mm)= 87.58 87.58 87.58 RINOFF COEFFICIENT = 0.99 0.73 0.95 ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN* = 880.5ELECTED FOR PERVIOUS LOSSES: (ii) TIME STEP (DT) SWALLER OR EQUAL THAN THE STORAGE COEFFICIENT (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. |
| Max.Eff.Inten.(mm/hr)= 180.15 134.19 |

Area (ha)= 0.73Total Imp(%)= 80.00 Dir. Conn.(%)= 80.00

IMPERVIOUS PERVIOUS (i)

```
180.15
58.54
58.54
31.96
31.96
22.45
22.45
17.52
17.52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 7.29 | 1.333
8.52 | 1.417
8.52 | 1.500
10.36 | 1.583
10.36 | 1.667
13.45 | 1.750
13.45 | 1.833
19.96 | 1.917
19.96 | 2.000
                       Surface Area
Dep. Storage
Average Slope
Length
                                                                                                                                                                     0.58
1.00
1.00
69.76
0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2.333
2.417
2.500
2.583
2.667
2.750
2.833
2.917
3.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           12.44
10.94
10.94
9.80
9.80
8.90
8.90
8.16
8.16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6.60
6.60
6.22
6.22
5.89
5.59
5.59
                                         NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                               RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN | TANK | RAIN | TANK | RAIN | TANK | RAIN | TANK | RAIN | TANK | RAIN | TANK | RAIN | TANK | RAIN | TANK | RAIN | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TANK | TA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Max.Eff.Inten.(smm/hr)=
    over (min) over (min)=
    Storage Coeff. (min)=
    Unit Hyd. Tpeak (min)=
    Unit Hyd. peak (cms)=
    PEAK FLOW (cms)=
    PEAK FLOW (cms)=
    RUNOFF VOLUME (mm)=
    TOTAL RAINFALL (mm)=
    RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RAIN
mm/hr
14.50
12.44
12.44
10.94
10.94
9.80 |
9.80 |
8.90 |
8.90 |
8.16 |
                                                                             TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                       TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               * WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN° = 89.0 Ia = Dep. Storage (Above)

(ii) TIME STEP (DT) SMOULD BE SMALLER OR EQUAL

THAN THE STORAGE COEFFICIENT.

(iii) PEAK FLOW DOES NOT INCLIDE BASEFLOW IF ANY.
                   Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                    180.15 134.19
5.00 10.00
1.63 (ii) 5.13 (ii)
5.00 10.00
0.32 0.16
                                                                                                                                                                                                                                                                                                              *TOTALS*
0.332 (iii)
1.33
81.96
87.58
0.94
                      PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                   0.29 0.04
1.33 1.42
86.58 63.54
87.58 87.58
0.99 0.73
                                                                                                                                                                  0.29
1.33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESERVOIR (0156) OVERFLOW IS OFF IN= 2---> QUT= 1 DT= 5.0 min OUTFLOW STORA (cms) (ha.m.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          OUTFLOW STORAGE | OUTFLOW (cms) (ha.m.) | (cms) 0.0000 | 0.2800
                      WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AREA (PEAK TPEAK (ha) (cms) (hrs)
INFLOW: ID= 2 (20071) 0.580 0.277 1.33
OUTFLOW: ID= 1 ( 0156) 0.580 0.258 1.33
                    PEAK FLOW REDUCTION [Qout/qin](%)= 93.20 TIME SHIFT OF PEAK FLOW (min)= 0.00 MAXIMUM STORAGE USED (ha.m.)= 0.0050
    RESERVOIR( 0155) |
IN= 2---> OUT= 1 |
DT= 5.0 min |
                                                                                                            OUTFLOW STORAGE | OUTFLOW (cms) (ha.m.) (cms) 0.0000 | 0.2600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | CALIB | CALIB | STANDHYD ( 20072) | Area (ha) = 0.64 | Dir. Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%) = 84.00 | Conn.(%)
                                                                                                                                                                                                                                                                                                                   STORAGE
(ha.m.)
0.0114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                R.V.
(mm)
81.96
81.96
                                                                                            PEAK FLOW REDUCTION [Qout/qin](%)= 69.75 TIME SHIFT OF PEAK FLOW (min)= 5.00 MAXIMUM STORAGE USED (ha.m.)= 0.0114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RAIN | TIME mm/hr | hrs | 6.41 | 1.083 | 6.41 | 1.167 | 7.29 | 1.250 | 7.29 | 1.333 | 8.52 | 1.417 | 8.52 | 1.500 | 10.36 | 1.667 | 13.45 | 1.750 | 13.45 | 1.750 | 13.45 | 1.833 | 19.96 | 1.917 | 19.96 | 2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TRANSFORMED HYETOGRAPI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | CALIB | STANDHYD ( 20071) | Area (ha) = 0.58 | ID = 1 DT = 5.0 min | Total Imp(%) = 85.00 | Dir. Conn.(%) = 85.00 | IMPERVIOUS | PERVIOUS (i) 0.09 |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RAIN
mm/hr
14.50
12.44
12.44
10.94
9.80
9.80
8.90
8.90
8.16
8.16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RAIN
mm/hr
7.56
7.56
7.04
6.60
6.60
6.22
5.89
5.59
5.59
                                                                                                   (ha)= 0.49 0.09 (mm)= 1.00 1.00 (%)= 1.00 2.00 (m)= 62.18 40.00 (m)= 0.013 0.290
                    Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                           NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                              Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      180.15 134.19
5.00 5.00
1.56 (ii) 4.70 (ii)
5.00 5.00
0.33 0.22
                                                                                                                                                                                                                                                                                                                   TOTALS*
0.304 (iii)
1.33
82.89
87.58
0.95
                       PEAK FLOW (cms)= 0.27 0.04
TIME TO PEAK (hrs)= 1.33 1.33
RUNOFF VOLUME (mm)= 86.58 63.54
TOTAL RAINFALL (mm)= 87.58 87.58
RUNOFF COEFFICIENT = 0.99 0.73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CALIB
STANDHYD (200811)
ID= 1 07= 5.0 min

Area (ha)= 0.07
Total Imp(%)= 84.00 Dir. Conn.(%)= 84.00

IMPERVIOUS (i)
0.01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IMPERVIOUS PERVIOUS (i)
0.06 0.01
1.00 1.00
1.00 2.00
21.60 40.00
0.013 0.290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Surface Area (ha) = Dep. Storage (mm) = Average Slope (%) = Length (m) = Mannings n =
                ** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                   (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^2=89.0 Ia = Dep. Storage (Above) if TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. THAN THE STORAGE TO TINCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RANSFORMED HYETOGR RAIN | TIME mm/hr | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs
  RAIN TIME mm/hr hrs 6.41 1.083 6.41 1.167 7.29 1.350 8.52 1.417 8.52 1.500 10.36 1.583 10.36 1.667 13.45 1.750 13.45 1.833 19.96 1.917 19.96 2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RAIN
mm/hr
14.50
12.44
12.44
10.94
19.80
9.80
9.80
8.90
8.90
8.16
8.16
          PEAK FLOW REDUCTION [Qout/Qin] (%)= 75.20
TIME SHIFT OF PEAK FLOW (min)= 0.00
MAXIMUM STORAGE USED (ha.m.)= 0.0092
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     180.15 134.19 5.00 0.80 (ii) 3.95 5.00 0.34 0.24 0.03 1.33 1.33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                    LIB
Area (ha)= 0.38
Total Imp(%)= 70.00

Surface Area (ha)= 0.27
Dep. Storage (mb)= 1.00
English (mb)= 0.27
English (mb)= 0.30
English (mb)= 0.30
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0.033 (iii)
1.33
82.86
87.58
0.95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PEAK FLOW (Cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0.03
1.33
86.58
87.58
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0.00
1.33
63.54
87.58
0.73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                         NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^{\pm}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                      TRANSFORMED HYETOGRAPH
TIME RAIN 'TIME R
hrs mm/hr 'hrs mm
1.083 45.22 2.083 14.
1.167 45.22 2.165 14.
1.250 180.15 2.250 12.
1.333 180.15 2.333 12.
1.417 58.54 2.417 10.
1.500 58.54 2.503 10.
1.500 58.54 2.503 10.
1.503 31.99 2.363 2.
1.418 2.363 2.363 2.
1.419 58.54 2.363 2.
1.433 22.45 2.765 9.
1.833 22.45 2.765 9.
1.833 22.45 2.765 9.
1.833 22.45 2.765 9.
1.833 22.45 2.765 9.
1.833 22.45 2.765 9.
1.833 22.45 2.765 9.
1.833 22.45 2.833 8.
                                                                             TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.833
1.000
                                                                                                                     RAIN
mm/hr
6.41
7.29
8.52
8.52
10.36
10.36
13.45
13.45
19.96
                                                                                                                                                                                                                                                                                                                                                                                     RAIN
mm/hr
7.56
7.04
7.04
6.60
6.22
6.22
5.89
5.59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | ADD HYD ( 0110) |
| 1 + 2 = 3 |
| ID1= 1 (200811):
+ ID2= 2 (200812):
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AREA QPEAK (ha) (cms) 0.07 0.033 0.38 0.163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TPEAK
(hrs)
1.33
1.33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               R.V.
(mm)
82.86
79.65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0.45 0.197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1.33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ID = 3 ( 0110):
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                80.15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
                    Max.Eff.Inten.(mm/hr)=

over (min)

Storage Coeff. (min)=

Unit Hyd. Tpeak (min)=

Unit Hyd. peak (cms)=
                                                                                                                                                               180.15
5.00
1.34 (ii)
5.00
0.33
                                                                                                                                                                                                                             134.19
10.00
5.68 (ii)
10.00
0.15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESERVOIR( 0158)
IN= 2---> OUT= 1
DT= 5.0 min
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OVERFLOW IS OFF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      OUTFLOW STORAGE | OUTFLOW (cms) (ha.m.) (cms) 0.0000 0.0780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STORAGE
(ha.m.)
0.0122
                                                                                                                                                                                                                                                                                                              *TOTALS*
0.163 (iii)
1.33
79.65
87.58
0.91
                                                                                                                                                               0.13
1.33
86.58
87.58
0.99
                                                                                                                                                                                                                                         0.03
1.42
63.54
87.58
0.73
                       PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AREA QPEAK TPEAK
(ha) (cms) (hrs)
0.450 0.197 1.33
0.450 0.078 1.50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          INFLOW: ID= 2 ( 0110)
OUTFLOW: ID= 1 ( 0158)
                          WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PEAK FLOW REDUCTION [Qout/Qin] (%)= 39.60
TIME SHIFT OF PEAK FLOW (min)= 10.00
MAXIMUM STORAGE USED (ha.m.)= 0.0122
                    (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | CALIB |
```

```
| STANDHYD (200822)|
|ID= 1 DT= 5.0 min |
                                                                                                                       Area (ha)= 0.39
Total Imp(%)= 59.00 Dir. Conn.(%)= 59.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5.00
0.34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5.00
0.24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      *TOTALS*
0.033 (iii)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0.03
1.33
86.58
87.58
0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0.00
1.33
63.54
87.58
0.73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PEAK FLOW (CMS)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                             IMPERVIOUS
                                                                                                                                                                                                                                        PERVIOUS (i)
                          Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                    (ha)=
(mm)=
(%)=
(m)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                               NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^{\pm}=89.0 Ia = bep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                         RANSFORMED HYETOGRAPH

RALIN | TIME

mm/hr | TIME

45.22 | 2.083 | 14

45.22 | 2.167 | 14

180.15 | 2.250 | 12

180.15 | 2.333 | 14

180.15 | 2.333 | 12

58.54 | 2.417 | 10

58.54 | 2.417 | 10

58.54 | 2.533 | 9

22.45 | 2.833 | 8

17.52 | 2.833 | 8

17.52 | 2.917 | 8

17.52 | 3.000 | 8
                                                                                                                                                                          TIME | hrs mi | 1.083 4 | 1.167 4
                                                                                                                                                                                                                                                                                                         RAIN
mm/hr
14.50
12.44
10.94
10.94
19.80
9.80
9.80
9.80
8.90
8.90
8.16
8.16
