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# PREFACE

The Town of Innisfil Engineering Design Standards and Specifications Manual (Town Standards) is intended to provide clarity to Engineers, Landscape Architects, Developers, and Contractors that are designing or installing municipal infrastructure within the Town of Innisfil ("Town"). The Town Standards are to be used as a guide to provide infrastructure design that meets Town approval. The Town Standards are not intended to replace sound engineering principles or relieve the Engineer of their responsibility for the design.

The Town Standards were prepared with a vision to ensure that the design of all municipal projects supports future growth, is environmentally responsible, considers operation and maintenance impacts, improves accessibility for those with disabilities, and utilizes sound engineering principles and practices.

The Town Standards reflect current design and construction practices and the evolving requirements of the Town, its residents, as well as its partners in the development and construction communities. In the preparation of this document, the Town has incorporated the latest applicable municipal, provincial, and federal legislation, guidelines, policies, and criteria.

In particular, there has been substantial progress made in the area of stormwater management. As a result, key revisions have been made to reflect the intent and objectives of the most recent version of the following documents:

1. *Lake Simcoe Region Conservation Authority Technical Guidelines for Stormwater Management Submissions, latest edition.*

2. *Nottawasaga Valley Conservation Authority Development Review Guidelines, Stormwater Management Technical Guide, latest edition.*

3. *Nottawasaga Valley Conservation Authority Development Review Guidelines, Stormwater Management Pond Planting, latest edition.*

## 1.1. INTRODUCTION

These standards and specifications are intended as a guide to ensuring good engineering basis and consistent designs for all municipal and development projects within the Town of Innisfil. These standards are to be read in conjunction with the Town of Innisfil Engineering Design Standard Drawings as well as the Ontario Provincial Standard Specifications and Drawings (OPSS & OPSD). Where there are any apparent conflicts or discrepancies, the Town Engineering Design Standards, Specifications, and Standard Drawings shall take precedence.

The Town reserves the right to request additional requirements and modifications to the engineering designs beyond the Town's standard guidelines. The engineering standards are not intended to cover all possible design considerations, and they may change before this document is updated. The design engineer should communicate with the Town's engineering staff and have regard for their recommendations.

All infrastructure projects, including those for private developments, shall conform to the Town of Innisfil's engineering standards and guidelines unless otherwise directed by the Town. For further clarity, the Town's engineering design standards apply to all development applications and permits, including but not limited to Site Alteration Permits, Plan of Subdivision applications, and Site Plan applications.

The information provided in this manual is not intended to relieve the Developer or the Engineer of their responsibility to submit a finished product of competent engineering design and construction. For any form of consideration made to deviate from Town standards, the Engineer must submit a detailed proposal outlining the deviation, with the necessary justification and analysis, for consideration by the Town prior to formal engineering submissions.

If there are any preliminary concerns that are not addressed within this document, the designer is to coordinate a pre-consultation meeting with the Town's Engineering and/or Planning staff to resolve any issues prior to the commencement of the engineering design.

## 1.2. ENGINEER'S ROLE

The design, all required engineering drawings, and associated reports must be signed and sealed by a qualified Professional Engineer, licensed to practice in the Province of Ontario.

## 1.3. SUPPORTING STUDIES AND REPORTS

The following studies and reports may be required to support the design. It should be noted that the information provided is the minimum requirement and the studies and reports may need to include further details depending upon site-specific conditions. The following list is not intended to be all-encompassing. Additional reports or studies may be required at the discretion of the Town. The Engineering design shall incorporate the information and/or recommendations of the supporting studies and reports. The supporting studies and reports listed in this section are to be included in the initial development application submitted to the Town. A list of all reports or studies required to be submitted may include, but is not limited to:

### 1.3.1 Geotechnical Report:

The Geotechnical Report shall be prepared to examine and confirm subsurface conditions including soil type(s) and stratification, groundwater levels, depth to bedrock, soil bearing capacity, permeability, conductivity, and presence of any contaminants. The report shall

address the adequacy of the Town's standard minimum pavement structure and sub-drainage system or recommend an increased pavement structure if conditions warrant.

