SHORELINE PERMIT APPLICATION

The undersigned hereby applies to the Town of Innisfil to consider this Community Planning Permit Application pursuant to Section 34 of the Planning Act, R.S.O. 1990, as amended and O. Reg. 173/16.

FOR OFFICE USE ONLY		
Shoreline Permit #:	Date Received:	
LSRCA fees collected: ☐ Yes ☐ No	Receipt #:	
☐ **Class 3 (Standard)** (Conforms to CPPS By-law)	☐ **Class 2 Permit** (Staff Variation)	☐ **Class 1 Permit** (Council Variation)

1. LOCATION OF SUBJECT LANDS

Municipal Address: 1706 LAKEWOOD, INNISFIL, ON

Town Lot and Concession Number:

Registered Plan and Lot/Block Number:

Reference Plan and Part Numbers:

2. APPLICANT INFORMATION:

[redacted]

3. OWNER INFORMATION: ☐ Same as Applicant

[redacted]

4. PURPOSE OF APPLICATION:

Description of proposed work ***(please include a detailed description including any proposed new structures or removal of structures, landscape changes, waterfront impacts, etc.):***

BOATHOUSE

5. PROPERTY DIMENSIONS:

Lot Frontage: 220 m	Lot Depth: 900 m	Lot Area: 14 ACRES
Area of Work (m2): 42 m2		

6. IS A VARIANCE BEING REQUESTED WITHIN THE PROVISIONS SET OUT IN THE COMMUNITY PLANNING PERMIT BY-LAW?

☒ Yes ☐ No

If Yes, please provide a brief description and rationale for the variance:

HEIGHT

7. ARE YOU PROPOSING TO CONSTRUCT ANY IN-WATER STRUCTURES? (i.e. Boathouse, Permanent Dock, Breakwaters)

☐ Yes ☒ No

If yes, please provide a brief description of the proposed in-water structures:

8. ACCESS & SERVICING

Property Access: ☐ By a Public Road ☒ By a Private Road ☐ Other:

Property Storm Drainage: ☐ Sewers ☐ Ditches ☐ Swales ☐ Other:

Water Service Type: ☐ Publicly owned ☒ Privately owned ☐ Other:

Sanitary Sewer Service Type: ☐ Septic System ☐ Privy ☐ Other:

Easements: ☐ Yes ☒ No

If Yes, please provide a description:

9. HAS THE LAND EVER BEEN THE SUBJECT OF AN APPLICATION UNDER THE ACT FOR: ☐ Yes ☐ No If yes, please complete the below:

Check all applicable boxes and provide file number if applicable:

☑ Plan of Subdivision *(File Number: _____ Status: _____)*
☑ Zoning Amendment *(File Number: _____ Status: _____)*
☑ Site Plan Control *(File Number: _____ Status: _____)*
☑ Minor Variance *(File Number: _____ Status: _____)*
☐ Consent/Severance *(File Number: _____ Status: _____)*
☐ Other:

10. HAVE YOU HAD ANY CONSULTATIONS WITH ANY DEPARTMENTS OR EXTERNAL AGENCIES? ☐ Yes ☐ No If yes, please complete the below:

Check all applicable boxes and provide file number if applicable:

☐ Town of Innisfil staff
☐ Lake Simcoe Region Conservation Authority (LSRCA)
☐ Ministry of Natural Resources and Forestry
☐ Fisheries and Oceans Canada
☐ Transport Canada

☑ **Check here to agree, if the Agent is not the owner:**
I have been authorized by the registered owner(s) of the subject lands to submit this application on their behalf. Furthermore, for the purpose of the Municipal Freedom of Information and Protection of Privacy Act (MFIPPA), I authorize and consent to the use by disclosure to any person or public body of any information collected under the Planning Act for the purpose of processing this application.

☑ **Check here to agree:**
I declare that all of the statements made and the information provided in this application, as well as any supporting documents are true. I make this declaration conscientiously believing it to be true and knowing it is of the same force and effect as if made under oath or solemn affirmation. I understand that it is an offence to declare a false statutory declaration under section 134 of the Criminal Code of Canada.

☑ **Check here to agree:**
I declare that all documents, drawings, site plans, reports, information and material provided in this application will become the property of the Town of Innisfil and can be used for any reason deemed necessary by the Town of Innisfil.

☑ **Check here to agree:**
If upon review of your application, Town Staff or Lake Simcoe Region Conservation Authority (LSRCA) requires additional review fees, the Applicant and/or Owner agrees to pay any additional review fees to the Town or LSRCA.

☑ **Check here to agree:**
If, after six months after the issuance of this permit, the proposed work in respect to which it was issued, has not in the opinion of Town of Innisfil staff, been seriously commenced, the Town of Innisfil has the ability to revoke the permit. Also, in the opinion of Town of Innisfil staff, this permit can be revoked if the proposed work has been substantially suspended or discontinued for a period of more than one year.

☑ I declare that I have read and understand the above.

[redacted]

Owner's Authorization for Applicant or Agent to Apply for a Permit on behalf of the Owner

Innisfil

Town of Innisfil
Planning Department
2101 Innisfil Beach Road,
INNISFIL, ON L9S 1A1
Tel : 705-436-3710
1-888-436-3710
Fax: 705-436-7120

Date: Feb 6/20 Permit No.: _____

Proposed Work: Barnhouse

Location: 1761 Longwood RD

The undersigned, being the owner(s) of the above referenced property, authorizes

Marinus Swart — 1761 Longwood RD

Applicant Name — Address

to apply for a permit for the above referenced project on my behalf. I understand that I shall be responsible for the terms of the conditions contained in the permit.

(If owner is an INDIVIDUAL)

[redacted]

Owner's Signature — Phone No. / E-Mail

(If owner is a CORPORATION)

_____ _____

Owner's Name — Address

_____ _____

Name of Authorizing Officer — Phone No. / E-Mail

_____

Signature of Authorizing Officer (I have authority to bind the Corporation)

Soil Engineers Ltd.
CONSULTING ENGINEERS
GEOTECHNICAL • ENVIRONMENTAL • HYDROGEOLOGICAL • BUILDING SCIENCE
100 NUGGET AVENUE, TORONTO, ONTARIO M1S 3A7 • TEL: (416) 754-8515 • FAX: (416) 754-8516

BARRIE	MISSISSAUGA	OSHAWA	NEWMARKET	GRAVENHURST	PETERBOROUGH	HAMILTON
TEL: (705) 721-7863	TEL: (905) 542-7605	TEL: (905) 440-2040	TEL: (905) 853-0647	TEL: (705) 684-4242	TEL: (905) 440-2040	TEL: (905) 777-7956
FAX: (705) 721-7864	FAX: (905) 542-2769	FAX: (905) 725-1315	FAX: (416) 754-8516	FAX: (705) 684-8522	FAX: (905) 725-1315	FAX: (905) 542-2769

A REPORT TO
DR. SAMMY SLIWIN

A SOIL INVESTIGATION FOR
PROPOSED COTTAGE

1706 LONGWOOD ROAD

TOWN OF INNSIFIL

REFERENCE NO. 1508-S056

NOVEMBER 2015

DISTRIBUTION

2 Copies - Gunnell Engineering Ltd.
1 Copy - Richard Wengle Architect Inc.
1 Copy - Soil Engineers Ltd. (Barrie)
1 Copy - Soil Engineers Ltd. (Toronto)

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ENCLOSURES

1.0 INTRODUCTION

In accordance with written authorization dated August 10, 2015, from Dr. Sammy Sliwin, a soil investigation was carried out at 1706 Longwood Road, in the Town of Innisfil, for a proposed Cottage.

The purpose of the investigation was to reveal the subsurface conditions and to determine the engineering properties of the disclosed soils for the design and construction of the proposed project, and to carry out a slope stability analysis on the subject property.

The geotechnical findings and resulting recommendations are presented in this Report.

2.0 SITE AND PROJECT DESCRIPTION

The Town of Innisfill is situated within the physiographical region known as the Lake Simcoe basin, where the glacial till has been partly eroded in places by glacial Lake Algonquin and filled with gravelly sand (of glaciofluvial origin) and/or lacustrine sand, silt and clay.

The subject site is at the north portion of the lot having the municipal address of 1706 Longwood Road, located on the south shore of Lake Simcoe (Kempenfelt Bay). A creek at the south edge of the investigated area traverses east-to-west across the lot. At the time of investigation, the site was treed, with an existing cottage to the south of the investigated area.

It is understood that a new cottage will be constructed on the vacant portion of the site. The new cottage will be provided with private water and septic systems and a driveway.

3.0 **FIELD WORK**

The field work, consisting of 4 boreholes to depths ranging from 6.6 to 11.3 m, was performed on September 3, 2015, at the locations shown on the Borehole and Cross-Section Location Plan, Drawing No. 1.

The holes were advanced at intervals to the sampling depths by a track-mounted, continuous-flight power-auger machine equipped for soil sampling. Standard Penetration Tests, using the procedures described on the enclosed "List of Abbreviations and Terms", were performed at the sampling depths. The test results are recorded as the Standard Penetration Resistance (or 'N' values) of the subsoil. The relative density of the granular strata and the consistency of the cohesive strata are inferred from the 'N' values. Split-spoon samples were recovered for soil classification and laboratory testing.

The field work was supervised and the findings were recorded by a Geotechnical Technician.

The elevation at each of the borehole locations was interpolated from contours on the Preliminary Site Plan, Drawing No. SP-2, dated May 1, 2015, provided by Gunnell Engineering Ltd.

4.0 **SUBSURFACE CONDITIONS**

Detailed descriptions of the encountered subsurface conditions are presented on the Borehole Logs, comprising Figures 1 to 4, inclusive. The revealed stratigraphy is plotted on the Subsurface Profile, Drawing No. 2, and the engineering properties of the disclosed soils are discussed herein.

The investigation has revealed that beneath a layer of topsoil, the site is underlain by strata of fine sand and silty sand with occasional layers of sandy silt and gravelly sand.

4.1 **Topsoil** (All Boreholes)

The revealed topsoil layer is 23 cm and 30 cm in thickness. It is dark brown in colour, indicating that it contains appreciable amounts of roots and humus. These materials are unstable and compressible under loads; therefore, the topsoil is considered to be void of engineering value. Due to its humus content, it will generate an offensive odour and may produce volatile gases under anaerobic conditions. Therefore, the topsoil fill must not be buried deeper than 1.2 m below the external finished grade or within the building envelope. This is to avoid an adverse impact on the environmental well-being of the proposed project.

Since the topsoil is considered void of engineering value, it can only be used for general landscaping and landscape contouring purposes. A fertility analysis should be carried out to determine the suitability of the topsoil fill for use as a general planting material.

4.2 **Fine Sand** (All Boreholes)

The sand is the predominant soil, and it extends to the maximum investigated depth in all boreholes except Borehole 3. The other encountered soil types are generally interstratified within the sand stratum. The layered structure shows that the sand is a lacustrine deposit.