                                                                                   TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                              RAIN
mm/hr
6.41
6.41
7.29
8.52
8.52
10.36
10.36
13.45
13.45
19.96
                                                                                                                                                                                                                                                                                                                                                          TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                                                                                                                         RAIN
mm/hr
7.56
7.56
7.04
7.04
6.60
6.22
6.22
5.89
5.59
                                                                                                                                                                        1.167
1.250
1.333
1.417
1.500
1.583
1.667
1.750
1.833
1.917
2.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | ADD HYD ( 0111)|
| 1 + 2 = 3 |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TD = 3 ( 0111):
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0.46 0.184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1.33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      77.96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
                        Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                        180.15
5.00
1.35
5.00
0.33
                                                                                                                                                                                                                                        134.19
10.00
8.21
10.00
0.13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESERVOIR( 0159)
IN= 2---> OUT= 1
DT= 5.0 min
                                                                                                                                                                                                               (ii)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OVERFLOW IS OFF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OUTFLOW STORAGE (cms) (ha.m.) 0.0000 0.0000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          OUTFLOW
(cms)
0.1010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STORAGE
(ha.m.)
0.0090
                                                                                                                                                                                                                                                                                                                             *TOTALS*
0.151 (iii)
1.33
77.12
87.58
0.88
                        PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                              0.12
1.33
86.58
87.58
0.99
                                                                                                                                                                                                                                                      0.04
1.42
63.54
87.58
0.73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AREA
(ha)
0.460
0.460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QPEAK
(cms)
0.184
0.099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TPEAK
(hrs)
1.33
1.42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     INFLOW: ID= 2 ( 0111)
OUTFLOW: ID= 1 ( 0159)
                              WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PEAK FLOW REDUCTION [Qout/Qin](%)= 53.86 TIME SHIFT OF PEAK FLOW (min)= 5.00 MAXIMUM STORAGE USED (ha.m.)= 0.0090
                        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \text{CN}^\circ = 89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CALIB
STANDHYD (201021)
ID= 1 DT= 5.0 min
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Area (ha)= 0.47 Total Imp(\%)= 85.00 Dir. Conn.(\%)= 85.00
| CALIB
| STANDHYD (200821)|
|ID= 1 DT= 5.0 min |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     IMPERVIOUS PERVIOUS (i)
                                                                                                                       Area (ha)= 0.07 Total Imp(\%)= 83.00 Dir. Conn.(\%)= 83.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (ha)=
(mm)=
(%)=
(m)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0.40
1.00
1.00
55.98
0.013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0.07
1.00
2.00
40.00
0.290
                                                                                                      (ha)= 0.06
(mm)= 1.00
(%)= 1.00
(m)= 21.60
= 0.013
                                                                                                                                                                                                                                      PERVIOUS (i)
0.01
1.00
2.00
40.00
0.290
                        Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                              NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TIME hrs 2.083 2.167 2.250 2.333 2.417 2.500 2.583 2.667 2.750 2.833 2.917 3.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RAIN
mm/hr
14.50
14.50
12.44
12.44
10.94
10.94
9.80
9.80
8.90
8.90
8.16
8.16
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hrs
3.08
3.17
3.25
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3.75
3.83
3.92
4.00
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mm/hr
45.22
45.22
180.15
180.15
58.54
31.96
31.96
22.45
17.52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RAIN
mm/hr
7.56
7.56
7.04
6.60
6.22
6.22
5.89
5.59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TIME hrs 0.083 0.167 0.250 0.333 0.417 0.500 0.583 0.65 0.750 0.833 0.917 1.000
                                                                                                                                                                     TIME RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS MINING RAIN HIS 
                                                                                                                                                                                                         RANSFORMED HYETOGRA

RAIN | TIME

mm/hr | hrs

45.22 | 2.083

45.22 | 2.167

180.15 | 2.250

180.15 | 2.250

180.15 | 2.250

180.2 | 2.410

180.2 | 2.410

180.2 | 2.410

180.2 | 2.410

180.2 | 2.410

180.2 | 2.410

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180.2 | 2.410

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180.2 | 2.410

180.2 | 2.410

180.2 | 2.410

180.2 | 2.410

180.2 | 2.410

1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     mm/hr
6.41
7.29
7.29
8.52
8.52
10.36
10.36
13.45
13.45
19.96
                                                                                   TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1.167
1.250
1.333
1.417
1.500
1.583
1.667
1.750
1.833
1.917
2.000
                                                                                                                                                                                                                                                                                                                                                          hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                             mm/hr
6.41
7.29
7.29
8.52
8.52
10.36
10.36
13.45
19.96
                                                                                                                                                                                                                                                                                                                                                                                                         mm/hi
7.56
7.56
7.04
7.04
6.60
6.22
6.22
5.89
5.59
                                                                                                                                                                                                                                                                                                            mm/hr
14.50
14.50
12.44
12.44
10.94
9.80
9.80
8.90
8.90
8.16
8.16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                180.15
5.00
1.43 (ii)
5.00
0.33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              134.19
5.00
4.47 (ii)
5.00
0.23
                       Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
                                                                                                                                                                          180.15 134.19
5.00 5.00
0.80 (ii) 4.04 (ii)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      *TOTALS*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0.0000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      - 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0.3800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TPEAK
(hrs)
1.33
1.33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     INFLOW: ID= 2 ( 0136)
OUTFLOW: ID= 1 ( 0163)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0.940
                                  WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PEAK FLOW REDUCTION [Qout/Qin](%)= 74.38 TIME SHIFT OF PEAK FLOW (min)= 0.00 MAXIMUM STORAGE USED (ha.m.)= 0.0140
                          (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^{\circ}=89.0   Ia=\text{Dep}. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
   | CALIB | STANDHYD (201022) | Area (ha)= 0.47 | Dir. Conn.(%)= 85.00 | Total Imp(%)= 85.00 | Dir. Conn.(%)= 85.00 | TMPFRVIOUS | PERVIOUS (i)
                                                                                                                    Surface Area
Dep. Storage
Average Slope
Length
Mannings n
                                              NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
                                                                                                                                                                                                            ANSFORMED HYETOGR RAIN | 'TIME mm/hr | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs | hrs
                                                                                                                       RAIN | TIME mm/hr | hrs | 6.41 | 1.083 | 6.41 | 1.167 | 7.29 | 1.250 | 7.29 | 1.333 | 8.52 | 1.417 | 8.52 | 1.500 | 10.36 | 1.687 | 13.45 | 1.750 | 13.45 | 1.833 | 19.96 | 1.917 | 19.96 | 2.000
                                                                                     TIME
hrs
0.083
0.167
0.250
0.333
0.417
0.500
0.583
0.667
0.750
0.833
0.917
1.000
                                                                                                                                                                                                                                                                                                                                                          TIME
hrs
3.08
3.17
3.25
3.33
3.42
3.50
3.58
3.67
3.75
3.83
3.92
4.00
                                                                                                                                                                                                                                                                                                          mm/hr
14.50
14.50
12.44
12.44
10.94
10.94
9.80
9.80
9.80
8.90
8.90
8.16
8.16
                       Max.Eff.Inten.(mm/hr)=
over (min)
Storage Coeff. (min)=
Unit Hyd. Tpeak (min)=
Unit Hyd. peak (cms)=
                                                                                                                                                                        180.15 134.19
5.00 5.00
1.43 (ii) 4.47 (ii)
5.00 0.33 0.23
                                                                                                                                                                                                                                                                                                                             *TOTALS*
0.225 (iii)
1.33
83.12
87.58
0.95
                          PEAK FLOW (cms)=
TIME TO PEAK (hrs)=
RUNOFF VOLUME (mm)=
TOTAL RAINFALL (mm)=
RUNOFF COEFFICIENT =
                                                                                                                                                                           0.20
1.33
86.58
87.58
0.99
                                                                                                                                                                                                                                                    0.02
1.33
63.54
87.58
0.73
                    ** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
                       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: \mathbb{C}^{N^2}=89.0 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
          ADD HYD ( 0136) |
1 + 2 = 3 |
ID1= 1 (201021):
+ ID2= 2 (201022):
                                                                                                                                                                                                                                                    TPEAK
(hrs)
1.33
1.33
                                                                                                                                                                                                                                                                                   R.V.
(mm)
83.12
83.12
                                      ID = 3 ( 0136):
                                                                                                                                                       0.94 0.449
                                                                                                                                                                                                                                                      1.33
                                                                                                                                                                                                                                                                                               83.12
                           NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
      RESERVOIR( 0163) |
IN= 2---> OUT= 1 |
DT= 5.0 min |
                                                                                                                                     OVERFLOW IS OFF
                                                                                                                              OUTFLOW STORAGE | OUTFLOW STORAGE (cms) (ha.m.) | (cms) (ha.m.)
```