The report shall assess the suitability of native soils for trench backfill and building foundation construction. It shall also address requirements for imported fill as well as construction methods for the use of both native and imported materials.
The report shall discuss the requirements for pipe bedding as well as engineered fill where necessary for building construction.

The report shall be accompanied by a scaled drawing showing test pit and/or borehole locations complete with a detailed test pit and/or borehole log. During detail design stage an update of the Geotechnical Report may be required and will be confirmed by the Town.

The report shall be signed and sealed by a qualified Professional Engineer licensed to practice in the Province of Ontario.

### 1.3.2 Hydrogeological Assessment:

Hydrogeological studies for proposed projects must be conducted by a qualified Professional Engineer and/or Geoscientist to characterize the groundwater regime from a site-specific and regional perspective in order to address issues related to (as applicable):

a) Impacts to existing well water supplies within the project area. If impacts to the site or neighbouring properties are anticipated, a private water well survey is required as determined by the Hydrogeological report. A private water well survey may also be required at the Town's discretion;
b) Soil permeabilities and associated properties where the design of septic systems are concerned;
c) Groundwater impact assessment to area aquifers from construction activities and/or discharge of waste or wastewater;
d) Test wells and associated testing in accordance with Ministry of the Environment, Conservation and Parks (MECP) D-5-5 guidelines to address water taking impact sustainability;
e) Impacts to nearby surface water bodies; and
f) Specific technical review of well field or wellhead capture zones.

For general road and servicing construction, the report should consider the depth of services and identify likely areas where dewatering will be required, the rate of dewatering, requirements for dewatering, permits, and the strategy to achieve the required groundwater levels. If dewatering is necessary, the report should contain sufficient data on groundwater quality and temperature of the receiving watercourse.

Where applicable, the report should also provide an assessment of the use of sump pumps for building design.

### 1.3.3 Stormwater Management Report (SWM):

The Stormwater Management Report is to provide details and supporting calculations associated with the design of the minor and major drainage systems as well as the required source, conveyance, and end of pipe controls required to achieve the minimum standard targets established by this document as well as the Conservation Authority.

At a minimum, the following details must be included in the Report:

a) Background Information;
b) Stormwater Management Targets and Objectives;
c) Pre-Development and Post-Development Drainage Areas
d) Stormwater Quantity and Quality Control
e) Storm Drainage System Design
f) Design of End of Pipe Controls
g) LSRCA Volume Control, Phosphorus Control and Water Balance
h) Erosion and Sediment Control;
i) Stand-Alone Operation and Maintenance Manual
j) Calculations, Tables, Figures, Digital Modeling, and Drawings

The Stormwater Management Report is to adhere to the latest version of the following guidelines:

*The Ministry of Environment, Conservation and Parks (MECP) Stormwater Management Planning and Design Manual.*

*Comprehensive Stormwater Management Master Plan, Town of Innisfil.*

*Lake Simcoe Region Conservation Authority Technical Guidelines for Stormwater Management Submissions.*

*Nottawasaga Valley Conservation Authority Development Review Guidelines, Stormwater Management Technical Guide.*

*Nottawasaga Valley Conservation Authority Development Review Guidelines, Stormwater Management Pond Planting.*

*Low Impact Development Stormwater Management Planning and Design Guide, CVC and TRCA.*

*Lake Simcoe Protection Plan.*

*Innisfil Our Place Official Plan.*

### 1.3.4 Traffic Impact Assessment (TIA)

The Traffic Impact Assessment (TIA) refers to the generic requirement to address the potential traffic impacts of a proposed development on the existing road network. The traffic impact assessment will be in the form of a Traffic Impact Brief or Traffic Impact Study, whichever is deemed appropriate based on the thresholds contained herein and in consultation with the Town's Engineering Department. The following guideline is intended to provide directions to the developer with respect to establishing the appropriate scope of traffic impact assessment required.