Sample examinations showed that the sand is non-cohesive, and generally in a damp condition. The latter is confirmed by the water content of the samples, which was found to range from 2% to 23%, with a median of 4%. The high moisture indicates the sand in the lower zone of the revealed stratigraphy is water-bearing.

The wet samples displayed a moderate dilatancy when shaken by hand.

The obtained 'N' values range from 2 blows per 30 cm to 50 blows per 15 cm, with a median of 41 blows per 30 cm. The relative density of the sand is thus inferred to be very loose to very dense, being generally dense. The very loose to loose condition occurs in the upper layer of the stratum where the sand has been loosened by the weathering process. The weathered soil extends to a depth of 1.4± m.

A grain size analysis was performed on 1 representative sample. The result is plotted on Figure 5.

Based on the above findings, the following engineering properties of the sand are deduced:

- Moderately low frost susceptibility with high water erodibility.
- Susceptible to migration through small openings under seepage pressure.

- Pervious, with an estimated coefficient of permeability of 10^{-3} cm/sec, an estimated percolation time of 10 min/cm, and runoff coefficients of:

Slope	
0% - 2%	0.04
2% - 6%	0.09
6% +	0.13

- A frictional soil, its shear strength is derived from internal friction and is soil density dependent. Due to its dilatancy, its shear strength is susceptible to impact disturbance; i.e., the disturbance will induce a build-up of pore pressure within the soil mantle, resulting in soil dilation and reduction of shear strength.
- In steep cuts, the sand will be stable in a damp to moist condition, but will slough if it is in a wet condition, run with seepage and boil with a piezometric head of about 0.4 m.
- A fair pavement-supportive material, with an estimated California Bearing Ratio (CBR) value of 8%.
- Low corrosivity to buried metal, with an estimated electrical resistivity of 6500 ohm·cm.

4.3 **Silty Sand** (Borehole 1)

The silty sand was found interstratified with the fine sand. Sample examinations show that the sand is non-cohesive and it is generally in a moist condition.

Traces of gravel were found in the deposit; the laminated structure shows the sand is a lacustrine deposit.

The obtained ‘N’ values in the silty sand range from 4 to 54, with a median of 44 blows per 30 cm. The relative density of the sand is thus inferred to be loose to very dense, being generally dense. The loose condition is generally confined to the

surficial layer that has been loosened by the weathering process. The weathered soil extends to a depth of 1.4± m.

The natural water content of the samples was determined and the results are plotted on the Borehole Logs. The values range from 4% to 12%, with a median of 10%, indicating that the sand is in a damp to very moist, generally moist condition.

A grain size analysis was performed on 1 representative sample and the result is plotted on Figure 6.

Accordingly, the following engineering properties are deduced:

- Highly frost susceptible with high soil-adfreezing potential.
- Highly water erodible.
- Relatively pervious, with an estimated coefficient of permeability of 10^{-4} cm/sec, an estimated percolation time of 20 min/cm, and runoff coefficients of:

Slope	
0% - 2%	0.07
2% - 6%	0.12
6% +	0.18

- A frictional soil, its shear strength is derived from internal friction and is density dependent. Due to its dilatancy, the shear strength of the wet sand is susceptible to impact disturbance; i.e., the disturbance will induce a build-up of pore pressure within the soil mantle, resulting in soil dilation and a reduction of shear strength.
- In relatively steep cuts, the sand will be stable in a damp to moist condition, but will slough if it is wet, run with water seepage and boil with a piezometric head of about 0.3 m.

- A fair material to support pavement, with an estimated CBR value of 8%.
- Moderately low corrosivity to buried metal, with an estimated electrical resistivity of 6000 ohm·cm.

4.4 **Sandy Silt** (Boreholes 3 and 4)

The sandy silt was found beneath the fine sand in Borehole 3, extending to the maximum investigated depth of 6.6 m, and interstratified with the fine sand in Borehole 4.

Sample examinations showed that the silt is non-cohesive. The samples are generally in a very moist condition and display appreciable dilatancy when shaken by hand.

The relative density of the silt is inferred as very dense. This is confirmed by the obtained 'N' values of 59 blows per 30 cm, 50 blows per 15 cm, and 50 blows per 10 cm.

The natural water content was determined, and the results are plotted on the Borehole Logs; the values, 7% and 16%, indicate the soil is in a moist to very moist condition.

A grain size analysis was performed on 1 representative sample, and the result is plotted on Figure 7.

Based on these findings, the engineering properties relating to the project are given below:

- Highly frost susceptible, with high soil-adfreezing potential.
- Highly water erodible; susceptible to migration through small openings under seepage pressure.

- Relatively pervious, with an estimated coefficient of permeability of 10^{-4} cm/sec, an estimated percolation time of 20 min/cm and runoff coefficients of:

Slope	
0% - 2%	0.07
2% - 6%	0.12
6% +	0.18

- A frictional soil, its shear strength is density dependent. Due to its dilatancy, the strength of the wet silt is susceptible to impact disturbance; i.e., the disturbance will induce a build-up of pore pressure within the soil mantle, resulting in soil dilation and a reduction in shear strength.
- In excavation, the moist silt will be stable in relatively steep cuts, while the wet silt will slough and run slowly with seepage bleeding from the cut face. It will boil with a piezometric head of 0.3 m.
- A poor pavement-supportive material, with an estimated CBR value of 5%.
- Moderately low corrosivity to buried metal, with an estimated electrical resistivity of 5000 ohm·cm.

4.5 **Gravelly Sand** (Boreholes 3 and 4)

The gravelly sand contains a trace of silt; sample examinations show the particle sizes of the sand fraction are well graded, and the gravel and sand particles are subangular to rounded in shape. This shows that the sandy gravel is an alluvial deposit.

The obtained ‘N’ values are 8 and 31, showing the relative density of the deposit is loose to dense.

The natural water content of the samples was determined, and the results are plotted on the Borehole Logs; the values, 1% and 2%, indicating that the sand is in a dry to damp condition.

A grain size analysis was performed on 1 representative sample, and the result is plotted on Figure 8.

Accordingly, the following engineering properties are deduced:

- Non-frost-susceptible and moderately water erodible.
- Pervious, with an estimated coefficient of permeability of 10^{-2} cm/sec, an estimated percolation time of 4 min/cm, and runoff coefficients of:

Slope	
0% - 2%	0.04
2% - 6%	0.09
6% +	0.13

- A frictional soil, its shear strength is derived from internal friction and is soil density dependent.
- In steep cuts, the dry sand will slough to its angle of repose, run with water seepage and boil with a piezometric head of about 0.5 m.
- An excellent pavement-supportive material, with an estimated CBR value of 51% or more.
- A non-corrosive material for buried metal, with an estimated electrical resistivity of 7000 ohm·cm.

4.6 **Compaction Characteristics of the Revealed Soils**

The obtainable degree of compaction is primarily dependent on the soil moisture and, to a lesser extent, on the type of compactor used and the effort applied.

As a general guide, the typical water content values of the revealed soils for Standard Proctor compaction are presented in Table 1.

Table 1 - Estimated Water Content for Compaction

Soil Type	Determined Natural Water Content (%)	Water Content (%) for Standard Proctor Compaction	
		100% (optimum)	Range for 95% or +
Fine Sand	2 to 23 (median 4)	11	5 to 16
Silty Sand	4 to 12 (median 10)	10	6 to 15
Sandy Silt	7 and 16	12	8 to 16
Gravelly Sand	1 and 2	6	3 to 11

The above values show that the sandy silt and most of the silty sand are generally suitable for 95% or + Standard Proctor compaction. Portions of the fine sand are too wet and will require aeration prior to structural compaction. Aeration can be carried out by spreading the soil thinly on the ground during dry, warm weather, or by proper stockpiling. The gravelly sand and the majority of the fine sand are too dry and will require wetting prior to structural compaction.

The soils can be compacted by smooth roller with or without vibration, depending on the water content of the soils being compacted. The lifts for compaction should be limited to 20 cm, or to a suitable thickness as assessed by test strips performed by the equipment which will be used at the time of construction.

If the compaction of the soils is carried out with the water content within the range for 95% Standard Proctor dry density but on the wet side of the optimum, the surface of the compacted soil mantle will roll under the dynamic compactive load. This is unsuitable for pavement construction since each component of the pavement structure

is to be placed under dynamic conditions which will induce the rolling action of the subgrade surface and cause structural failure of the new pavement. The foundations for buildings and utilities will be placed on a subgrade which will not be subjected to impact loads. Therefore, the structurally compacted soil mantle with the water content on the wet side or dry side of the optimum will provide an adequate subgrade for the construction.

One should be aware that 90%± Standard Proctor compaction of the wet inorganic sand and silt is achievable. Further densification is prevented by the pore pressure induced by the compactive effort; however, large random voids will have been expelled, and with time the pore pressure will dissipate and the percentage of compaction will increase. There are many cases on record where after a few weeks to months of rest, the density of the compacted mantle has increased to over 95% of its maximum Standard Proctor dry density.

5.0 GROUNDWATER CONDITIONS

The boreholes were checked for the presence of groundwater and the occurrence of cave-in upon their completion. Borehole 1 caved at a depth of 7.9± m, or El. 218.9± m, while the other 3 boreholes remained dry upon their completion. The detected groundwater level corresponds to the water level in Lake Simcoe, and will fluctuate based on seasonal lake levels.

The groundwater yield from the sands and silt will be minimal above the groundwater table, and appreciable and persistent below the groundwater table.

6.0 DISCUSSION AND RECOMMENDATIONS

The investigation has revealed that beneath a layer of topsoil, the site is underlain by strata of very loose to very dense, generally dense fine sand and loose to very dense, generally dense silty sand, with occasional layers of very dense sandy silt and loose to dense gravelly sand.

Groundwater was detected in 1 borehole at a depth of 7.9± m below the prevailing ground surface, and the groundwater level will vary with the water level in Lake Simcoe. The groundwater yield from the sands below the groundwater table will be appreciable and persistent.

The geotechnical findings which warrant special consideration are presented below:

1. The topsoil contains appreciable amounts of humus and may generate volatile gases under anaerobic conditions; therefore, it is unsuitable for engineering applications. For the environmental as well as the geotechnical well-being of the future development, the topsoil fill should not be buried deeper than 1.2 m below the external finished grade or within the building envelope.
2. The sound native soil is suitable for normal spread and strip footing construction. Due to the presence of topsoil and weathered sand, the footing subgrade must be inspected by a geotechnical engineer, or a geotechnical technician under the supervision of a geotechnical engineer, or a building inspector who has geotechnical experience, to ensure that its condition is compatible with the design of the foundation.
3. Excavation should be carried out in accordance with Ontario Regulation 213/91.