APPENDIX

D

CulvertMaster Results

Culvert Calculator Report 25th Innisfil Side Road (101) <duplicate>

| Culvert Summary | | | | | |
|---------------------------|-------------|-----|------------------------|----------------|------|
| Allowable HW Elevation | 224.61 | m | Headwater Depth/Height | 0.88 | |
| Computed Headwater Eleva | 224.61 | m | Discharge | 3.7780 | m³/s |
| Inlet Control HW Elev. | 224.49 | m | Tailwater Elevation | 0.00 | m |
| Outlet Control HW Elev. | 224.61 | m | Control Type | Outlet Control | |
| Grades | | | | | |
| Upstream Invert | 223.00 | m | Downstream Invert | 222.78 | m |
| Length | 29.00 | m | Constructed Slope | 0.007586 | m/m |
| Hydraulic Profile | | | | | |
| Profile | M2 | | Depth, Downstream | 0.95 | m |
| Slope Type | Mild | | Normal Depth | 1.09 | m |
| Flow Regime | Subcritical | | Critical Depth | 0.95 | m |
| Velocity Downstream | 2.73 | m/s | Critical Slope | 0.011742 | m/m |
| Section | | | | | |
| Section Shape | Circular | | Mannings Coefficient | 0.024 | |
| Section Material | CMP | | Span | 1.83 | m |
| Section Size | 1800 mm | | Rise | 1.83 | m |
| Number Sections | 1 | | | | |
| Outlet Control Properties | | | | | |
| Outlet Control HW Elev. | 224.61 | m | Upstream Velocity Head | 0.28 | m |
| Ke | 0.90 | | Entrance Loss | 0.25 | m |
| Inlet Control Properties | | | | | |
| Inlet Control HW Elev. | 224.49 | m | Flow Control | Unsubmerged | |
| Inlet Type | Projecting | | Area Full | 2.6 | m² |
| K | 0.03400 | | HDS 5 Chart | 2 | |
| M | 1.50000 | | HDS 5 Scale | 3 | |
| C | 0.05530 | | Equation Form | 1 | |
| Υ | 0.54000 | | | | |

Culvert Calculator Report 25th Innisfil Side Road (101) Requirement size

| Culvert Summary | | | | | |
|---|--------------------|-----|------------------------|------------------|------|
| Allowable HW Elevation | 224.52 | m | Headwater Depth/Heigh | nt 1.00 | |
| Computed Headwater Eleva | 224.52 | m | Discharge | 8.5303 | m³/s |
| Inlet Control HW Elev. | 224.40 | m | Tailwater Elevation | 0.00 | m |
| Outlet Control HW Elev. | 224.52 | m | Control Type E | Entrance Control | |
| Grades | | | | | |
| Upstream Invert | 223.00 | m | Downstream Invert | 222.78 | m |
| Length | 29.00 | m | Constructed Slope | 0.007586 | m/m |
| Hydraulic Profile | | | | | |
| Profile | S2 | | Depth, Downstream | 0.65 | m |
| Slope Type | Steep | | Normal Depth | 0.59 | |
| | upercritical | | Critical Depth | 0.82 | m |
| Velocity Downstream | 3.61 | m/s | Critical Slope | 0.002902 | m/m |
| | | | | | |
| Section | | | | | |
| Section Shape | Box | | Mannings Coefficient | 0.013 | |
| Section Material | Concrete | | Span | 3.66 | |
| | 1520 mm | | Rise | 1.52 | m |
| Number Sections | 1 | | | | |
| Outlet Control Properties | | | | | |
| Outlet Control HW Elev. | 224.52 | m | Upstream Velocity Head | 0.41 | m |
| Ke | 0.70 | | Entrance Loss | 0.29 | m |
| | | | | | |
| Inlet Control Properties | | | | | |
| Inlet Control HW Elev. | 224.40 | m | Flow Control | Unsubmerged | |
| • | wall flares | | Area Full | 5.6 | m² |
| K | 0.06100 | | HDS 5 Chart | 8 | |
| M | 0.75000 | | HDS 5 Scale | 3 | |
| C Y | 0.04230 0.82000 | | Equation Form | 1 | |
| | 0.02000 | | | | |

Culvert Calculator Report 25th Innisfil Side Road (102-1

| Culvert Summary | | | | | |
|---------------------------|-------------|-----|------------------------|----------------|------|
| Allowable HW Elevation | 227.97 | m | Headwater Depth/Height | 0.94 | |
| Computed Headwater Eleva | 227.97 | m | Discharge | 0.1786 | m³/s |
| Inlet Control HW Elev. | 227.91 | m | Tailwater Elevation | 0.00 | m |
| Outlet Control HW Elev. | 227.97 | m | Control Type | Outlet Control | |
| Grades | | | | | |
| Upstream Invert | 227.47 | m | Downstream Invert | 227.43 | m |
| Length | 12.00 | m | Constructed Slope | 0.003333 | m/m |
| Hydraulic Profile | | | | | |
| Profile | M2 | | Depth, Downstream | 0.28 | m |
| Slope Type | Mild | | Normal Depth | N/A | m |
| Flow Regime | Subcritical | | Critical Depth | 0.28 | m |
| Velocity Downstream | 1.49 | m/s | Critical Slope | 0.017839 | m/m |
| Section | | | | | |
| Section Shape | Circular | | Mannings Coefficient | 0.024 | |
| Section Material | CMP | | Span | 0.53 | m |
| Section Size | 525 mm | | Rise | 0.53 | m |
| Number Sections | 1 | | | | |
| Outlet Control Properties | | | | | |
| Outlet Control HW Elev. | 227.97 | m | Upstream Velocity Head | 0.05 | m |
| Ke | 0.90 | | Entrance Loss | 0.04 | m |
| Inlet Control Properties | | | | | |
| Inlet Control HW Elev. | 227.91 | m | Flow Control | Unsubmerged | |
| Inlet Type | Projecting | | Area Full | 0.2 | m² |
| K | 0.03400 | | HDS 5 Chart | 2 | |
| M | 1.50000 | | HDS 5 Scale | 3 | |
| С | 0.05530 | | Equation Form | 1 | |
| Υ | 0.54000 | | | | |

Culvert Calculator Report 25th Innisfil Side Road (102) <duplicate>

| Culvert Summary | | | | | |
|---------------------------|-------------|-----|------------------------|----------------|------|
| Allowable HW Elevation | 224.07 | m | Headwater Depth/Height | 1.69 | |
| Computed Headwater Eleva | 224.50 | m | Discharge | 0.5020 | m³/s |
| Inlet Control HW Elev. | 224.34 | m | Tailwater Elevation | 0.00 | m |
| Outlet Control HW Elev. | 224.50 | m | Control Type | Outlet Control | |
| | | | | | |
| Grades | | | | | |
| Upstream Invert | 223.47 | m | Downstream Invert | 223.43 | m |
| Length | 12.00 | m | Constructed Slope | 0.003333 | m/m |
| | | | | | |
| Hydraulic Profile | | | | | |
| Profile CompositeM2Pres | sureProfile | | Depth, Downstream | 0.46 | m |
| Slope Type | Mild | | Normal Depth | N/A | m |
| Flow Regime | Subcritical | | Critical Depth | 0.46 | |
| Velocity Downstream | 2.11 | m/s | Critical Slope | 0.024521 | m/m |
| | | | | | |
| Section | | | | | |
| Section Shape | Circular | | Mannings Coefficient | 0.024 | |
| Section Material | CMP | | Span | 0.61 | m |
| Section Size | 600 mm | | Rise | 0.61 | m |
| Number Sections | 1 | | | | |
| Outlet Control Properties | | | | | |
| Outlet Control HW Elev. | 224.50 | m | Upstream Velocity Head | 0.15 | m |
| Ke | 0.90 | | Entrance Loss | 0.14 | m |
| | | | | | |
| Inlet Control Properties | | | | | |
| Inlet Control HW Elev. | 224.34 | m | Flow Control | Transition | |
| Inlet Type | Projecting | | Area Full | 0.3 | m² |
| K | 0.03400 | | HDS 5 Chart | 2 | |
| M | 1.50000 | | HDS 5 Scale | 3 | |
| С | 0.05530 | | Equation Form | 1 | |
| Υ | 0.54000 | | | | |