A **Traffic Impact Brief** is a reduced scope traffic impact assessment, usually required for small-scale developments where little or no impact to the adjacent road network is anticipated.

A **Traffic Impact Study** is a comprehensive traffic impact assessment, usually required for medium and large-scale development where greater impacts to the adjacent road network are anticipated.

Electronic copies of all native, editable traffic modelling software (e.g. Synchro/SimTraffic, ARCADY, etc.) to be included with each TIA submission. Traffic reports typically have a shelf life of less than three years. However, significant changes within the study area may shorten the life of document if they were not accounted in the impact assessment or if major updates to the Town's Official Plan or Transportation Master Plan have been made.

Traffic Impact Brief:

For developments expected to generate less than 50 vehicle trips during the peak hours (total of inbound and outbound trips), a Traffic Impact Brief may be considered, provided that the site of study area characteristics are not such that would otherwise indicate that traffic or other transportation issues/concerns are likely to arise given the proposed development.

A Traffic Impact Brief has a reduced scope in the context of the anticipated trip generation of the development ,and hence reduced the potential for impacts that may result. A Traffic Impact Brief should address the following:

1. Study Area: Inventory the existing road system to which the development fronts and/or in the immediate area of the development. This should include the number of lanes, speed limits, urban/rural cross-sections, etc. The study area is to be confirmed with the Town prior to commencing the assessment. At least one site visit is to be conducted to assess traffic safety and operational issues within the study area, lane configurations, sight distances, and other relevant factors.

2. Proposed Development: Detail the proposed land use and phasing/completion year. Provide an overall plan illustrating the proposed access locations, the internal road network, building locations, parking, etc. as applicable.

3. Site Traffic: Based on the land uses, determine trip estimates for the most appropriate peak hours. Typically, these will be the weekday AM and PM peak hours of the adjacent road, although for commercial, entertainment, religious, institutional or sports facility uses, a weekend peak may be more appropriate. The trip estimates should be based on published trip rates, data from other representative sites, or based on sound engineering ("First Principles"). Actual Peak Hour Factor (PHF) to be used for existing intersection analyses. A PHF of 0.90 is to be employed for proposed or future conditions.

4. Site Access Assessment: The site access should be reviewed in consideration of the volume and type of vehicles to be generated by the site, and the proposed access location and configuration. Town Standards are to be referenced as applicable.

5. Sight Line Assessment: At each access point, the sight distance requirements should be determined based on appropriate standards (MTO or County), and the availability of sight distance determined from actual field measurements or engineering plans.

6. Parking & Circulation: The proposed parking supply should be confirmed as adequate in consideration of the corresponding Town parking requirements. The internal road and circulatory system should be reviewed in the context of the type of vehicles to be served (including emergency vehicles, garbage collection or other appropriate design vehicles) and the need for access internally. Swept path analysis to be conducted and resulting diagrams to be attached to the Traffic Impact Brief. Approval from the Town must be obtained before proceeding with the selection of proxy sites for parking justification studies.

7. Documentation: A letter report should be prepared to detail the findings related to the above. Relevant maps, graphs, tables, and figures should be provided. The Traffic Impact Brief should be able to provide a conclusive statement that the proposed development will not adversely affect the operations or the safety of the adjacent road system, and that the development plan (including the access, parking area, and internal circulatory system) is adequate to suit the site traffic. The letter and drawings shall be signed and sealed by a qualified Professional Engineer licensed to practice in the Province of Ontario.

Traffic Impact Study:

For developments expected to generate 50 or more vehicle trips during the peak hours (total of inbound and outbound trips), a Traffic Impact Study is required for review and approval by the Town. A Traffic Impact Study may also be required for a development that will generate less than 50 vehicle trips during the peak hours if the site of study area characteristics are such that traffic or other transportation issues or concerns may have to be addressed to accommodate the development.