The recommendations appropriate for the project described in Section 2.0 are presented herein. One must be aware that the subsurface conditions may vary between boreholes. Should this become apparent during construction, a geotechnical engineer must be consulted to determine whether the following recommendations require revision.

6.1 **Slope Stability Analysis** (Boreholes 1 and 4)

Slope stability analyses were conducted at the south shore of Lake Simcoe, located at the northern edge of the site, and at the north bank of the creek located south of the proposed cottage. Visual inspection of the slopes was conducted on September 10, 2015.

The existing north (lake) slope has an overall height of 7.0± m measured from the bottom of the slope to the top of the slope, with a gradient of 1 vertical:0.8 horizontal. Significant erosion was observed at one portion of the slope, with the trees on the face of the slope being undermined.

The existing south (creek) slope has an overall height of 5.0± m measured from the bottom of the slope to the top of the slope, with a gradient of 1 vertical:1.1 horizontal. The slope is mostly bare, with light surface vegetation. Trees on the slope are leaning slightly, and there are signs of surface erosion from overland flow.

The creek at the bottom of the south slope was flowing slowly at the time of investigation, with a water depth of approximately 5 cm. The creek likely experiences faster-moving, moderate-volume flow during storm events. These flows will likely cause erosion of the creek bed and sides.

Two cross-sections, Cross-Sections A-A and B-B, were selected for the analysis as being most likely to be impacted by the proposed development. The locations of the cross-sections are shown on Drawing No. 1. The surface profile has been interpreted from the topographic plan provided by Gunnell Engineering Ltd. The subsurface profile is interpreted from the borehole logs.

The slope stability was analyzed using force-moment-equilibrium criteria with the soil strength parameters shown in Table 2.

Table 2 - Soil Strength Parameters

	γ (kN/m^3)	**c (kPa)**	**ϕ (degrees)**
Topsoil	18.0	0	26
Silty Sand/Sandy Silt	20.5	0	31
Fine Sand	20.0	0	33
Gravelly Sand	21.5	0	35

The results of the analyses are presented on Drawing Nos. 3 and 4. The calculated Factor of Safety (FOS) for both cross-sections is 0.80, which does not meet the OMRN guideline requirements for active residential land use (FOS of 1.5).

Further analysis was carried out to determine the long-term stable gradient, defined as the steepest gradient with a FOS value of 1.5. The results of the analysis are presented on Drawing Nos. 5 and 6, and show that a gradient of 1 vertical: 2.5 horizontal will be geotechnically stable, with a minimum FOS exceeding 1.5, and meeting the OMNR requirements.

Accordingly, the long-term stable top of slope (LTSTOS) based on a stable gradient of 1 vertical:2.5 horizontal, is 11.2 m landwards from the existing top of the north slope and 6.1 m landwards from the existing top of the south slope.

As shown on Drawing Nos. 5 and 6, the edges of the proposed development, including the swimming pool and septic bed, lie beyond the required setbacks and will therefore not affect the long-term stability of the slopes.

To mitigate ongoing erosion, all slope surfaces must be vegetated and protected from erosion. Protection measures should be installed to prevent toe erosion which will lead to sloughing of the slope above the bank. Regular maintenance of the vegetation on the slope will be necessary. In addition, draining of surface water over the slope should be prohibited.

The swimming pool must be designed to be leak-proof and water must not be allowed to seep into the slope, which would saturate the subsoil and cause instability. When emptying the pool, water must not be allowed to discharge onto the slope or top of slope. Where the swimming pool is to be constructed by excavating into the existing ground, no additional load will be imposed on the slope. However, where the swimming pool is to be constructed above ground, additional surcharge load will result and the overall slope stability must be re-checked.

In future development, should any alteration be carried out in the slope areas, it should either be restored to its original condition or better than its original condition.

In order to prevent the occurrence of localized surface slides in the future and to enhance the stability of the slope, the following geotechnical constraints apply:

1. The prevailing vegetative cover must be maintained, since its extraction would deprive the rooting system that is reinforcement against soil erosion by weathering. If for any reason the vegetation cover is stripped, it must be reinstated to its original, or better than its original, protective condition.

Restoration with selective native plantings including deep rooting systems which would penetrate the original buried topsoil shall be carried out to ensure bank stability.

2. Grading of the land adjacent to the slope must be such that concentrated runoff is not allowed to drain onto the slope face. Landscaping features which may cause runoff to pond at the top of the slope, as well as frequent lawn watering, must not be permitted.
3. The leafy topsoil cover on the bank face should not be disturbed, since this provides an insulation and screen against frost wedging and rainwash erosion.
4. Where development is carried out near the top of the slope, there are other factors to be considered related to possible human environmental abuse. Soil saturation from maintenance of landscaping features, stripping of topsoil or vegetation, and dumping of loose fill over the bank must not be allowed.

The above recommendations are subject to the approval of the LSRCA.

6.2 **Foundations** (Boreholes 2 and 3)

Based on the borehole findings, the normal spread and strip footings must be placed below the topsoil and weathered soil onto the sound natural soils. As a general guide, the recommended soil pressures for use in the design of the footings, together with the corresponding suitable founding levels, are presented in Table 3.

Table 3 - Founding Levels

Borehole No.	Recommended Maximum Allowable Soil Pressure (SLS)/ Factored Ultimate Soil Bearing Pressure (ULS) and Suitable Founding Level	
	200 kPa (SLS) 320 kPa (ULS)	
	Depth (m)	El. (m)
2	1.5 or +	226.8 or -
3	1.5 or +	227.7 or -

The recommended soil pressure (SLS) incorporates a safety factor of 3. The total and differential settlements of the footings are estimated to be 25 mm and 15 mm, respectively.

The foundations exposed to weathering, and in unheated areas, should have at least 1.5 m of earth cover for protection against frost action, or must be properly insulated.

The footings must meet the requirements specified in the latest Ontario Building Code. As a guide, the structure should be designed to resist an earthquake force using Site Classification 'C' (very dense soil).

Due to the presence of topsoil and weathered soil, the footing subgrade must be inspected by a geotechnical engineer, or a geotechnical technician under the supervision of a geotechnical engineer, or a building inspector who has geotechnical experience, to assess its suitability for bearing the designed foundations.

The exterior grading must be such that runoff is directed away from the building.

As mentioned, the sandy silt and silty sand are highly frost susceptible and high in soil-adfreezing potential. Where these soils are used to backfill against foundation

walls, special measures must be incorporated into the building construction to prevent serious damage due to soil-adfreezing.

6.3 Backfilling in Trenches and Excavated Areas

The on-site inorganic soils are generally too dry and will require wetting to be suitable for trench backfill.

The backfill in the trenches should be compacted to at least 95% of its maximum Standard Proctor dry density and increased to 98% below the floor slab. In the zone within 1.0 m below the driveway subgrade, the materials should be compacted with the water content 2% to 3% drier than the optimum, and the compaction should be increased to at least 98% of the respective maximum Standard Proctor dry density. This is to provide the required stiffness for pavement construction. In the lower zone, the compaction should be carried out on the wet side of the optimum; this allows a wider latitude of lift thickness. Backfill below any slab-on-grade which is sensitive to settlement must be compacted to at least 98% of its maximum Standard Proctor dry density.

6.4 Septic Tile Bed

The limitation for normal in-ground septic tile bed construction are that the bottom of the absorption trenches, or the surface of a filter medium, be located a minimum of 0.9 m above the highest groundwater level and above rock or soils with a percolation time exceeding 50 min/cm. The soil in the treatment zone should possess acceptable effluent absorption properties expressed in a percolation time of between 1 min/cm and 50 min/cm.

As shown, the predominant in situ soils near the surface consist of fine sand and silty sand which have moderately high permeability and are suitable for in-ground septic tile bed construction.

The recommended percolation time ('T') for the design of the septic tile bed in fine sand/silty sand is T= 10 to 20 min/cm. However, this should be confirmed by laboratory testing of additional soil samples retrieved at the location of the proposed septic tile bed once its location and depth are determined. A detailed design of the septic tile bed system can be obtained from the Ontario Building Code.

To prevent effluent mounding over the soil and the groundwater regime, the following criteria must be used for the design of a septic bed:

1. The effluent should be evenly distributed over the entire tile bed area.
2. The filter medium should have a minimum thickness of 1.1 m.

In order to enhance an efficient bed operation, the following requirements should be incorporated in the septic tile bed construction:

1. All topsoil should be stripped from the tile bed area.
2. The sand filter should be keyed into the soil mantle to about 15 cm below the surface of the soil.
3. Grading of the surrounding areas should be such that it directs surface runoff away from the tile bed area.
4. The bed should be located in an unshaded area.
5. The fissured pattern of the underlying soil should not be disturbed, as this would reduce its capacity for in-ground effluent absorption.

6. In the low areas, the septic tile bed should be elevated so that surface runoff will not pond.

It is understood that the design of the septic tile bed will be conducted by others.

6.5 **Pavement Design**

As noted, some of the in situ soils are high in frost susceptibility and soil-adfreezing potential. Therefore, one must realize that heaving of the pavement will occur during the cold weather. In order to minimize pavement heaving, the following pavement structure is recommended.

Table 4 - Pavement Design

Course	Thickness (mm)	OPS Specifications
Asphalt Surface	30	HL-3
Asphalt Binder	40	HL-8
Granular Base	150	Granular 'A'
Granular Sub-base	450	Granular 'B'

Roadside ditches or shoulder subdrains should be provided to prevent saturation of the bases by infiltrated precipitation.

The driveway at the entrance to the garage must be backfilled with non-frost-susceptible granular material, with a frost taper at a slope of 1 vertical:2 horizontal. The garage floor slab must be insulated with 75-mm Styrofoam, or equivalent.

In preparation of the subgrade, the topsoil and must be stripped, and the subgrade surface must be proof-rolled. Any soft subgrade, organics, deleterious materials and

foreign matter should be subexcavated and replaced by properly compacted, organic-free earth fill or granular materials. All the granular bases should be compacted to their maximum Standard Proctor dry density.

In the zone within 1.0 m below the pavement subgrade, the backfill should be compacted to at least 98% of its maximum Standard Proctor dry density, with the water content 2% to 3% drier than the optimum. In the lower zone, a 95% or + Standard Proctor compaction is considered adequate.

6.6 Soil Parameters

The recommended soil parameters for the project design are given in Table 5.

Table 5 - Soil Parameters

Unit Weight and Bulk Factor	**Unit Weight (kN/m^3)**		**Estimated Bulk Factor**	
	Bulk	**Submerged**	**Loose**	**Compacted**
Topsoil	18.0	-	1.35	0.95
Fine Sand and Gravelly Sand	20.0	10.8	1.25	1.00
Silty Sand and Sandy Silt	20.5	10.8	1.20	1.00
Lateral Earth Pressure Coefficients				
	Active K_a	**At Rest K_0**	**Passive K_p**	
Fine Sand and Gravelly Sand	0.29	0.46	3.39	
Silty Sand and Sandy Silt	0.32	0.48	3.12	

6.7 **Excavation**

Excavation in excess of 1.2 m should be carried out in accordance with Ontario Regulation 213/91.