Culvert Calculator Report 25th Innisfil Side Road (102) Required culvert size

| Culvert Summary | | | | | |
|---------------------------|-------------|-----|------------------------|------------------|------|
| Allowable HW Elevation | 224.67 | m | Headwater Depth/Heigh | t 0.98 | |
| Computed Headwater Eleva | 224.67 | m | Discharge | 4.9864 | m³/s |
| Inlet Control HW Elev. | 224.58 | m | Tailwater Elevation | 0.00 | m |
| Outlet Control HW Elev. | 224.67 | m | Control Type E | intrance Control | |
| Grades | | | | | |
| Upstream Invert | 223.47 | m | Downstream Invert | 223.43 | m |
| Length | 12.00 | m | Constructed Slope | 0.003333 | m/m |
| Hydraulic Profile | | | | | |
| Profile | S2 | | Depth, Downstream | 0.63 | m |
| Slope Type | Steep | | Normal Depth | 0.63 | m |
| Flow Regime Su | percritical | | Critical Depth | 0.65 | m |
| Velocity Downstream | 2.59 | m/s | Critical Slope | 0.003072 | m/m |
| Section | | | | | |
| Section Shape | Box | | Mannings Coefficient | 0.013 | |
| Section Material | Concrete | | Span | 3.05 | m |
| Section Size 3050 x | 1220 mm | | Rise | 1.22 | m |
| Number Sections | 1 | | | | |
| Outlet Control Properties | | | | | |
| Outlet Control HW Elev. | 224.67 | m | Upstream Velocity Head | 0.32 | m |
| Ke | 0.70 | | Entrance Loss | 0.23 | m |
| Inlet Control Properties | | | | | |
| Inlet Control HW Elev. | 224.58 | m | Flow Control | Unsubmerged | |
| Inlet Type 0° wing | wall flares | | Area Full | 3.7 | m² |
| K | 0.06100 | | HDS 5 Chart | 8 | |
| M | 0.75000 | | HDS 5 Scale | 3 | |
| C | 0.04230 | | Equation Form | 1 | |
| Υ | 0.82000 | | | | |

Culvert Calculator Report 25th Innisfil Side Road (103) <duplicate> <duplicate>

| Culvert Summary | | | | | |
|---------------------------|-------------|-----|-----------------------|------------------|------|
| Allowable HW Elevation | 224.18 | m | Headwater Depth/Heig | jht 1.13 | |
| Computed Headwater Eleva | 224.18 | m | Discharge | 3.6897 | m³/s |
| Inlet Control HW Elev. | 224.07 | m | Tailwater Elevation | 0.00 | m |
| Outlet Control HW Elev. | 224.18 | m | Control Type | Entrance Control | |
| Grades | | | | | |
| Upstream Invert | 222.80 | m | Downstream Invert | 222.52 | m |
| Length | 15.68 | m | Constructed Slope | 0.017857 | m/m |
| Hydraulic Profile | | | | | |
| Profile | S2 | | Depth, Downstream | 0.53 | m |
| Slope Type | Steep | | Normal Depth | 0.44 | m |
| Flow Regime Su | percritical | | Critical Depth | 0.75 | m |
| Velocity Downstream | 3.82 | m/s | Critical Slope | 0.004048 | m/m |
| Section | | | | | |
| Section Shape | Box | | Mannings Coefficient | 0.013 | |
| Section Material | Concrete | | Span | 1.83 | m |
| Section Size 1830 x | 1220 mm | | Rise | 1.22 | m |
| Number Sections | 1 | | | | |
| Outlet Control Properties | | | | | |
| Outlet Control HW Elev. | 224.18 | m | Upstream Velocity Hea | ad 0.37 | m |
| Ke | 0.70 | | Entrance Loss | 0.26 | m |
| Inlet Control Properties | | | | | |
| Inlet Control HW Elev. | 224.07 | m | Flow Control | N/A | |
| Inlet Type 0° wing | wall flares | | Area Full | 2.2 | m² |
| K | 0.06100 | | HDS 5 Chart | 8 | |
| M | 0.75000 | | HDS 5 Scale | 3 | |
| C | 0.04230 | | Equation Form | 1 | |
| Υ | 0.82000 | | | | |

Culvert Calculator Report 25th Innisfil Side Road (103) < Required culvert size

| Culvert Summary | | | | | |
|--|-----------------|-----|------------------------------|------------------|------|
| Allowable HW Elevation | 224.18 | m | Headwater Depth/Heigh | nt 1.13 | |
| Computed Headwater Elev | va 224.18 | m | Discharge | 7.3793 | m³/s |
| Inlet Control HW Elev. | 224.07 | m | Tailwater Elevation | 0.00 | m |
| Outlet Control HW Elev. | 224.18 | m | Control Type E | Entrance Control | |
| Grades | | | | | |
| Upstream Invert | 222.80 | m | Downstream Invert | 222.52 | m |
| Length | 15.68 | m | Constructed Slope | 0.017857 | m/m |
| Hydraulic Profile | | | | | |
| Profile | S2 | | Depth, Downstream | 0.51 | m |
| Slope Type | Steep | | Normal Depth | 0.41 | m |
| Flow Regime | Supercritical | | Critical Depth | 0.75 | m |
| Velocity Downstream | 3.92 | m/s | Critical Slope | 0.002884 | m/m |
| Section Section Shape Section Material | Box Concrete | | Mannings Coefficient Span | 0.013 3.66 | m |
| Section Size 366 | 60 x 1220 mm | | Rise | 1.22 | m |
| Number Sections | 1 | | | | |
| Outlet Control Properties | | | | | |
| Outlet Control HW Elev. | 224.18 | m | Upstream Velocity Head | | |
| Ke | 0.70 | | Entrance Loss | 0.26 | m |
| Inlet Control Properties | | | | | |
| Inlet Control HW Elev. | 224.07 | m | Flow Control | Unsubmerged | |
| Inlet Type 0° w | ingwall flares | | Area Full | 4.5 | m² |
| K | 0.06100 | | HDS 5 Chart | 8 | |
| M | 0.75000 | | HDS 5 Scale | 3 | |
| ^ | 0.04230 | | Equation Form | 1 | |
| C Y | 0.82000 | | 7 | | |

Culvert Calculator Report 25th Innisfil Side Road (104) <duplicate> <duplicate> <duplicate>

| Culvert Summary | | | | | |
|---------------------------|-------------|-----|------------------------|----------------|------|
| Allowable HW Elevation | 224.84 | m | Headwater Depth/Height | 1.01 | |
| Computed Headwater Eleva | 224.84 | m | Discharge | 0.6624 | m³/s |
| Inlet Control HW Elev. | 224.78 | m | Tailwater Elevation | 0.00 | m |
| Outlet Control HW Elev. | 224.84 | m | Control Type | Outlet Control | |
| Grades | | | | | |
| Upstream Invert | 223.99 | m | Downstream Invert | 223.80 | m |
| Length | 14.00 | m | Constructed Slope | 0.013571 | m/m |
| Hydraulic Profile | | | | | |
| Profile | M2 | | Depth, Downstream | 0.49 | m |
| Slope Type | Mild | | Normal Depth | 0.52 | m |
| Flow Regime | Subcritical | | Critical Depth | 0.49 | m |
| Velocity Downstream | 1.99 | m/s | Critical Slope | 0.016233 | m/m |
| Section | | | | | |
| Section Shape | Circular | | Mannings Coefficient | 0.024 | |
| Section Material | CMP | | Span | 0.84 | m |
| Section Size | 825 mm | | Rise | 0.84 | m |
| Number Sections | 1 | | | | |
| Outlet Control Properties | | | | | |
| Outlet Control HW Elev. | 224.84 | m | Upstream Velocity Head | 0.18 | m |
| Ke | 0.90 | | Entrance Loss | 0.16 | m |
| Inlet Control Properties | | | | | |
| Inlet Control HW Elev. | 224.78 | m | Flow Control | N/A | |
| Inlet Type | Projecting | | Area Full | 0.6 | m² |
| K | 0.03400 | | HDS 5 Chart | 2 | |
| M | 1.50000 | | HDS 5 Scale | 3 | |
| С | 0.05530 | | Equation Form | 1 | |
| Υ | 0.54000 | | | | |