A Traffic Impact Study should address the following:

1. Study Area: The study area should extend far enough, within reason, to contain all municipal and provincial roads that will be noticeably affected by the traffic volumes to be generated by the proposed development. The study area is to be confirmed with the Town prior to commencing the assessment. The Town reserves the right to establish the study area as may be deemed necessary. At least one site visit is to be conducted to assess traffic safety and operational issues within the study area, lane configurations, sight distances, and other relevant factors.

A description of the existing transportation system in the study area, using a combination of maps and other documentation, should identify relevant information, such as:

- Existing parking areas, existing roads, number of lanes, on-street bike lanes, traffic signals, posted speed limits, and other important signage;

- The lane configurations and control of the key intersections/roundabouts to be considered in the study;
- The provision of on-street parking in the vicinity of the development site and the potential for this to impact key intersections being analyzed;
- Existing transit routes, stops and terminals, and the future Metrolinx GO train station;
- Other traffic controls and transportation facilities; and
- Other features of interest such as designated trails, walkways, etc.

2. Horizon Years & Period of Analysis: The horizon years should coincide to the anticipated full build-out of the site, in addition to five (5) and ten (10) years beyond full build-out. Interim horizon years must also be considered as necessary for the staged implementation of the identified road system improvements. For large developments where five (5) and ten (10) year design horizon beyond full build-out is not feasible, the design horizon can begin at the period of anticipated initial occupancy but requires written approval from Town staff.

3. Typically, the weekday AM and PM peak hours of the adjacent street will constitute the peak hours to be addressed. However, in the case of commercial, entertainment, religious, institutional or sports facility use, the weekend peak hours may be more appropriate. During the initial consultation process with the Town, the Consultant should determine the selected peak periods for analysis.

4. Existing Traffic Volumes: Figures illustrating the existing traffic volumes and turning movements for the study area roads and intersections are required. Traffic volumes may be acquired for the Town, County or MTO, from other transportation studies in the area, or through traffic counts. To ensure representation of existing conditions, traffic count data should be no more than 3 years old. If a school is situated within the study area or is deemed to influence traffic volumes, traffic counts shall be collected during periods when the school is operational. It is preferable that traffic counts be collected during periods when higher traffic volumes are anticipated, based on the characteristics of the study area. Actual PHF to be used for existing intersection analyses.

5. Future Road Network & Background Volumes: Future traffic volumes should be prepared for each horizon year, with consideration for annual growth rates to reflect general growth in traffic in addition to the growth specific to new development. A PHF of 0.90 to be employed for proposed or future conditions.

   General growth can be estimated based on historic growth in area traffic volumes, and/or future projections of area population and employment. Consideration can also be given to other area transportation studies and/or traffic models as appropriate.

   All significant developments under construction, approved or in the approval process and that are likely to contribute additional traffic volumes within the horizon period, should be

identified. The trips that are expected to be generated by these developments should be included in the future background volumes (trips can be established from a corresponding Traffic Impact Study or based on the land uses and published trip generation rates). Town staff should be consulted to establish the approved/active development proposals within the study area.

Future transportation improvements to the study area road network that are currently being considered should be identified. These improvements should be described to a level of detail sufficient to assess their implications for travel to/from the development site. In each case, identify the status and anticipated date of implementation for consideration in the Future Background and Future Total traffic conditions. The Traffic Impact Study should consider the findings and recommendations of the Town of Innisfil Transportation Master Plan to ensure consistency.

6. Proposed Development: The Traffic Impact Study should provide a full description of the proposed development, including the following as applicable:

    - Municipal address (if applicable);
    - Existing and proposed land uses;
    - Total development area and summary by use (e.g. type and number of residential units, commercial gross floor area, etc.)
    - Anticipated tenants;
    - Planned phasing and build-out period

    A site plan, concept plan, or similar, is to be included in the Traffic Impact Study document. If the proposed development is to be constructed in phases, describe each phase and the proposed implementation timing for each.