For excavation purposes, the types of soils are classified in Table 6.

Table 6 - Classification of Soils for Excavation

Material	Type
Sands and Silt above the groundwater table	3
Sands and Silt below the groundwater table	4

Excavation into the water-bearing sands will require the ground to be pre-drained by a dewatering system.

Prospective contractors must assess the in situ subsurface conditions prior to excavation by digging test pits to at least 0.5 m below the lowest excavation depth. These test pits should be allowed to remain open for a period of at least 4 hours to assess the trenching conditions.

7.0 LIMITATIONS OF REPORT

It should be noted that no tests have been carried out to determine whether environmental contaminants are present in the soils. Therefore, this report deals only with a study of the geotechnical aspects of the proposed project.

This report was prepared by Soil Engineers Ltd. for the account of Dr. Sammy Sliwin and for review by his designated consultants and government agencies. The material in it reflects the judgement of Benjamin Shindman, P.Eng., and Bernard Lee, P.Eng., in light of the information available to it at the time of preparation. Any use which a Third Party makes of this report, or any reliance on decisions to be made based on it, is the responsibility of such Third Parties. Soil Engineers Ltd. accepts no responsibility for damages, if any, suffered by any Third Party as a result of decisions made or actions based on this report.

SOIL ENGINEERS LTD.

Benjamin Shindman, P.Eng.

Bernard Lee, P.Eng.
BS/BL:dd

LIST OF ABBREVIATIONS AND DESCRIPTION OF TERMS

The abbreviations and terms commonly employed on the borehole logs and figures, and in the text of the report, are as follows:

SAMPLE TYPES

AS Auger sample
CS Chunk sample
DO Drive open (split spoon)
DS Denison type sample
FS Foil sample
RC Rock core (with size and percentage recovery)
ST Slotted tube
TO Thin-walled, open
TP Thin-walled, piston
WS Wash sample

PENETRATION RESISTANCE

Dynamic Cone Penetration Resistance:

A continuous profile showing the number of blows for each foot of penetration of a 2-inch diameter, 90° point cone driven by a 140-pound hammer falling 30 inches.

Plotted as '—●—'

Standard Penetration Resistance or 'N' Value:

The number of blows of a 140-pound hammer falling 30 inches required to advance a 2-inch O.D. drive open sampler one foot into undisturbed soil.

Plotted as '○'

WH Sampler advanced by static weight
PH Sampler advanced by hydraulic pressure
PM Sampler advanced by manual pressure
NP No penetration

SOIL DESCRIPTION

Cohesionless Soils:

'N' (blows/ft)	Relative Density
0 to 4	very loose
4 to 10	loose
10 to 30	compact
30 to 50	dense
over 50	very dense

Cohesive Soils:

Undrained Shear Strength (ksf)	'N' (blows/ft)	Consistency
less than 0.25	0 to 2	very soft
0.25 to 0.50	2 to 4	soft
0.50 to 1.0	4 to 8	firm
1.0 to 2.0	8 to 16	stiff
2.0 to 4.0	16 to 32	very stiff
over 4.0	over 32	hard

Method of Determination of Undrained Shear Strength of Cohesive Soils:

x 0.0 Field vane test in borehole; the number denotes the sensitivity to remoulding

△ Laboratory vane test

□ Compression test in laboratory

For a saturated cohesive soil, the undrained shear strength is taken as one half of the undrained compressive strength

METRIC CONVERSION FACTORS

1 ft = 0.3048 metres
1lb = 0.454 kg
1 inch = 25.4 mm
1ksf = 47.88 kPa

JOB NO: 1508-S056

LOG OF BOREHOLE NO: 1

FIGURE NO: 1

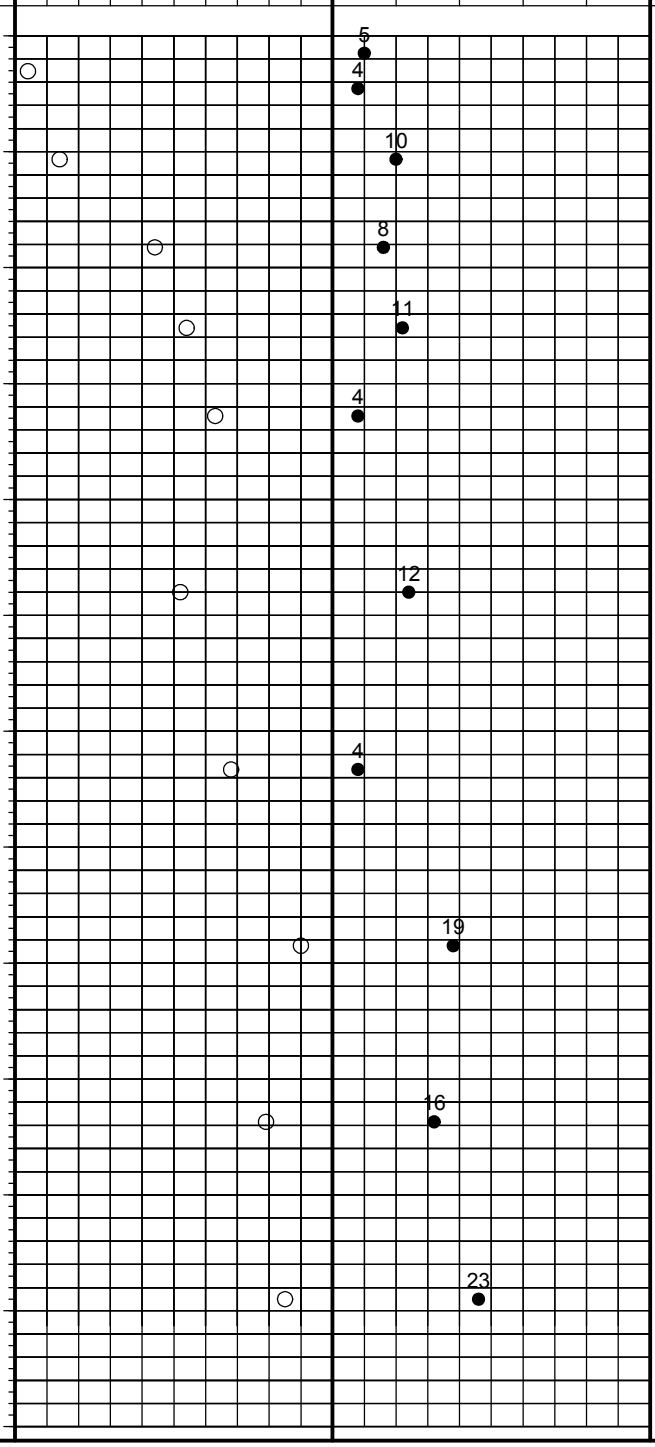
JOB DESCRIPTION: Proposed Cottage

JOB LOCATION: 1706 Longwood Road
Town of Innisfil

METHOD OF BORING: Solid-Stem Auger

DATE: September 3, 2015

Depth / Elev. (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value	Depth Scale (m)
0.0	Ground Surface				0
226.8	**30 cm TOPSOIL**	1A	DO	4	
	Brown, loose to very dense	1B			
	SILTY SAND	2	DO	14	1
	weathered				
	a trace of gravel	3	DO	44	2
		4	DO	54	
2.9					
223.9	Brown, very dense **FINE SAND** a trace of silt occ. clay seams and layers	5	DO	63	3
4.0					4
222.8	Brown, very dense **SILTY SAND**	6	DO	52	5
	a trace of gravel				
5.5					
221.3	Brown, very dense **FINE SAND**	7	DO	68	6
	a trace of silt				7
		8	DO	90	8
		9	DO	79	9
					10
		10	DO	85	11
11.1					
215.7	**END OF BOREHOLE**				12



WATER LEVEL

Cave-in @ El. 218.9 m on completion

Soil Engineers Ltd.

JOB NO: 1508-S056

LOG OF BOREHOLE NO: 2

FIGURE NO: 2

JOB DESCRIPTION: Proposed Cottage

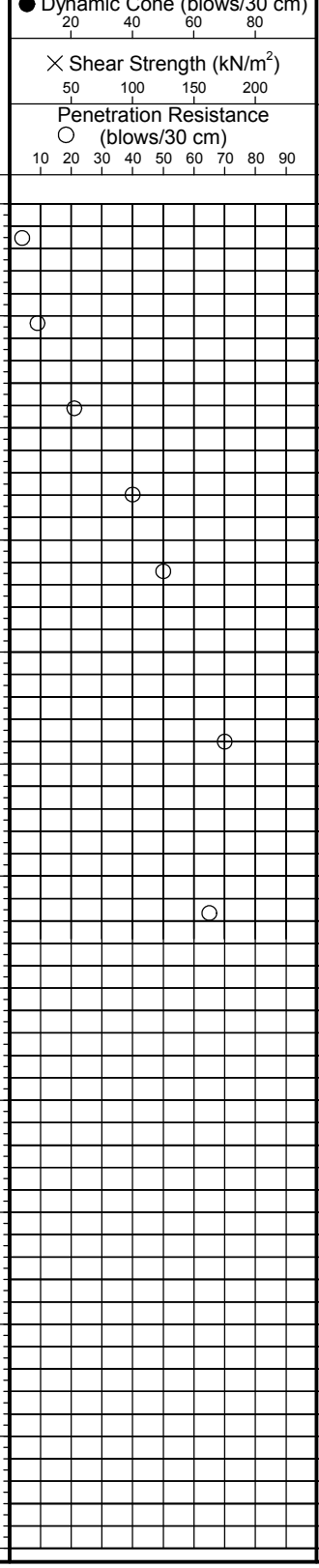
JOB LOCATION: 1706 Longwood Road
Town of Innisfil

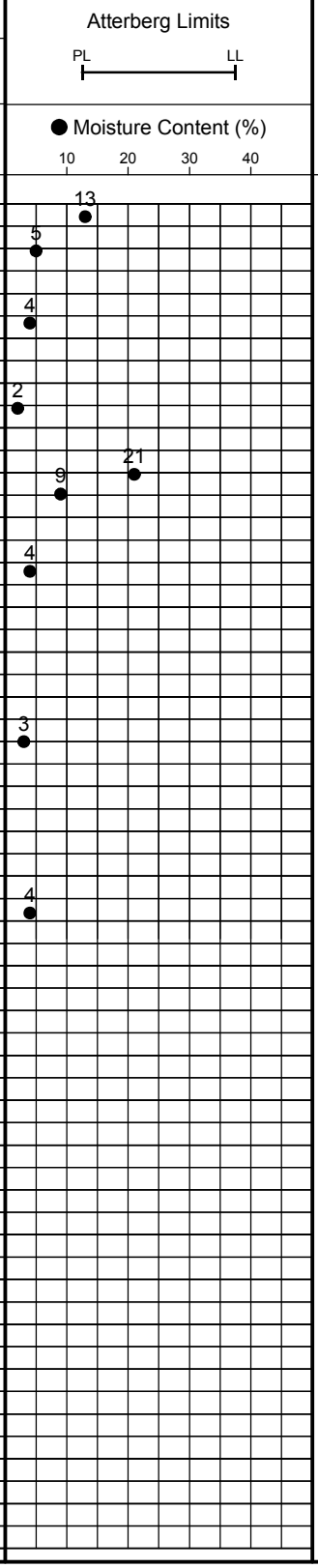
METHOD OF BORING: Solid-Stem Auger

DATE: September 3, 2015

Depth / Elev. (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value
0.0	Ground Surface			
228.3	**23 cm TOPSOIL**	1A	DO	4
	Brown, loose to very dense	1B		
	FINE SAND	2	DO	9
	weathered			
	a trace of silt occ. clay seams and layers	3	DO	21
	clay layer	4A	DO	40
		4B		
		5	DO	50
		6	DO	70
6.6		7	DO	65
221.7	**END OF BOREHOLE**			

Depth Scale (m): 0 1 2 3 4 5 6 7 8 9 10 11 12





WATER LEVEL: Dry on completion

Soil Engineers Ltd.