Culvert Calculator Report 25th Innisfil Side Road (104) required culvert size

| Culvert Summary | | | | | |
|---|--|-----|---|----------------------|------|
| Allowable HW Elevation | 225.10 | m | Headwater Depth/Heigh | nt 0.91 | |
| Computed Headwater Eleva | 225.10 | m | Discharge | 4.4361 | m³/s |
| Inlet Control HW Elev. | 225.00 | m | Tailwater Elevation | 0.00 | m |
| Outlet Control HW Elev. | 225.10 | m | Control Type E | Entrance Control | |
| Grades | | | | | |
| Upstream Invert | 223.99 | m | Downstream Invert | 223.80 | m |
| Length | 14.00 | m | Constructed Slope | 0.013571 | m/m |
| Hydraulic Profile | | | | | |
| Profile | S2 | | Depth, Downstream | 0.44 | m |
| Slope Type | Steep | | Normal Depth | 0.37 | m |
| Flow Regime Su | percritical | | Critical Depth | 0.60 | m |
| Velocity Downstream | 3.34 | m/s | Critical Slope | 0.003059 | m/m |
| Section | | | | | |
| Section Shape | Box | | Mannings Coefficient | 0.013 | |
| Section Material | Concrete | | Span | 3.05 | m |
| Section Size 3050 x | 1220 mm | | Rise | 1.22 | m |
| Number Sections | 1 | | | | |
| | | | | | |
| Outlet Control Properties | | | | | |
| Outlet Control Properties Outlet Control HW Elev. | 225.10 | m | Upstream Velocity Head | d 0.30 | m |
| · · · · · · · · · · · · · · · · · · · | 225.10 0.70 | m | Upstream Velocity Head Entrance Loss | d 0.30 0.21 | |
| Outlet Control HW Elev. Ke | | m | | | |
| Outlet Control HW Elev. Ke Inlet Control Properties | 0.70 | | Entrance Loss | 0.21 | |
| Outlet Control HW Elev. Ke Inlet Control Properties Inlet Control HW Elev. | 0.70 | | | | m |
| Outlet Control HW Elev. Ke Inlet Control Properties Inlet Control HW Elev. | 0.70 | | Entrance Loss Flow Control | 0.21 Unsubmerged | m |
| Outlet Control HW Elev. Ke Inlet Control Properties Inlet Control HW Elev. Inlet Type 0° wings | 0.70 225.00 wall flares | | Flow Control Area Full | 0.21 Unsubmerged 3.7 | m |
| Outlet Control HW Elev. Ke Inlet Control Properties Inlet Control HW Elev. Inlet Type 0° wings K | 0.70 225.00 wall flares 0.06100 | | Flow Control Area Full HDS 5 Chart | Unsubmerged 3.7 8 | m |

Culvert Calculator Report 25th Innisfil Side Road (105-1)

| Culvert Summary | | | | | |
|---------------------------|---------------|-----|------------------------|------------------|------|
| Allowable HW Elevation | 224.50 | m | Headwater Depth/Heigh | t 0.98 | |
| Computed Headwater Elev | 224.50 | m | Discharge | 1.5474 | m³/s |
| Inlet Control HW Elev. | 224.37 | m | Tailwater Elevation | 0.00 | m |
| Outlet Control HW Elev. | 224.50 | m | Control Type E | intrance Control | |
| Grades | | | | | |
| Upstream Invert | 223.30 | m | Downstream Invert | 222.93 | m |
| Length | 12.30 | m | Constructed Slope | 0.030081 | m/m |
| Hydraulic Profile | | | | | |
| Profile | S2 | | Depth, Downstream | 0.55 | m |
| Slope Type | Steep | | Normal Depth | 0.54 | m |
| Flow Regime | Supercritical | | Critical Depth | 0.68 | m |
| Velocity Downstream | 3.04 | m/s | Critical Slope | 0.013915 | m/m |
| Section | | | | | |
| Section Shape | Circular | | Mannings Coefficient | 0.024 | |
| Section Material | CMP | | Span | 1.22 | m |
| Section Size | 1200 mm | | Rise | 1.22 | m |
| Number Sections | 1 | | | | |
| Outlet Control Properties | | | | | |
| Outlet Control HW Elev. | 224.50 | m | Upstream Velocity Head | 0.28 | m |
| Ke | 0.90 | | Entrance Loss | 0.25 | m |
| Inlet Control Properties | | | | | |
| Inlet Control HW Elev. | 224.37 | m | Flow Control | Unsubmerged | |
| Inlet Type | Projecting | | Area Full | 1.2 | m² |
| K | 0.03400 | | HDS 5 Chart | 2 | |
| M | 1.50000 | | HDS 5 Scale | 3 | |
| C | 0.05530 | | Equation Form | 1 | |
| Υ | 0.54000 | | | | |

Culvert Calculator Report 25th Innisfil Side Road (105-1) Required culvert

| Culvert Summary | | | | | |
|--|------------------|-----|-------------------------------|-------------------|------|
| | 004.50 | | Handwater Dooth/Heigh | at 1.00 | |
| Allowable HW Elevation | 224.52 224.52 | | Headwater Depth/Heigh | nt 1.00 3.5781 | m3/a |
| Computed Headwater Eleva Inlet Control HW Elev. | 224.32 | | Discharge Tailwater Elevation | 0.00 | |
| Outlet Control HW Elev. | 224.41 | | | Entrance Control | 111 |
| Outlet Control HW Elev. | 224.52 | 111 | Control Type E | Entrance Control | |
| Grades | | | | | |
| Upstream Invert | 223.30 | m | Downstream Invert | 222.93 | m |
| Length | 12.30 | m | Constructed Slope | 0.030081 | m/m |
| Hydraulic Profile | | | | | |
| Profile | S2 | | Depth, Downstream | 0.42 | m |
| Slope Type | Steep | | Normal Depth | 0.32 | m |
| | percritical | | Critical Depth | 0.66 | m |
| Velocity Downstream | 4.02 | m/s | Critical Slope | 0.003617 | m/m |
| Section | | | | | |
| Section Shape | Box | | Mannings Coefficient | 0.013 | |
| Section Material | Concrete | | Span | 2.13 | m |
| | 1220 mm | | Rise | 1.22 | |
| Number Sections | 1 | | | | |
| Outlet Control Properties | | | | | |
| Outlet Control HW Elev. | 224.52 | m | Upstream Velocity Head | d 0.33 | m |
| Ke | 0.70 | | Entrance Loss | 0.23 | m |
| | | | | | |
| Inlet Control Properties | | | | | |
| Inlet Control HW Elev. | 224.41 | m | Flow Control | Unsubmerged | |
| • | wall flares | | Area Full | 2.6 | m² |
| К | 0.06100 | | HDS 5 Chart | 8 | |
| M | 0.75000 | | HDS 5 Scale | 3 | |
| С | 0.04230 | | Equation Form | 1 | |
| Υ | 0.82000 | | | | |

Culvert Calculator Report 25th Innisfil Side Road (105-2)

| Culvert Summary | | | | | |
|---------------------------|-------------|-----|------------------------|----------------|------|
| Allowable HW Elevation | 224.50 | m | Headwater Depth/Height | 1.98 | |
| Computed Headwater Eleva | 224.50 | m | Discharge | 1.3846 | m³/s |
| Inlet Control HW Elev. | 224.43 | m | Tailwater Elevation | 0.00 | m |
| Outlet Control HW Elev. | 224.50 | m | Control Type | Outlet Control | |
| | | | | | |
| Grades | | | | | |
| Upstream Invert | 222.84 | m | Downstream Invert | 222.75 | m |
| Length | 12.57 | m | Constructed Slope | 0.007160 | m/m |
| | | | | | |
| Hydraulic Profile | | | | | |
| Profile CompositeM2Pres | sureProfile | | Depth, Downstream | 0.70 | m |
| Slope Type | Mild | | Normal Depth | N/A | m |
| Flow Regime | Subcritical | | Critical Depth | 0.70 | |
| Velocity Downstream | 2.80 | m/s | Critical Slope | 0.028027 | m/m |
| | | | | | |
| Section | | | | | |
| Section Shape | Circular | | Mannings Coefficient | 0.024 | |
| Section Material | CMP | | Span | 0.84 | m |
| Section Size | 825 mm | | Rise | 0.84 | m |
| Number Sections | 1 | | | | |
| Outlet Control Properties | | | | | |
| Outlet Control HW Elev. | 224.50 | m | Upstream Velocity Head | 0.32 | m |
| Ke | 0.90 | | Entrance Loss | 0.29 | m |
| | | | | | |
| Inlet Control Properties | | | | | |
| Inlet Control HW Elev. | 224.43 | m | Flow Control | Submerged | |
| Inlet Type | Projecting | | Area Full | 0.6 | m² |
| K | 0.03400 | | HDS 5 Chart | 2 | |
| M | 1.50000 | | HDS 5 Scale | 3 | |
| С | 0.05530 | | Equation Form | 1 | |
| Υ | 0.54000 | | | | |

Culvert Calculator Report 25th Innisfil Side Road (105-2) required Culvert Size

| Culvert Summary | | | | | |
|---------------------------|----------------|-----|------------------------|---------------|------|
| Allowable HW Elevation | 224.50 | m | Headwater Depth/Height | 1.82 | |
| Computed Headwater Elev | ź 224.50 | m | Discharge | 2.8602 | m³/s |
| Inlet Control HW Elev. | 224.50 | m | Tailwater Elevation | 0.00 | m |
| Outlet Control HW Elev. | 224.37 | m | Control Type | Inlet Control | |
| Grades | | | | | |
| Upstream Invert | 222.84 | m | Downstream Invert | 222.75 | m |
| Length | 12.57 | m | Constructed Slope | 0.007160 | m/m |
| Hydraulic Profile | | | | | |
| Profile | S2 | | Depth, Downstream | 0.76 | m |
| Slope Type | Steep | | Normal Depth | 0.75 | m |
| Flow Regime | Supercritical | | Critical Depth | 0.82 | m |
| Velocity Downstream | 3.09 | m/s | Critical Slope | 0.005531 | m/m |
| Section | | | | | |
| Section Shape | Box | | Mannings Coefficient | 0.013 | |
| Section Material | Concrete | | Span | 1.22 | m |
| Section Size 12 | 20 x 910 mm | | Rise | 0.91 | m |
| Number Sections | 1 | | | | |
| Outlet Control Properties | | | | | |
| Outlet Control HW Elev. | 224.37 | m | Upstream Velocity Head | 0.41 | |
| Ke | 0.70 | | Entrance Loss | 0.29 | m |
| Inlet Control Properties | | | | | |
| Inlet Control HW Elev. | 224.50 | m | Flow Control | Submerged | |
| Inlet Type 0° w | ingwall flares | | Area Full | 1.1 | m² |
| K | 0.06100 | | HDS 5 Chart | 8 | |
| M | 0.75000 | | HDS 5 Scale | 3 | |
| C | 0.04230 | | Equation Form | 1 | |
| | | | | | |