7. Site Traffic – Trip Generation: Unless advised by the Town, trip generation estimates are to be based on the proposed land uses, size of development and trip generation data from:

    - The ITE Trip Generation Manual (most recent edition);
    - Trip generation surveys conducted at similar developments/proxy sites; or
    - “First Principles” calculations of anticipated trips to/from the site.

    Where appropriate, it may be justified to reduce the base trip generation estimates to account for pass-by trips, internal/shared trips (in the case of a multi-use development), travel demand management practices, and transit use. The resulting estimates are referred to as “new” vehicle trips. All trip generation assumptions employed in the calculation of the “new” vehicle trips should be supported and well documented.

    Sensitivity analysis should be undertaken where trip generation parameters have the potential to vary considerably and most probable values cannot be readily identified (i.e. the exact tenant or use of commercial space is not known). A trip generation table should be provided in the report to summarize the land uses and sizes, with the corresponding trip

generation rates and the resulting number of trips. For large developments that will be phased in over time, the table should identify each significant phase separately.

8. Site Traffic - Trip Distribution & Assignment: Trip distribution assumptions should be supported by one or more of the following:

    - Transportation Tomorrow Survey (TTS) data;
    - Origin-destination surveys;
    - Comprehensive travel surveys; or
    - Existing/anticipated travel patterns

    Engineering judgement should be utilized to determine the most applicable of the above methodologies for each particular application. It is advised that Town staff be contacted regarding the trip distribution assumptions for site traffic requirements.

    Trip assignments should consider logical routings, available and projected road capacities, and travel times. Trip assignments may be estimated using a transportation demand model or “hand assignment” based on knowledge of the proposed/future road network in the study area. The trip assignment should also take into consideration varying assignments for pass-by trips, link-diverted trips and internal trips.

9. Future Total Traffic Volumes: Future total traffic volumes are to be presented, representing the culmination of the future background traffic volumes and the site generated traffic volumes for each horizon year.

10. Traffic Impacts: An evaluation of the key signalized and unsignalized intersections within the study area for all relevant peak periods for the existing and future planning horizons (both with and without the subject development traffic) is required, and summaries are to be provided in a tabular format (e.g. level of service, volume to capacity ratio and delay). The level of service (LOS) for overall signalized and unsignalized operations to be LOS D or better with volume to capacity ratio (V/C) of less than 0.85. For individual movements, LOS E or better with V/C of less than 0.85 is considered as acceptable. The intersection capacity/operational analysis should be completed using Synchro/Sim Traffic Simulation Software or the like. Any modified simulation software parameters should be documented and discussed. The objective should be to ensure that no new problem movements are created by the proposed development and that existing problem movements are not worsened to an unacceptable level with the addition of site generated traffic. Where intersections are closely located, queueing assessments should be included with respect to appropriate storage, queue encroachment, back to back left turns, etc.

    Should operational issues result, means of mitigation and the operations with consideration for such, are to be presented (e.g. introduction of traffic signals, additional through lanes, turn lanes, etc.) Appropriate warrants for improvements and associated operational review worksheets should be appended to the report.

11. Site Access Assessment: The site access should be reviewed in consideration of the volume and type of vehicles to be generated by the site, and the proposed access location and configuration. Town standards are to be referenced as applicable. Access points should be evaluated in terms of capacity, safety and adequacy of queue storage capacity.

    Should operational issues result at the site access, means of mitigation and the operations with consideration for such, are to be presented (e.g. introduction of traffic signals, additional through lanes, turn lanes, etc.) Appropriate warrants for improvements and associated operational review worksheets should be appended to the report.