JOB NO: 1508-S056

LOG OF BOREHOLE NO: 3

FIGURE NO: 3

JOB DESCRIPTION: Proposed Cottage

JOB LOCATION: 1706 Longwood Road
Town of Innisfil

METHOD OF BORING: Solid-Stem Auger

DATE: September 3, 2015

Depth / Elev. (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value
0.0	Ground Surface			
229.2	**30 cm TOPSOIL**			
	Brown, dense **GRAVELLY SAND** a trace of silt occ. cobbles	1	DO	31
1.5				
227.7	Brown, compact to dense	2	DO	28
	FINE SAND			
		3	DO	32
	a trace of silt			
		4	DO	41
		5	DO	45
5.5				
223.7	Brown, very dense **SANDY SILT**			
6.6	a trace of clay	6	DO	59
222.6	**END OF BOREHOLE**			

Depth Scale (m): 0 1 2 3 4 5 6 7 8 9 10 11 12

● Dynamic Cone (blows/30 cm) 20 40 60 80

× Shear Strength (kN/m²) 50 100 150 200

○ Penetration Resistance (blows/30 cm) 10 20 30 40 50 60 70 80 90

Atterberg Limits PL — LL

● Moisture Content (%) 10 20 30 40

2 4 7 4 5 16

WATER LEVEL

Dry on completion

Soil Engineers Ltd.

JOB NO: 1508-S056

LOG OF BOREHOLE NO: 4

FIGURE NO: 4

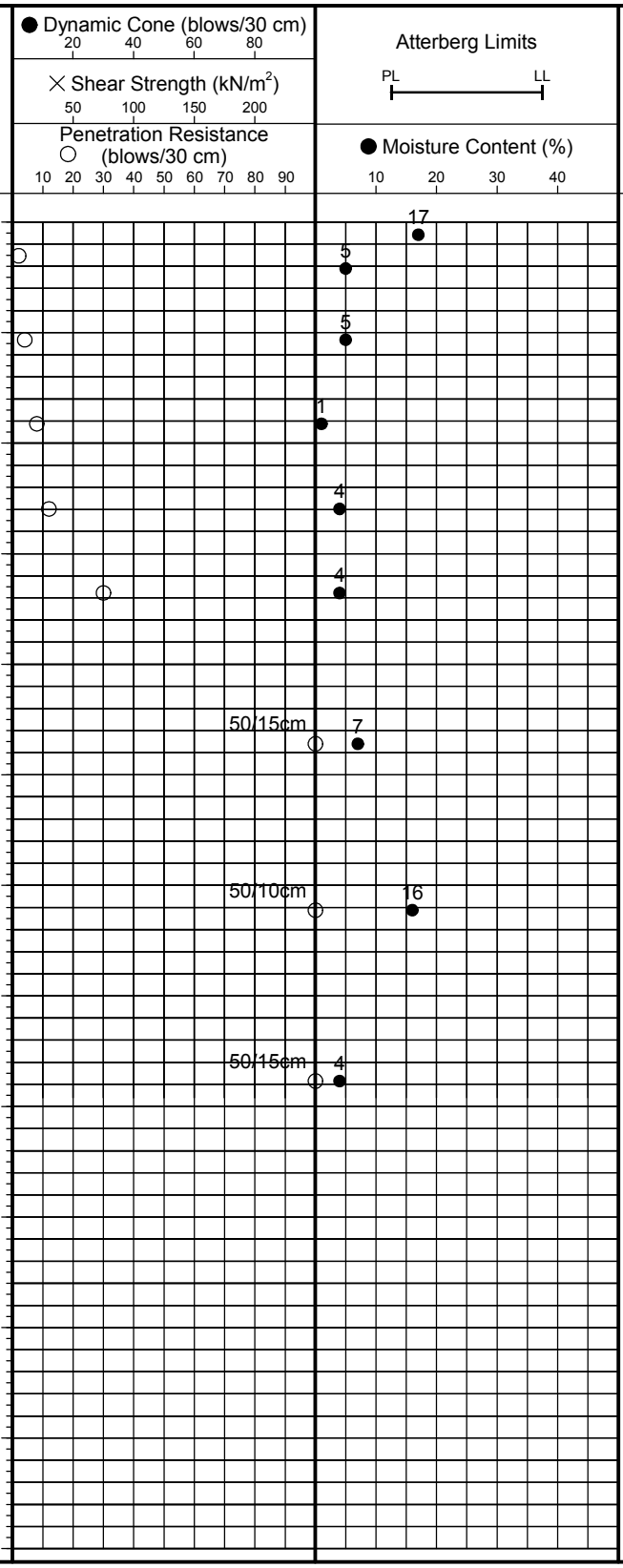
JOB DESCRIPTION: Proposed Cottage

JOB LOCATION: 1706 Longwood Road
Town of Innisfil

METHOD OF BORING: Solid-Stem Auger

DATE: September 3, 2015

Depth Elev. (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value	Depth Scale (m)
0.0	Ground Surface				0
231.0	**23 cm TOPSOIL**	1A	DO	2	
	Brown, very loose, weathered **FINE SAND** a trace of silt	1B			
1.4		2	DO	4	1
229.6	Brown, loose, weathered **GRAVELLY SAND** a trace of silt	3	DO	8	2
2.1					
228.9	Brown, compact to dense **FINE SAND** weathered	4	DO	12	3
	a trace of sand	5	DO	30	
4.0					4
227.0	Brown, very dense **SANDY SILT** a trace of clay	6	DO	50/15	5
		7	DO	50/10	6
7.0					7
224.0	Brown, very dense **FINE SAND** a trace of silt	8	DO	50/15	
7.9					8
223.1	**END OF BOREHOLE**				9 10 11 12



WATER LEVEL

Dry on completion

Soil Engineers Ltd.

Soil Engineers Ltd.

GRAIN SIZE DISTRIBUTION

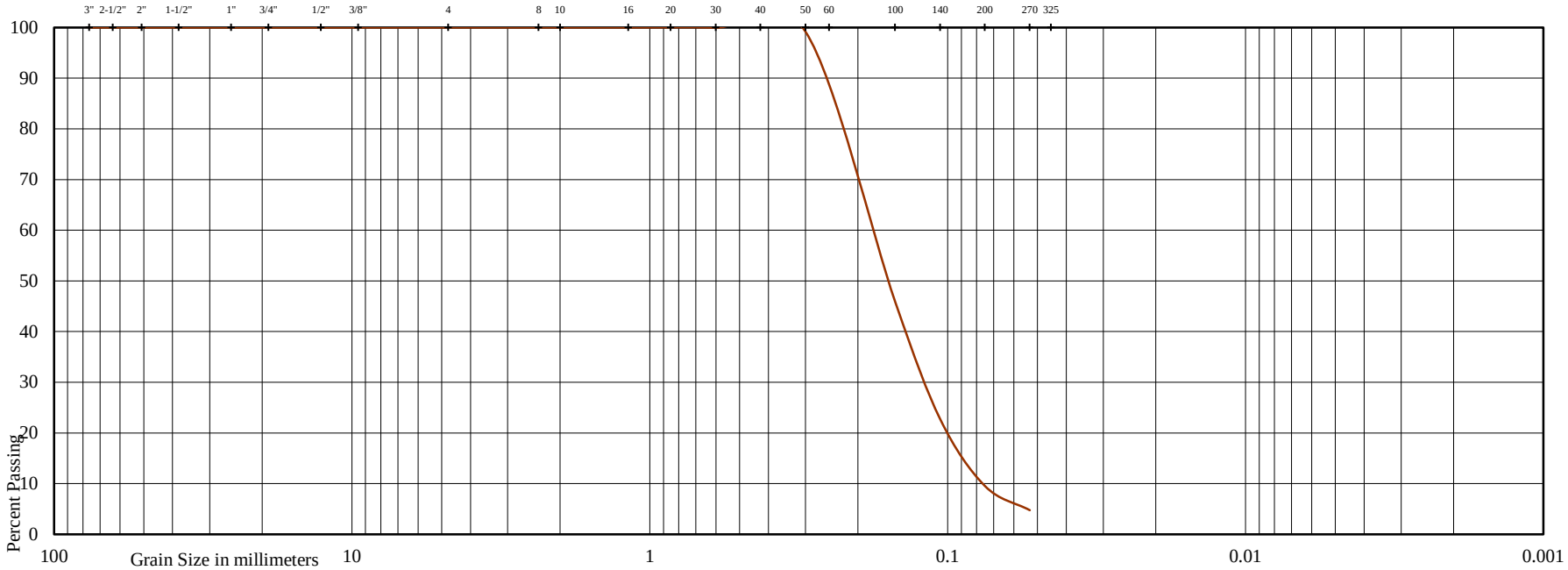
Reference No: 1508-S056

U.S. BUREAU OF SOILS CLASSIFICATION

GRAVEL		SAND				SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	V. FINE		

UNIFIED SOIL CLASSIFICATION

GRAVEL		SAND			SILT & CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



Project: Proposed Cottage

Location: 1706 Longwood Road, Town of Innisfil

Borehole No: 1

Sample No: 9

Depth (m): 9.4

Elevation (m): 217.4

Liquid Limit (%) = -

Plastic Limit (%) = -

Plasticity Index (%) = -

Moisture Content (%) = 16

Estimated Permeability (cm./sec.) = 10^{-3}

Classification of Sample [& Group Symbol]: FINE SAND
a tr. of silt

Figure: 5

Soil Engineers Ltd.