Culvert Calculator Report 25th Innisfil Side Road (106)

| Culvert Summary | | | | | |
|---------------------------|-----------------|-----|------------------------|------------------|------|
| Allowable HW Elevation | 226.85 | m | Headwater Depth/Heigh | nt 1.15 | |
| Computed Headwater Ele | va 226.85 | m | Discharge | 0.4443 | m³/s |
| Inlet Control HW Elev. | 226.79 | m | Tailwater Elevation | 0.00 | m |
| Outlet Control HW Elev. | 226.85 | m | Control Type E | Entrance Control | |
| | | | | | |
| Grades | | | | | |
| Upstream Invert | 226.15 | m | Downstream Invert | 225.96 | m |
| Length | 12.60 | m | Constructed Slope | 0.015079 | m/m |
| | | | | | |
| Hydraulic Profile | | | | | |
| Profile | S2 | | Depth, Downstream | 0.29 | m |
| Slope Type | Steep | | Normal Depth | 0.28 | m |
| Flow Regime | Supercritical | | Critical Depth | 0.38 | m |
| Velocity Downstream | 2.51 | m/s | Critical Slope | 0.006721 | m/m |
| | | | | | |
| Section | | | | | |
| Section Shape | Box | | Mannings Coefficient | 0.013 | |
| Section Material | Concrete | | Span | 0.61 | m |
| Section Size | 610 x 610 mm | | Rise | 0.61 | m |
| Number Sections | 1 | | | | |
| Outlet Control Properties | | | | | |
| Outlet Control HW Elev. | 226.85 | m | Upstream Velocity Head | d 0.19 | m |
| Ke | 0.70 | ••• | Entrance Loss | 0.13 | |
| | 00 | | | 00 | |
| 1110 115 " | | | | | |
| Inlet Control Properties | | | | | |
| Inlet Control HW Elev. | 226.79 | m | Flow Control | Unsubmerged | |
| | vingwall flares | | Area Full | 0.4 | m² |
| K | 0.06100 | | HDS 5 Chart | 8 | |
| M | 0.75000 | | HDS 5 Scale | 3 | |
| C | 0.04230 | | Equation Form | 1 | |
| Υ | 0.82000 | | | | |

Culvert Calculator Report 25th Innisfil Side Road (106) < Required culvert

| Culvert Summary | | | | | |
|---------------------------|---------------|-----|-----------------------|------------------|------|
| Allowable HW Elevation | 226.85 | m | Headwater Depth/Heig | ht 1.15 | |
| Computed Headwater Eleva | 226.85 | m | Discharge | 0.8886 | m³/s |
| Inlet Control HW Elev. | 226.79 | m | Tailwater Elevation | 0.00 | m |
| Outlet Control HW Elev. | 226.85 | m | Control Type | Entrance Control | |
| | | | | | |
| | | | | | |
| Grades | | | | | |
| Upstream Invert | 226.15 | | Downstream Invert | 225.96 | |
| Length | 12.60 | m | Constructed Slope | 0.015079 | m/m |
| | | | | | |
| Hydraulic Profile | | | | | |
| Profile | S2 | | Depth, Downstream | 0.29 | m |
| Slope Type | Steep | | Normal Depth | 0.28 | m |
| Flow Regime S | Supercritical | | Critical Depth | 0.38 | m |
| Velocity Downstream | 2.51 | m/s | Critical Slope | 0.006721 | m/m |
| | | | | | |
| Section | | | | | |
| Section Shape | Box | | Mannings Coefficient | 0.013 | |
| Section Material | Concrete | | Span | 0.61 | m |
| | 0 x 610 mm | | Rise | 0.61 | |
| Number Sections | 2 | | | | |
| | | | | | |
| Outlet Control Properties | | | | | |
| Outlet Control HW Elev. | 226.85 | m | Upstream Velocity Hea | d 0.19 | m |
| Ke | 0.70 | | Entrance Loss | 0.13 | m |
| | | | | | |
| Inlet Control Properties | | | | | |
| Inlet Control HW Elev. | 226.79 | m | Flow Control | Unsubmerged | |
| Inlet Type 0° win | gwall flares | | Area Full | 0.7 | m² |
| K | 0.06100 | | HDS 5 Chart | 8 | |
| M | 0.75000 | | HDS 5 Scale | 3 | |
| С | 0.04230 | | Equation Form | 1 | |
| Υ | 0.82000 | | | | |

Culvert Calculator Report 25th Innisfil Side Road (107)

| Culvert Summary | | | | | |
|---------------------------|---------------|-----|------------------------|-----------------|------|
| Allowable HW Elevation | 230.10 | m | Headwater Depth/Heigh | nt 0.95 | |
| Computed Headwater Eleva | 230.10 | m | Discharge | 0.5762 | m³/s |
| Inlet Control HW Elev. | 230.00 | m | Tailwater Elevation | 0.00 | m |
| Outlet Control HW Elev. | 230.10 | m | Control Type E | ntrance Control | |
| | | | | | |
| | | | | | |
| Grades | | | | | |
| Upstream Invert | 229.30 | | Downstream Invert | 228.72 | |
| Length | 12.82 | m | Constructed Slope | 0.045242 | m/m |
| | | | | | |
| Hydraulic Profile | | | | | |
| Profile | S2 | | Depth, Downstream | 0.33 | m |
| Slope Type | Steep | | Normal Depth | 0.33 | m |
| Flow Regime S | Supercritical | | Critical Depth | 0.45 | m |
| Velocity Downstream | 2.81 | m/s | Critical Slope | 0.015524 | m/m |
| | | | | | |
| Section | | | | | |
| Section Shape | Circular | | Mannings Coefficient | 0.024 | |
| Section Material | CMP | | Span | 0.84 | m |
| Section Size | 825 mm | | Rise | 0.84 | m |
| Number Sections | 1 | | | | |
| | | | | | |
| Outlet Control Properties | | | | | |
| Outlet Control HW Elev. | 230.10 | m | Upstream Velocity Head | 0.18 | m |
| Ke | 0.90 | | Entrance Loss | 0.16 | m |
| | | | | | |
| Inlet Control Properties | | | | | |
| Inlet Control HW Elev. | 230.00 | m | Flow Control | Unsubmerged | |
| Inlet Type | Projecting | | Area Full | 0.6 | m² |
| K | 0.03400 | | HDS 5 Chart | 2 | |
| M | 1.50000 | | HDS 5 Scale | 3 | |
| С | 0.05530 | | Equation Form | 1 | |
| Υ | 0.54000 | | | | |

Culvert Calculator Report 25th Innisfil Side Road (107) required culvert

| Culvert Summary | | | | | |
|--|--|-------|---|--|-------------|
| Allowable HW Elevation | 230.20 | m | Headwater Depth/Heigh | t 0.98 | |
| Computed Headwater Elev | ra 230.20 | m | Discharge | 1.6194 | m³/s |
| Inlet Control HW Elev. | 230.11 | m | Tailwater Elevation | 0.00 | m |
| Outlet Control HW Elev. | 230.20 | m | Control Type E | intrance Control | |
| 0.1 | | | | | |
| Grades | | | | | |
| Upstream Invert | 229.30 | | Downstream Invert | 228.72 | |
| Length | 12.82 | m | Constructed Slope | 0.045242 | m/m |
| Hudraulia Profila | | | | | |
| Hydraulic Profile | | | Death Death | 0.55 | |
| Profile | S2 | | Depth, Downstream | 0.26 | |
| Slope Type | Steep | | Normal Depth | 0.21 | |
| Flow Regime | Supercritical 4.06 | / | Critical Depth | 0.49 0.004070 | |
| Velocity Downstream | 4.06 | 111/5 | Critical Slope | 0.004070 | 111/111 |
| Section | | | | | |
| Section Shape | Box | | Mannings Coefficient | 0.013 | |
| O control Mark 11.1 | | | 0 | 1.50 | |
| Section Material | Concrete | | Span | 1.52 | m |
| | Concrete 20 x 910 mm | | Span Rise | 0.91 | |
| | | | • | _ | |
| Section Size 15 | 20 x 910 mm | | • | _ | |
| Section Size 15 Number Sections | 20 x 910 mm | m | • | 0.91 | m |
| Section Size 15 Number Sections Outlet Control Properties | 20 x 910 mm 1 | m | Rise | 0.91 | m |
| Section Size 15 Number Sections Outlet Control Properties Outlet Control HW Elev. Ke | 20 x 910 mm 1 230.20 | m | Rise Upstream Velocity Head | 0.91 | m |
| Section Size 15 Number Sections Outlet Control Properties Outlet Control HW Elev. Ke Inlet Control Properties | 20 x 910 mm 1 230.20 0.70 | | Upstream Velocity Head Entrance Loss | 0.91 I 0.24 0.17 | m |
| Section Size 15 Number Sections Outlet Control Properties Outlet Control HW Elev. Ke Inlet Control Properties Inlet Control HW Elev. | 20 x 910 mm 1 230.20 0.70 | | Rise Upstream Velocity Head | 0.91 | m m m |
| Section Size 15 Number Sections Outlet Control Properties Outlet Control HW Elev. Ke Inlet Control Properties Inlet Control HW Elev. | 20 x 910 mm 1 230.20 0.70 | | Upstream Velocity Head Entrance Loss Flow Control | 0.91 0.24 0.17 Unsubmerged | m m m |
| Section Size 15 Number Sections Outlet Control Properties Outlet Control HW Elev. Ke Inlet Control Properties Inlet Control HW Elev. Inlet Type 0° w | 20 x 910 mm 1 230.20 0.70 230.11 ingwall flares | | Upstream Velocity Head Entrance Loss Flow Control Area Full | 0.91 0.24 0.17 Unsubmerged 1.4 | m m m |
| Section Size 15 Number Sections Outlet Control Properties Outlet Control HW Elev. Ke Inlet Control Properties Inlet Control HW Elev. Inlet Type 0° w K | 230.20 0.70 230.11 ingwall flares 0.06100 | | Upstream Velocity Head Entrance Loss Flow Control Area Full HDS 5 Chart | 0.91 0.24 0.17 Unsubmerged 1.4 | m m m |