12. Sight Line Assessment: At each access point and at each intersection where a new road is proposed, the sight distance requirements should be determined based on appropriate standards (MTO or County), and the availability of sight distance determined from actual field measurements or from engineering plans.

13. Parking & Circulation: The proposed parking supply should be confirmed as adequate in consideration of the corresponding Town parking requirements. The internal road and circulatory system should be reviewed in the context of the type of vehicles to be served (including emergency vehicles, garbage collection or other appropriate design vehicles) and the need for access internally. Swept path analysis to be conducted and resulting diagrams to be attached to the Traffic Impact Study. Approval from the Town must be obtained before proceeding with the selection of proxy sites for parking justification studies.

14. Documentation: The structure and format of the Traffic Impact Study should follow the guidelines outlined in this document as applicable. This format will facilitate review, discussion, and communication. Relevant maps, graphs, tables and figures should be provided. The study and drawings shall be signed and sealed by a qualified Professional Engineer licensed to practice in the Province of Ontario.

### 1.3.5 Noise and Vibration Study (NVS):

The Noise and Vibration Study shall review all potential noise and vibration sources and evaluate the requirements to achieve compliance with MECP guidelines, NPC-300 guidelines, considering air conditioning systems complying with NPC-216, applicable zoning by-law, as well as this document.

For attenuation of noise, the report should identify any mitigating measures to ensure that the sound level in the outdoor living area does not exceed 55 dBA. The receiver for the outdoor living area shall be assumed to be placed at a distance of 3.0 m from the rear wall of the house, at the midpoint of the rear yard width, and on the basis that the rear house wall will be set at the minimum lot line setbacks in accordance with the Town's zoning by-law.

Where noise fences are proposed, the report should detail the locations and height required to attain acceptable noise levels.

A post-construction survey or report may be required by the Town to confirm that acceptable noise levels have been achieved.

For railway traffic, the report should also identify foundation requirements to attenuate vibration.

The report should consider the construction activities typically expected and provide guidance on the development of a pre-construction survey of adjacent buildings and structures.

A pre-construction survey of adjacent buildings and structures may be required when expected construction activities could potentially cause structural and/or cosmetic damage. The survey should identify cracks and other defects in existing exterior and interior walls. A portable seismograph is to be used to take such readings in the field during construction with which to measure "peak particle velocities" generated, if required.

If a damage complaint is made during or following construction, an individual post-construction inspection is required by a qualified person. The post-construction inspection shall be compared to the pre-construction survey to determine the validity of the complaint. The developer and/or contractor shall be liable for all verified damage complaints.

### 1.3.6 Environmental Impact Study (EIS):

The Environmental Impact Study shall be prepared by a qualified professional and will assess any potential impact of the proposed project upon the natural environment including, but not limited to, wetlands, woodlots, and natural habitats for threatened and/or endangered species. The report shall also characterize the impact and make recommendations for mitigation, if necessary. Additional details and requirements can be found in the Town's Official Plan.

### 1.3.7 Environmental Site Assessment (ESA):

For any lands that are to be dedicated to or purchased by the Town, an Environmental Site Assessment will need to be completed.

If required, a Phase I ESA shall be undertaken by a "qualified person" as defined in O. Reg. 153/04 (or the latest revision thereof) and a report shall be completed in accordance with the requirements set out in the same regulation as well as the guidelines published by the Canadian Standards Association (CSA).

The report shall include, but not be limited to:

a) Confirmation of Insurance coverage;
b) Certification that the person undertaking the assessment and completing the report is a "qualified person";
c) The "qualified person's" opinion as to whether a Phase II ESA is warranted based on the findings of the Phase I ESA;
d) If the "qualified person's" opinion is that a Phase II ESA is not required, the report shall expressly include a statement that "in his/her opinion and based on the findings of the Phase I ESA, a Phase II ESA is not necessary"; and
e) Confirmation that the report may be relied upon by the Town in making the decision to accept ownership of the property.