GRAIN SIZE DISTRIBUTION

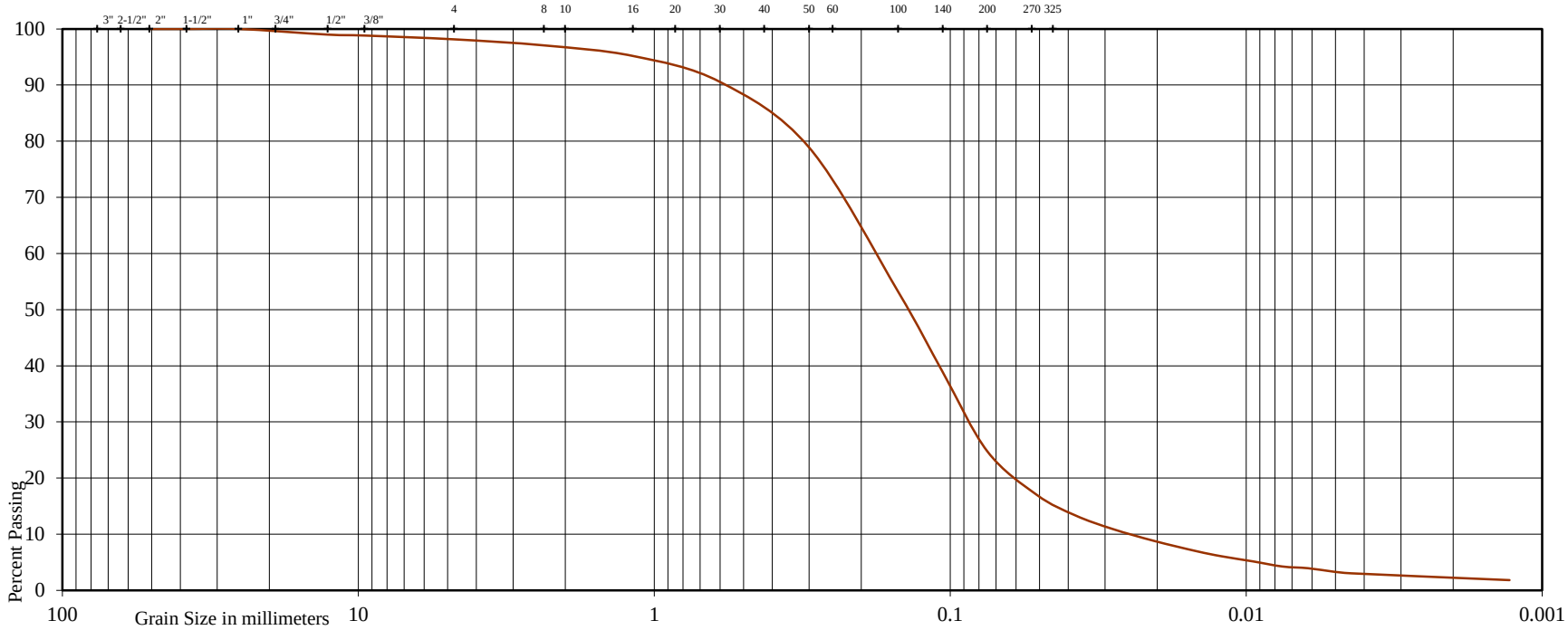
Reference No: 1508-S056

U.S. BUREAU OF SOILS CLASSIFICATION

GRAVEL		SAND				SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	V. FINE		

UNIFIED SOIL CLASSIFICATION

GRAVEL		SAND			SILT & CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



Project: Proposed Cottage

Location: 1706 Longwood Road, Town of Innisfil

Borehole No: 1

Sample No: 2

Depth (m): 1.1

Elevation (m): 225.7

Liquid Limit (%) = -

Plastic Limit (%) = -

Plasticity Index (%) = -

Moisture Content (%) = 10

Estimated Permeability (cm./sec.) = 10^{-4}

Classification of Sample [& Group Symbol]: SILTY SAND
a tr. of gravel

Figure: 6

Soil Engineers Ltd.

GRAIN SIZE DISTRIBUTION

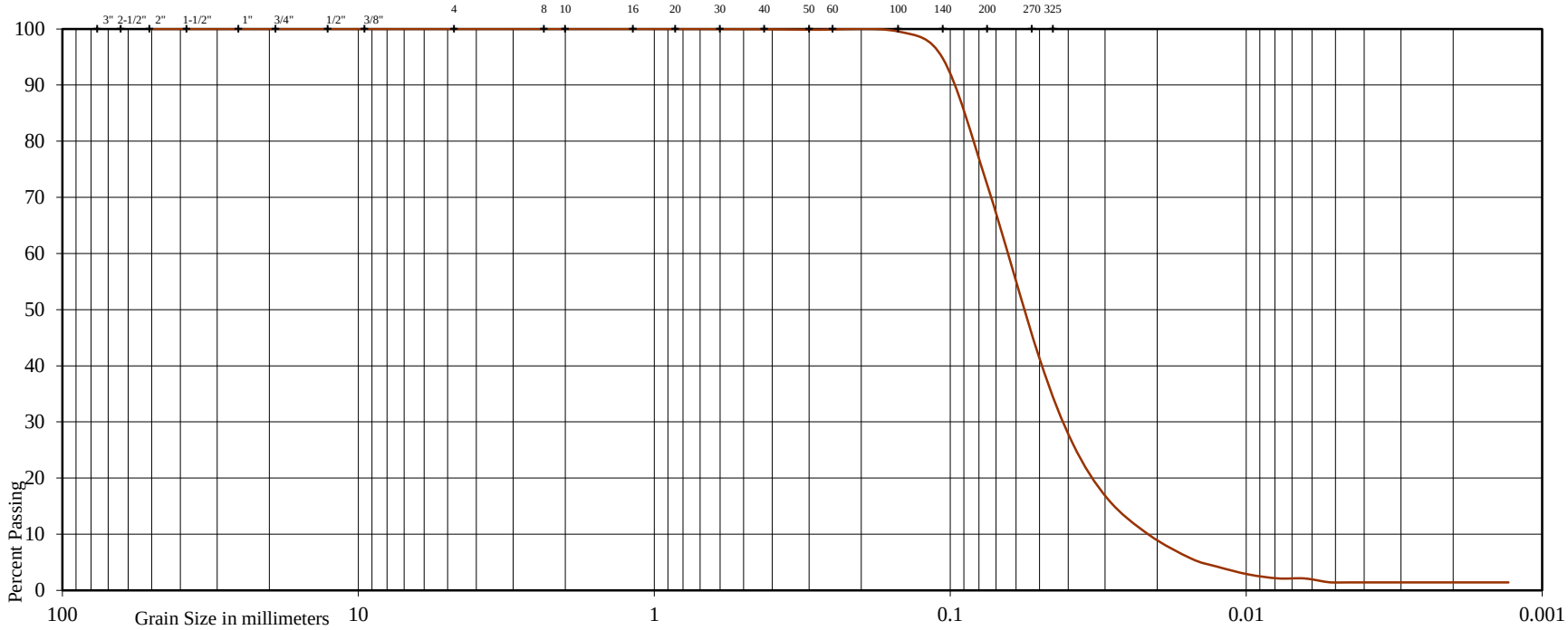
Reference No: 1508-S056

U.S. BUREAU OF SOILS CLASSIFICATION

GRAVEL		SAND				SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	V. FINE		

UNIFIED SOIL CLASSIFICATION

GRAVEL		SAND			SILT & CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



Project: Proposed Cottage

Location: 1706 Longwood Road, Town of Innisfil

Borehole No: 4

Sample No: 6

Depth (m): 4.7

Elevation (m): 226.3

Liquid Limit (%) = -

Plastic Limit (%) = -

Plasticity Index (%) = -

Moisture Content (%) = 7

Estimated Permeability (cm./sec.) = 10^{-4}

Classification of Sample [& Group Symbol]: SANDY SILT
a tr. of clay

Figure: 7

Soil Engineers Ltd.