Culvert Calculator Report 25th Innisfil Side Road (108-1)

| Culvert Summary | | | | | |
|---------------------------|---------------|-----|------------------------|------------------|------|
| Allowable HW Elevation | 236.41 | m | Headwater Depth/Heigh | nt 1.15 | |
| Computed Headwater Elev | 236.41 | m | Discharge | 0.6665 | m³/s |
| Inlet Control HW Elev. | 236.35 | m | Tailwater Elevation | 0.00 | m |
| Outlet Control HW Elev. | 236.41 | m | Control Type E | Entrance Control | |
| | | | | | |
| Grades | | | | | |
| Upstream Invert | 235.71 | m | Downstream Invert | 235.43 | m |
| Length | 12.05 | m | Constructed Slope | 0.023237 | m/m |
| | | | | | |
| Hydraulic Profile | | | | | |
| Profile | S2 | | Depth, Downstream | 0.25 | m |
| Slope Type | Steep | | Normal Depth | 0.22 | m |
| Flow Regime | Supercritical | | Critical Depth | 0.38 | |
| Velocity Downstream | 2.96 | m/s | Critical Slope | 0.005120 | m/m |
| | | | | | |
| Section | | | | | |
| Section Shape | Box | | Mannings Coefficient | 0.013 | |
| Section Material | Concrete | | Span | 0.91 | m |
| Section Size 91 | 10 x 610 mm | | Rise | 0.61 | m |
| Number Sections | 1 | | | | |
| Outlet Control Properties | | | | | |
| Outlet Control HW Elev. | 236.41 | m | Upstream Velocity Head | d 0.19 | m |
| Ke | 0.70 | ••• | Entrance Loss | 0.13 | |
| | 0 0 | | | 00 | |
| | | | | | |
| Inlet Control Properties | | | | | |
| Inlet Control HW Elev. | 236.35 | m | Flow Control | Unsubmerged | |
| | ngwall flares | | Area Full | 0.6 | m² |
| K | 0.06100 | | HDS 5 Chart | 8 | |
| M | 0.75000 | | HDS 5 Scale | 3 | |
| C | 0.04230 | | Equation Form | 1 | |
| Υ | 0.82000 | | | | |

Culvert Calculator Report 25th Innisfil Side Road (108-1) Required Culvert

| Culvert Summary | | | | | |
|---------------------------|-------------|-----|--------------------------------|------------------|------|
| Allowable HW Elevation | 236.61 | m | Headwater Depth/Heigh | nt 0.98 | |
| Computed Headwater Eleva | 236.61 | m | Discharge | 2.2671 | m³/s |
| Inlet Control HW Elev. | 236.53 | m | Tailwater Elevation | 0.00 | m |
| Outlet Control HW Elev. | 236.61 | m | Control Type E | Entrance Control | |
| | | | | | |
| Grades | | | | | |
| Upstream Invert | 235.71 | m | Downstream Invert | 235.43 | m |
| Length | 12.05 | m | Constructed Slope | 0.023237 | m/m |
| Hydraulic Profile | | | | | |
| Profile | S2 | | Depth Downstroom | 0.31 | m |
| Slope Type | Steep | | Depth, Downstream Normal Depth | 0.31 | |
| | percritical | | Critical Depth | 0.49 | |
| Velocity Downstream | 3.39 | m/s | Critical Slope | 0.003478 | |
| | | | | | |
| Section | | | | | |
| Section Shape | Box | | Mannings Coefficient | 0.013 | |
| | Concrete | | Span | 2.13 | |
| | k 910 mm | | Rise | 0.91 | m |
| Number Sections | 1 | | | | |
| Outlet Control Properties | | | | | |
| Outlet Control HW Elev. | 236.61 | m | Upstream Velocity Head | d 0.24 | m |
| Ke | 0.70 | | Entrance Loss | 0.17 | m |
| Inlet Control Properties | | | | | |
| Inlet Control HW Elev. | 236.53 | m | Flow Control | Unsubmerged | |
| | vall flares | | Area Full | 2.0 | m² |
| K | 0.06100 | | HDS 5 Chart | 8 | |
| M | 0.75000 | | HDS 5 Scale | 3 | |
| С | 0.04230 | | Equation Form | 1 | |
| Υ | 0.82000 | | | | |

Culvert Calculator Report 25th Innisfil Side Road (108-2) <duplicate>

| Culvert Summary | | | | | |
|---|---------------------------------|-----|--|-------------------|------|
| Allowable HW Elevation | 236.82 | m | Headwater Depth/Heigh | t 0.98 | |
| Computed Headwater Elev | 236.82 | m | Discharge | 0.7538 | m³/s |
| Inlet Control HW Elev. | 236.72 | m | Tailwater Elevation | 0.00 | m |
| Outlet Control HW Elev. | 236.82 | m | Control Type E | Intrance Control | |
| Grades | | | | | |
| Upstream Invert | 235.92 | m | Downstream Invert | 235.53 | m |
| Length | 12.42 | m | Constructed Slope | 0.031401 | m/m |
| Hydraulic Profile | | | | | |
| Profile | S2 | | Depth, Downstream | 0.41 | m |
| Slope Type | Steep | | Normal Depth | 0.41 | m |
| Flow Regime | Supercritical | | Critical Depth | 0.51 | m |
| Velocity Downstream | 2.63 | m/s | Critical Slope | 0.015316 | m/m |
| Section | | | | | |
| Section Shape | Circular | | Mannings Coefficient | 0.024 | |
| Section Material | Aluminum | | Span | 0.91 | m |
| Section Size | 900 mm | | Rise | 0.91 | m |
| Number Sections | 1 | | | | |
| Outlet Control Properties | | | | | |
| Outlet Control HW Elev. | 236.82 | m | Upstream Velocity Head | 0.21 | m |
| Ke | 0.00 | | | 0.40 | m |
| | 0.90 | | Entrance Loss | 0.19 | |
| Inlet Control Properties | 0.90 | | Entrance Loss | 0.19 | |
| Inlet Control Properties Inlet Control HW Elev. | 236.72 | m | Flow Control | Unsubmerged | |
| | | m | | | |
| Inlet Control HW Elev. | 236.72 | m | Flow Control | Unsubmerged | |
| Inlet Control HW Elev. Inlet Type | 236.72 Projecting | m | Flow Control Area Full | Unsubmerged 0.7 | |
| Inlet Control HW Elev. Inlet Type K | 236.72 Projecting 0.03400 | m | Flow Control Area Full HDS 5 Chart | Unsubmerged 0.7 2 | |

Culvert Calculator Report 25th Innisfil Side Road (109)

| Culvert Summary | | | | | |
|---|---|-----|--|---------------------------------------|--------|
| Allowable HW Elevation | 236.82 | m | Headwater Depth/Height | 7.06 | |
| Computed Headwater Eleva | 236.82 | m | Discharge | 0.6233 | m³/s |
| Inlet Control HW Elev. | 236.44 | m | Tailwater Elevation | 0.00 | m |
| Outlet Control HW Elev. | 236.82 | m | Control Type | Outlet Control | |
| Grades | | | | | |
| Upstream Invert | 233.59 | m | Downstream Invert | 233.11 | m |
| Length | 12.42 | m | Constructed Slope | 0.038647 | m/m |
| Hydraulic Profile | | | | | |
| Profile CompositeM2Pre | ssureProfile | | Depth, Downstream | 0.45 | m |
| Slope Type | Mild | | Normal Depth | N/A | m |
| Flow Regime | Subcritical | | Critical Depth | 0.45 | m |
| Velocity Downstream | 3.81 | m/s | Critical Slope | 0.135736 | m/m |
| Section Section Shape Section Material | Circular CMP | | Mannings Coefficient Span | 0.024 0.46 | m |
| Section Size | 450 mm | | Rise | | |
| Number Sections | | | Rise | 0.46 | m |
| | 1 | | nise | 0.46 | m |
| Outlet Control Properties | | | nise | 0.46 | m |
| | | m | Upstream Velocity Head | 0.46 | |
| Outlet Control Properties | 1 | m | | | m |
| Outlet Control Properties Outlet Control HW Elev. | 236.82 | m | Upstream Velocity Head | 0.73 | m |
| Outlet Control Properties Outlet Control HW Elev. Ke | 236.82 | | Upstream Velocity Head | 0.73 | m |
| Outlet Control Properties Outlet Control HW Elev. Ke Inlet Control Properties | 236.82 | | Upstream Velocity Head Entrance Loss | 0.73 0.66 | m m |
| Outlet Control Properties Outlet Control HW Elev. Ke Inlet Control Properties Inlet Control HW Elev. | 236.82 0.90 | | Upstream Velocity Head Entrance Loss | 0.73 0.66 Submerged | m m |
| Outlet Control Properties Outlet Control HW Elev. Ke Inlet Control Properties Inlet Control HW Elev. Inlet Type | 236.82 0.90 236.44 Projecting | | Upstream Velocity Head Entrance Loss Flow Control Area Full | 0.73 0.66 Submerged 0.2 | m m |
| Outlet Control Properties Outlet Control HW Elev. Ke Inlet Control Properties Inlet Control HW Elev. Inlet Type K | 236.82 0.90 236.44 Projecting 0.03400 | | Upstream Velocity Head Entrance Loss Flow Control Area Full HDS 5 Chart | 0.73 0.66 Submerged 0.2 2 | m m |