### 1.3.8 Archaeological Report:

The Archaeological Report shall assess any significant historical features on the site and recommend a mitigation plan if necessary. The study shall follow the Ontario Ministry of Culture guidelines for determining the archaeological potential of the area impacted by construction. As

a minimum, the report shall follow the requirements of a Phase 1 Archaeological survey and proceed with Phase 2 and 3, if necessary.

The Archaeological Report shall also consider "Built Heritage" and provide an inventory of any historically or culturally significant structures within the affected area. The Innisfil Historical Society shall be contacted during the preparation of the report and the report shall include any comments they may have on the affected area.

### 1.3.9 Functional Servicing Report (FSR):

The Functional Servicing Report (FSR) shall assess and describe the adequacy of the existing and proposed water distribution network, sanitary sewer servicing, storm sewer systems, and stormwater management features to satisfy the demands of the proposed development or the demands of an existing site that is undergoing significant alteration.

The FSR is intended to ensure that the proposed development or existing site that is undergoing significant alteration can be serviced for the intended use, and that all onsite and off-site servicing requirements are clearly identified. The report shall include, as required:

a) fire flow calculations;
b) domestic demand;
c) sanitary flows for allocation;
d) plant capacity; and
e) confirmation of pipe sizes.

The FSR shall incorporate all relative existing information including Town standards, reports, studies, record information in addition to site-specific and staging information. The Functional Servicing Report shall identify how the land will be serviced, focusing on the following:

a) Geotechnical Investigation;
b) Area and Site Grading;
c) Transportation Network and Roadways;
d) Water Distribution System;
e) Sanitary Sewer System;
f) Storm Drainage System Major / Minor;
g) Utilities (Gas, Electrical, etc.);
h) Public Open Space; and
i) Sustainability.

### 1.3.10 Additional Reports:

The Town may require additional reports and/or assessments for proposed developments or existing sites undergoing significant alteration, such as, but not limited to:

a) Sun and Shadow Study;
b) Odour Study;
c) Sign Evaluation Study;
d) Spill Contingency Plan; and
e) Foundation Survey Report.

## 1.4. AUTOCAD & DRAWING REQUIREMENTS

All engineering drawings submitted to the Town must meet the following requirements;

- Drawings are to be neat, legible, and in metric units.
- A scale bar shall be included on all engineering plans
- The engineering drawings and CAD files must be georeferenced to NAD83 / UTM Zone 17N, CGVD28;78.
- All engineering drawings submitted for approval must be sealed, signed, and dated by a professional engineer licensed to practice in the province of Ontario.
- The file size for each drawing must be less than 5MB

## 1.5. GENERAL REQUIREMENTS

All Site Plan/Subdivision submissions to the Town must include the following;

- Electronic copies of all native, editable model files used in all analyses, e.g., Visual OTTHYMO (.voprj), PCSWMM/SWMM5 (.inp/.pcp), Synchro/SimTraffic (.syn/.hst/.sim), AGI (.agi), etc., that were used to generate the engineering drawings and reports. When submitting your models for review, package all of these native files and any associated modeling files, PDFs of reports or plot outputs alone will not suffice.
- The Town's comment matrix in Excel format with responses to each of the Town's comments. The applicant shall also specify the "Actions by Consultant" to indicate compliance or require further discussion.

Reports and studies that were previously conducted for the development application are valid for no more than 3 years from the date of publication unless otherwise directed by the Town.

The CAD files of the accepted engineering drawings are to be submitted to the Town. All xrefs must be included in the package and the CAD files must be georeferenced to NAD83 / UTM Zone 17N, CGVD28;78.

The latest Town's engineering standards are applicable to the first detailed design submissions for new developments.

The latest version of codes, regulations, guidelines, and policies shall be applied in the design of new development.