GRAIN SIZE DISTRIBUTION

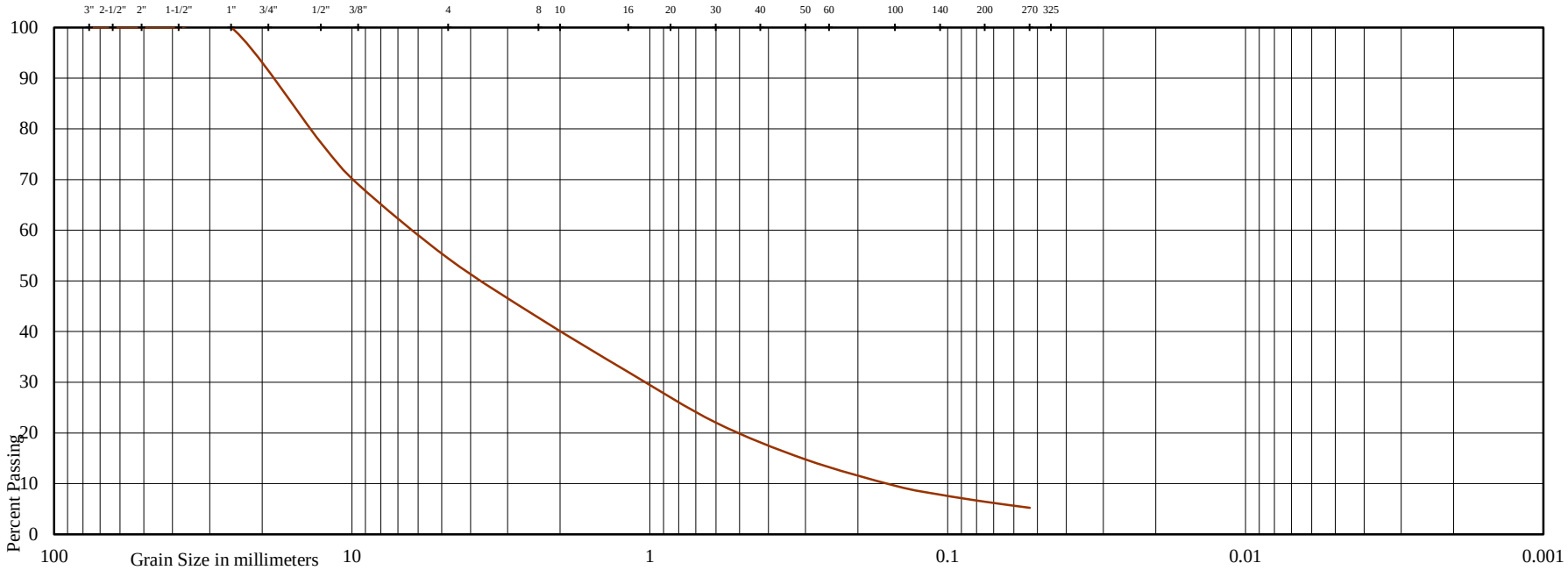
Reference No: 1508-S056

U.S. BUREAU OF SOILS CLASSIFICATION

GRAVEL		SAND				SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	V. FINE		

UNIFIED SOIL CLASSIFICATION

GRAVEL		SAND			SILT & CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



Project: Proposed Cottage

Location: 1706 Longwood Road, Town of Innisfil

Borehole No: 3

Sample No: 1

Depth (m): 1.1

Elevation (m): 228.1

Liquid Limit (%) = -

Plastic Limit (%) = -

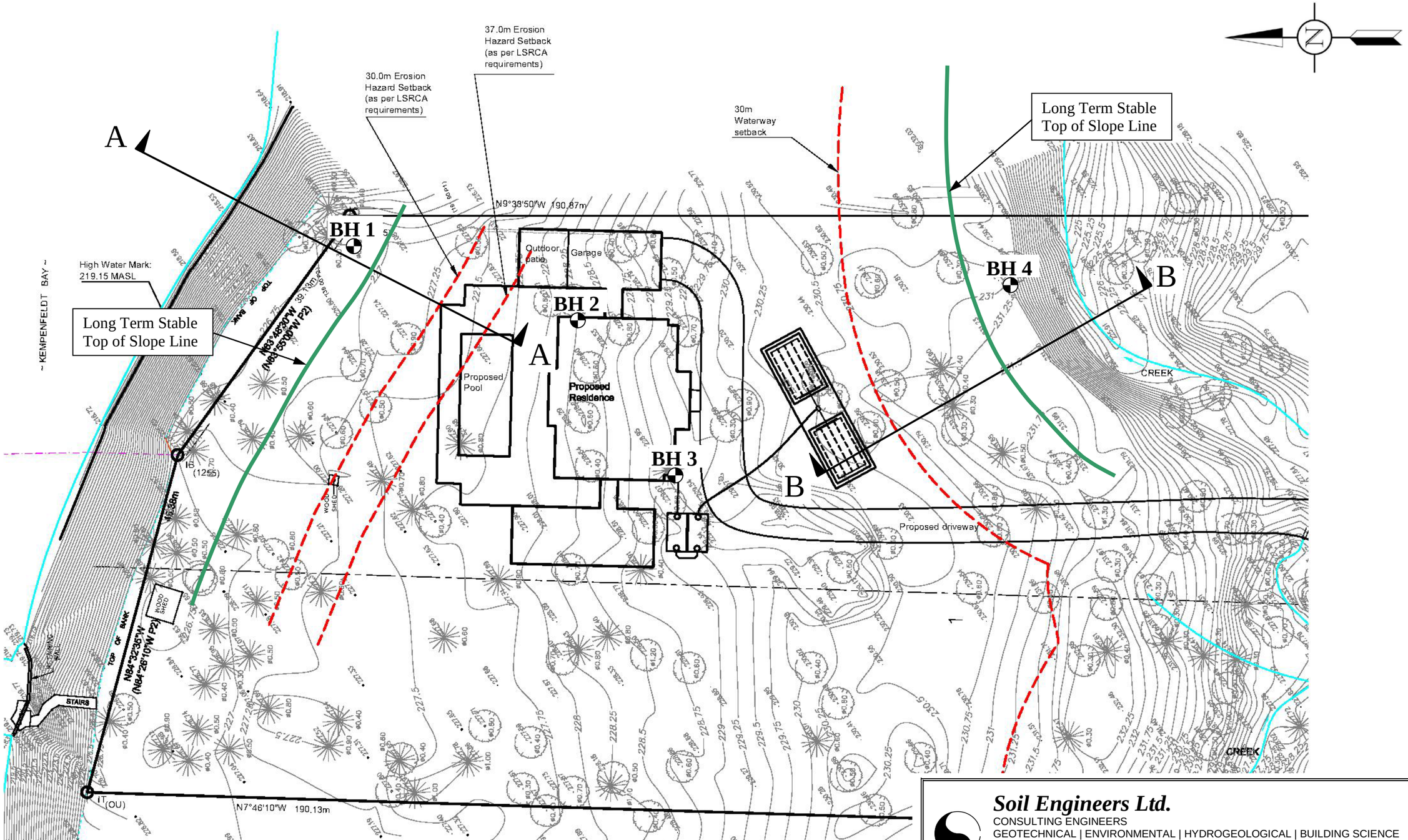
Plasticity Index (%) = -

Moisture Content (%) = 2

Estimated Permeability (cm./sec.) = 10^{-2}

Classification of Sample [& Group Symbol]: GRAVELLY SAND
a tr. of silt

Figure: 8



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BOREHOLE AND CROSS-SECTION LOCATION PLAN

DESIGNED	CHECKED	DWG NO. 1	REV 0.5
SCALE 1:500	REF. NO. 1508-S056	DATE NOVEMBER 2015	

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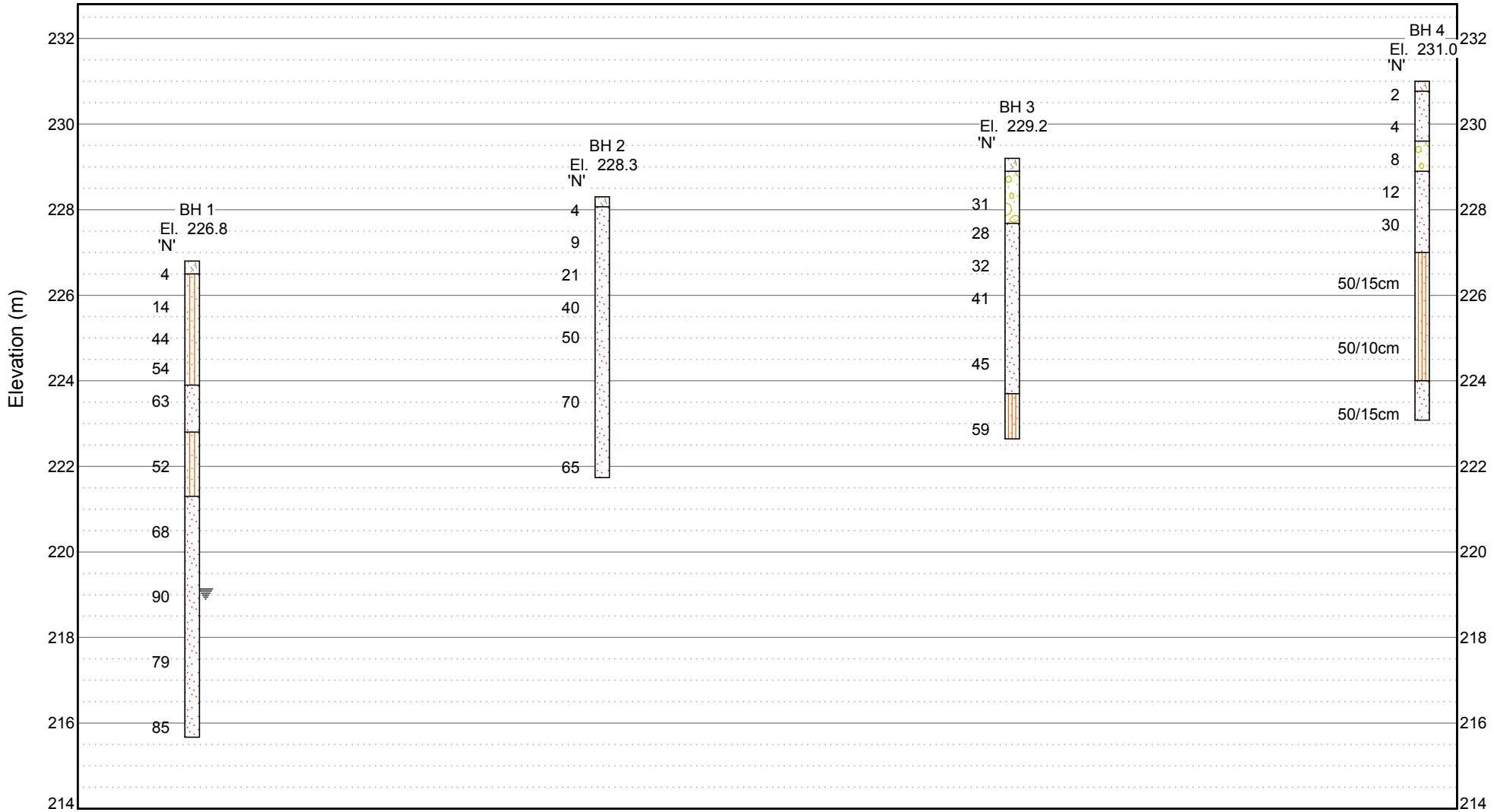
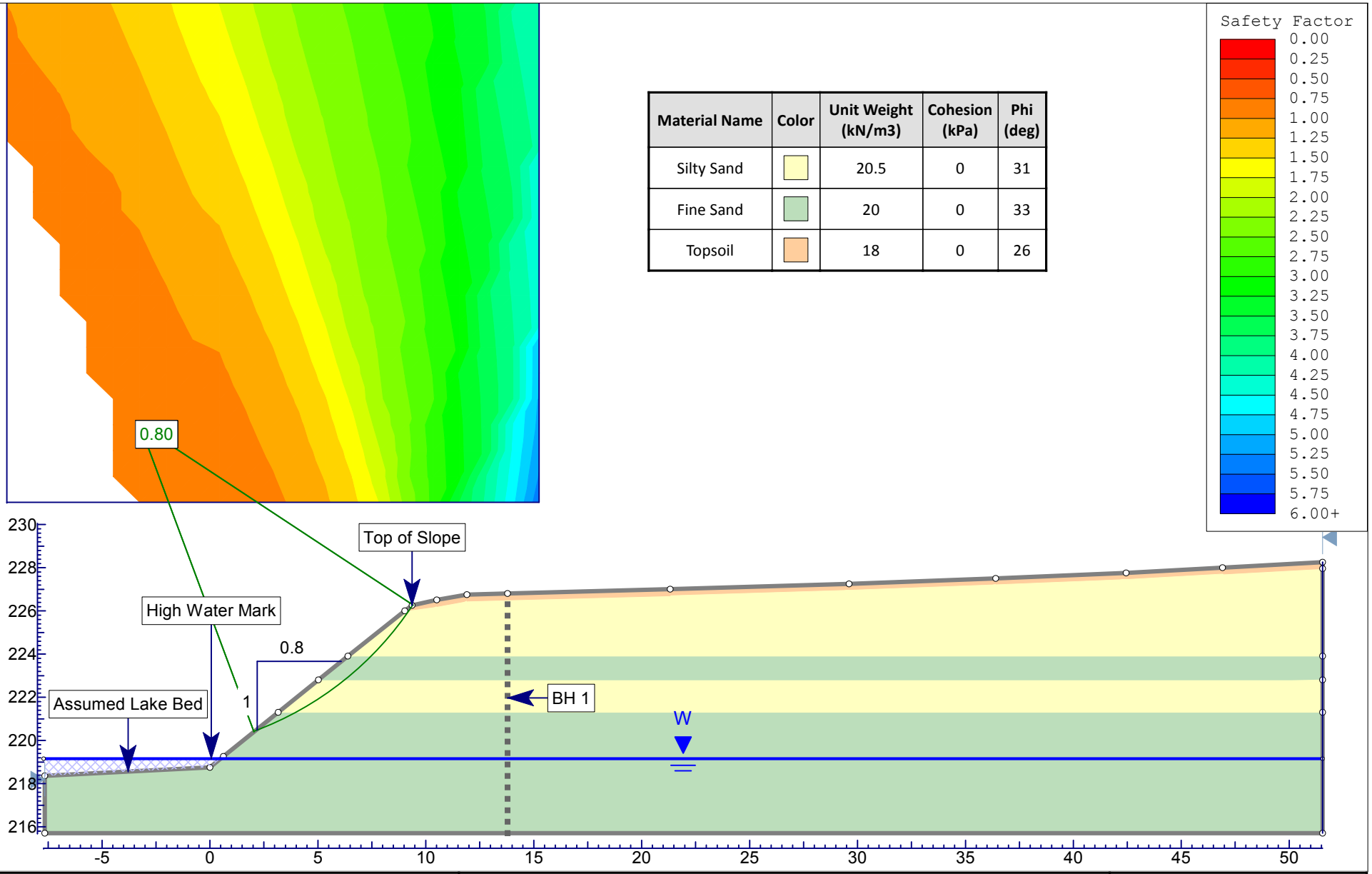
SUBSURFACE PROFILE
DRAWING NO.: 2
SCALE: AS SHOWN