Culvert Calculator Report 25th Innisfil Side Road (109) Required culvert

| Culvert Summary | | | | | |
|---------------------------|--------------|-----|------------------------|---------------|------|
| Allowable HW Elevation | 234.19 | m | Headwater Depth/Height | 5.30 | |
| Computed Headwater Eleva | 236.82 | m | Discharge | 1.1694 | m³/s |
| Inlet Control HW Elev. | 236.82 | m | Tailwater Elevation | 0.00 | m |
| Outlet Control HW Elev. | 236.68 | m | Control Type | Inlet Control | |
| Grades | | | | | |
| Upstream Invert | 233.59 | m | Downstream Invert | 233.11 | m |
| Length | 12.42 | m | Constructed Slope | 0.038647 | m/m |
| Hydraulic Profile | | | | | |
| Profile CompositeM2Pres | ssureProfile | | Depth, Downstream | 0.60 | m |
| Slope Type | Mild | | Normal Depth | N/A | m |
| Flow Regime | Subcritical | | Critical Depth | 0.60 | m |
| Velocity Downstream | 4.03 | m/s | Critical Slope | 0.101488 | m/m |
| Section | | | | | |
| Section Shape | Circular | | Mannings Coefficient | 0.024 | |
| Section Material | CMP | | Span | 0.61 | m |
| Section Size | 600 mm | | Rise | 0.61 | m |
| Number Sections | 1 | | | | |
| Outlet Control Properties | | | | | |
| Outlet Control HW Elev. | 236.68 | m | Upstream Velocity Head | 0.82 | m |
| Ke | 0.90 | | Entrance Loss | 0.74 | m |
| Inlet Control Properties | | | | | |
| Inlet Control HW Elev. | 236.82 | m | Flow Control | Submerged | |
| Inlet Type | Projecting | | Area Full | 0.3 | m² |
| K | 0.03400 | | HDS 5 Chart | 2 | |
| M | 1.50000 | | HDS 5 Scale | 3 | |
| C | 0.05530 | | Equation Form | 1 | |
| Υ | 0.54000 | | | | |

Culvert Calculator Report 25th Innisfil Side Road (110)

| Culvert Summary | | | | | |
|---|---|-----|---|-----------------------------|------|
| Allowable HW Elevation | 230.80 | m | Headwater Depth/Heigh | nt 1.00 | |
| Computed Headwater Eleva | 230.80 | m | Discharge | 42.8156 | m³/s |
| Inlet Control HW Elev. | 230.55 | m | Tailwater Elevation | 0.00 | m |
| Outlet Control HW Elev. | 230.80 | m | Control Type E | Entrance Control | |
| Grades | | | | | |
| Upstream Invert | 227.60 | m | Downstream Invert | 227.55 | m |
| Length | 12.20 | m | Constructed Slope | 0.004098 | m/m |
| Hydraulic Profile | | | | | |
| Profile | S2 | | Depth, Downstream | 1.61 | m |
| Slope Type | Steep | | Normal Depth | 1.46 | m |
| Flow Regime S | Supercritical | | Critical Depth | 1.73 | m |
| Velocity Downstream | 4.43 | m/s | Critical Slope | 0.002531 | m/m |
| Section | | | | | |
| Section Shape | Box | | Mannings Coefficient | 0.013 | |
| Section Material | Concrete | | Span | 6.01 | m |
| Section Size 6010 | x 3200mm | | Rise | 3.20 | m |
| Number Sections | 1 | | | | |
| Outlet Control Properties | | | | | |
| | | | | | |
| Outlet Control HW Elev. | 230.80 | m | Upstream Velocity Head | d 0.86 | m |
| Outlet Control HW Elev. Ke | 230.80 0.70 | m | Upstream Velocity Head Entrance Loss | 0.86 0.61 | |
| | | m | • | | |
| Ke | | | • | | |
| Inlet Control Properties Inlet Control HW Elev. | 0.70 | | Entrance Loss | 0.61 | m |
| Inlet Control Properties Inlet Control HW Elev. | 0.70 | | Entrance Loss Flow Control | 0.61 Unsubmerged | m |
| Inlet Control Properties Inlet Control HW Elev. Inlet Type 0° win | 0.70 230.55 gwall flares | | Flow Control Area Full | 0.61 Unsubmerged 19.2 | m |
| Inlet Control Properties Inlet Control HW Elev. Inlet Type 0° win K | 0.70 230.55 gwall flares 0.06100 | | Flow Control Area Full HDS 5 Chart | Unsubmerged 19.2 | m |

Culvert Calculator Report 25th Innisfil Side Road (111)

| Culvert Summary | | | | | |
|-------------------------------|-------------|-----|----------------------------|----------------|------|
| Allowable HW Elevation | 245.93 | m | Headwater Depth/Height | 0.98 | |
| Computed Headwater Eleva | 245.93 | m | Discharge | 0.1054 | m³/s |
| Inlet Control HW Elev. | 245.83 | m | Tailwater Elevation | 0.00 | m |
| Outlet Control HW Elev. | 245.93 | m | Control Type | Outlet Control | |
| Grades | | | | | |
| Upstream Invert | 245.48 | m | Downstream Invert | 245.47 | m |
| Length | 22.00 | m | Constructed Slope | 0.000455 | m/m |
| Hydraulic Profile | | | | | |
| Profile | M2 | | Depth, Downstream | 0.22 | m |
| Slope Type | Mild | | Normal Depth | N/A | m |
| Flow Regime | Subcritical | | Critical Depth | 0.22 | m |
| Velocity Downstream | 1.31 | m/s | Critical Slope | 0.018173 | m/m |
| Section | <u> </u> | | | | |
| Section Shape | Circular | | Mannings Coefficient | 0.024 | |
| Section Material Section Size | CMP | | Span Rise | 0.46 | |
| Number Sections | 450 mm 1 | | rise | 0.46 | m |
| Number dections | ' | | | | |
| Outlet Control Properties | | | | | |
| Outlet Control HW Elev. | 245.93 | m | Upstream Velocity Head | 0.02 | |
| Ke | 0.90 | | Entrance Loss | 0.02 | m |
| Inlet Control Properties | | | | | |
| Inlet Control HW Elev. | 245.83 | m | Flow Control | Unsubmerged | |
| Inlet Type | Projecting | | Area Full | 0.2 | m² |
| mict Type | -, 3 | | | 2 | |
| K | 0.03400 | | HDS 5 Chart | 2 | |
| * * | - | | HDS 5 Chart HDS 5 Scale | 3 | |
| К | 0.03400 | | | | |

Culvert Calculator Report 25th Innisfil Side Road (111) Required Culvert

| Culvert Summary | | | | | |
|---------------------------|-------------------------------|-----|------------------------|----------------|------|
| Allowable HW Elevation | 246.48 | m | Headwater Depth/Height | 1.09 | |
| Computed Headwater Eleva | 246.48 | m | Discharge | 2.7777 | m³/s |
| Inlet Control HW Elev. | 246.43 | m | Tailwater Elevation | 0.00 | m |
| Outlet Control HW Elev. | 246.48 | m | Control Type | Outlet Control | |
| Grades | | | | | |
| Upstream Invert | 245.48 | m | Downstream Invert | 245.47 | m |
| Length | 22.00 | m | Constructed Slope | 0.000455 | m/m |
| Hydraulic Profile | | | | | |
| Profile | M2 | | Depth, Downstream | 0.56 | m |
| Slope Type | Mild | | Normal Depth | N/A | m |
| Flow Regime | Subcritical | | Critical Depth | 0.56 | m |
| Velocity Downstream | 2.34 | m/s | Critical Slope | 0.003527 | m/m |
| Section Section Shape | Box | | Mannings Coefficient | 0.013 | |
| Section Material | Concrete | | Span | 2.13 | m |
| | 0 x 910 mm | | Rise | 0.91 | |
| Number Sections | 1 | | | | |
| Outlet Control Properties | | | | | |
| Outlet Control HW Elev. | 246.48 | m | Upstream Velocity Head | 0.18 | m |
| Ke | 0.70 | | Entrance Loss | 0.12 | m |
| Inlet Control Properties | | | | | |
| Inlet Control HW Elev. | 246.43 | m | Flow Control | Unsubmerged | |
| Inlet Type 0° wir | ngwall flares | | Area Full | 2.0 | m² |
| K | 0.06100 | | HDS 5 Chart | 8 | |
| | | | HDS 5 Scale | 3 | |
| M | 0.75000 | | | U | |
| M C Y | 0.75000 0.04230 0.82000 | | Equation Form | 1 | |