## 1.6. SUBSURFACE UTILITY ENGINEERING INVESTIGATIONS

The use of subsurface utility engineering (SUE) investigation is encouraged when there is insufficient underground information, and the congestion of utilities is present. The Town may request a SUE investigation if insufficient existing underground information provided. A copy of the SUE investigation, including the electronic files, is to be provided to the Town.

### 1.6.1 Quality Level Surveys

The collection and depiction of existing subsurface utility data shall be used to provide guidance, when the Town expects the various quality levels D through A. Quality levels are explained as following;

- Quality Level D – Information derived from existing records or oral recollections.
- Quality Level C – Information obtained by surveying and plotting visible above-ground utility features and by using professional judgement in correlating this information to Quality Level D.
- Quality Level B – Information obtained through the application of appropriate surface geophysical techniques to determine the existence and approximate horizontal and vertical position of subsurface utilities.
- Quality Level A – Information obtained by exposing and measuring the precise horizontal and vertical position of a utility at a specific point.

### 1.6.2 Test Pits

Test pits, where requested, will be carried out to obtain information regarding the location and depth of existing utilities prior to commencing construction.

## 1.7. TOPOGRAPHICAL SURVEYS

Topographical surveys must be conducted for all development projects and utilized to guide the site's proposed design. Each survey must be signed and sealed by a licensed Land Surveyor. The topographical survey must accurately represent the site's current conditions and be dated within three years of the initial detailed design submission.

## 1.8. CONSOLIDATED LINEAR INFRASTRUCTURE ENVIRONMENTAL COMPLIANCE APPROVALS

Consolidated Linear Infrastructure Environmental Compliance Approvals (CLI ECAs) are required for public municipal sewage collection systems and stormwater management systems within the Town.

Prior to acceptance of the stormwater infrastructure and facilities by the Town, the applicable CLI ECA forms (SW1, SW2, and SW3) shall be completed, signed, and provided to the Town. A separate CLI ECA submission for the water and wastewater infrastructure shall be submitted to InnServices.

Privately owned stormwater infrastructure may require a direct submission to the Ministry of the Environment, Conservation and Parks (MECP). Developers are responsible for contacting the MECP to confirm submission requirements

## 1.9. METROLINX CORRIDOR:

Where a project is located within an area subject to various Metrolinx Policies the Project Engineer is required to contact Metrolinx and confirm requirements for the site. General information can be obtained on the website:

www.gosite.ca/engineering_public

Typical works requiring confirmation are related to (but not limited to):

- Stormwater Management
- Crash Berms
- Noise Attenuation
- Ground Vibration

## 1.10. BARRIER-FREE CONSIDERATIONS:

All design projects throughout the Town of Innisfil must give due consideration to the Accessibility for Ontarians with Disabilities Act (AODA) and must incorporate ways to remove barriers for the public.

## 1.11. REVISION INFORMATION:

The Town of Innisfil recognizes that revisions and updates to this document will be required from time to time.

A complete list of revisions is included in Appendix A. It is the responsibility of the designer to obtain and make use of the latest version of this document available at the time of design.

Any person may request a change or revision by submitting a written request to the Manager of Engineering using the form provided in Appendix A.

## 1.12. APPROVED MATERIALS:

Products that are for use in public infrastructure jobs including roads, water systems, sewer systems and traffic related products must be approved by the Town. The Town has developed a list of products that have worked well in the past and have included these products in our Lists of Approved Materials found in Appendix B.

The Town does not have the resources to properly test and evaluate the many products in the marketplace. The Town has decided to adopt the Designated Sources for Materials (DSM) from the Ministry of Transportation (MTO) which is available from The Road Authority (TRA) web site as acceptable products for use in the Town of Innisfil. The MTO and the TRA have extensive resources to test and approve new products. Products that are currently on the Town's Lists of Approved Materials will be grandfathered and these products can be used even if they are not on the TRA's website.

The Town reserves the right to remove products or add additional products if staff has enough information to support the change.