JOB NUMBER: 1508-S056
REPORT DATE: November 2015
JOB LOCATION: 1706 Longwood Road
Town of Innisfil
JOB DESCRIPTION: Proposed Cottage

LEGEND

- Water Level (End of Drilling)
- Cave-In
- Water Level (Stabilized)
- Topsoil
- Silty Sand
- Fine Sand
- Gravelly Sand
- Sandy Silt





Material Name	Color	Unit Weight (kN/m3)	Cohesion (kPa)	Phi (deg)
Silty Sand		20.5	0	31
Fine Sand		20	0	33
Topsoil		18	0	26

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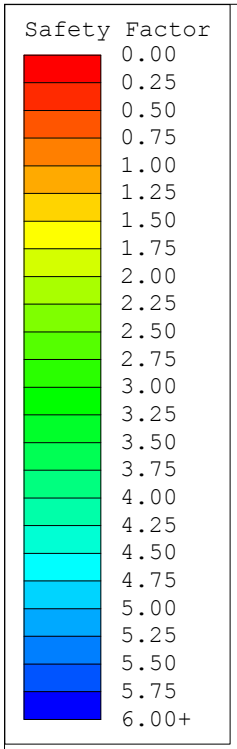
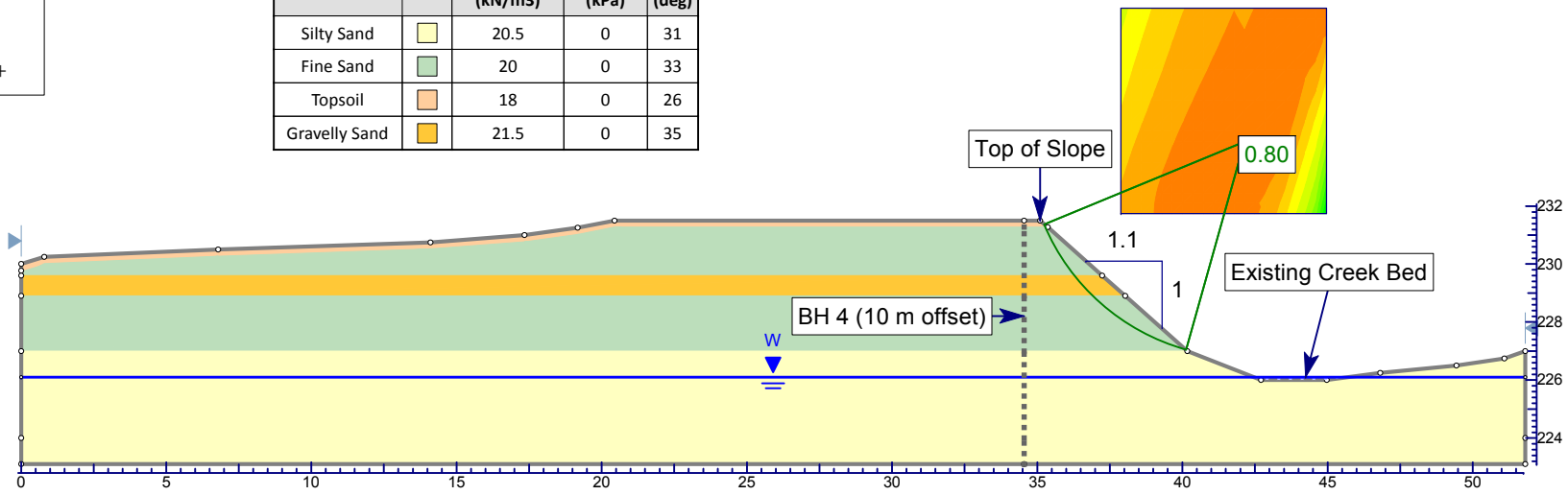
Project Title: Proposed Cottage - 1706 Longwood Road, Town of Innisfil			Load Case: Existing Conditions
Location: Section A-A			
Drawn By: BS	Checked By: BL	Scale: 1:250	Revision:
Date: November 2015		Reference No.: 1508-S056	Drawing No.: 3



Material Name	Color	Unit Weight (kN/m3)	Cohesion (kPa)	Phi (deg)
Silty Sand		20.5	0	31
Fine Sand		20	0	33
Topsoil		18	0	26
Gravelly Sand		21.5	0	35



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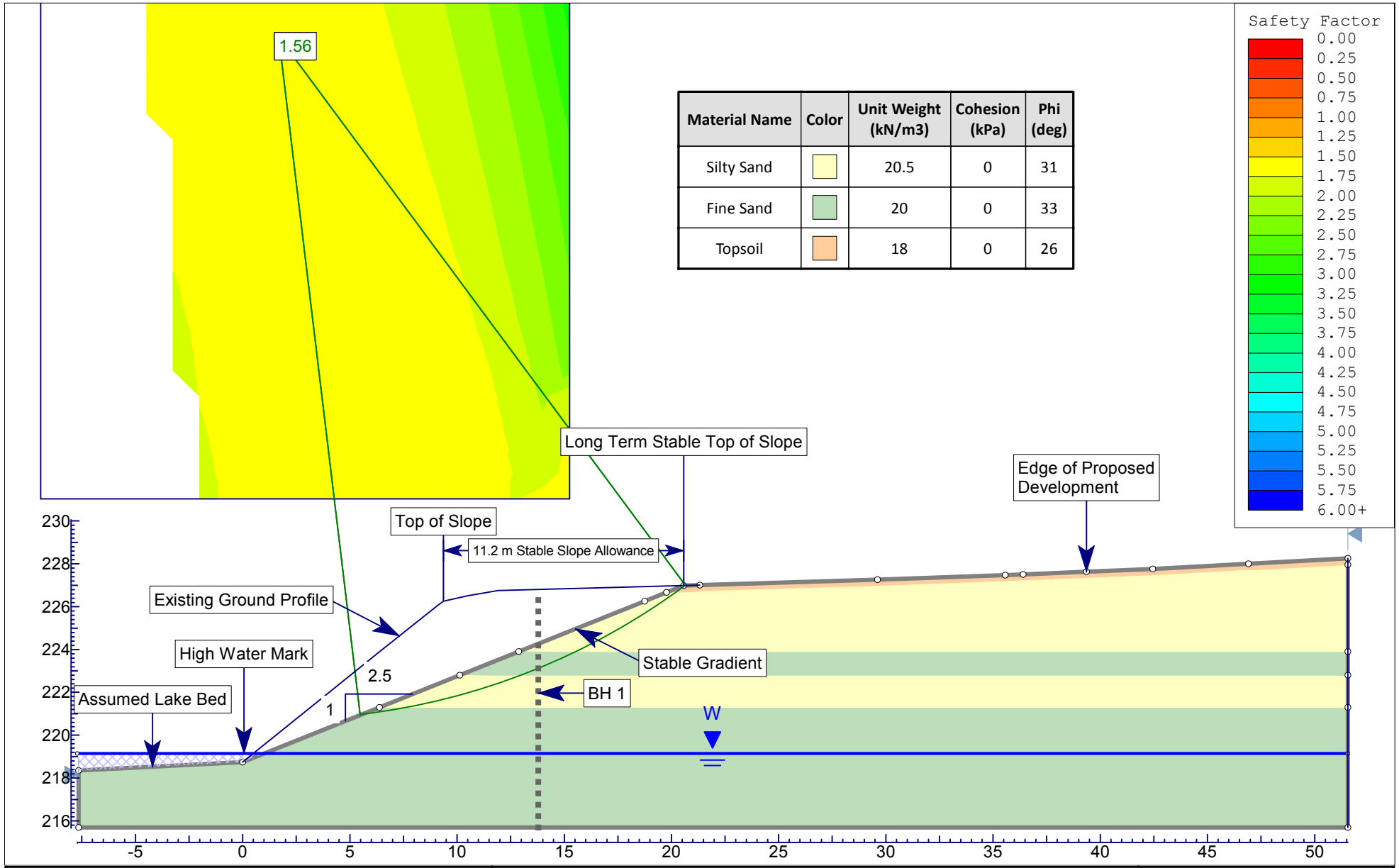
Project Title: Proposed Cottage - 1706 Longwood Road, Town of Innisfil			Load Case: Existing Conditions
Location: Section B-B			
Drawn By: BS	Checked By: BL	Scale: 1:250	Revision:
Date: November 2015		Reference No.: 1508-S056	Drawing No.: 4



Material Name	Color	Unit Weight (kN/m3)	Cohesion (kPa)	Phi (deg)
Silty Sand		20.5	0	31
Fine Sand		20	0	33
Topsoil		18	0	26

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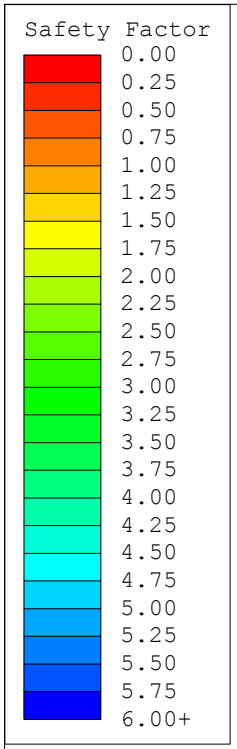
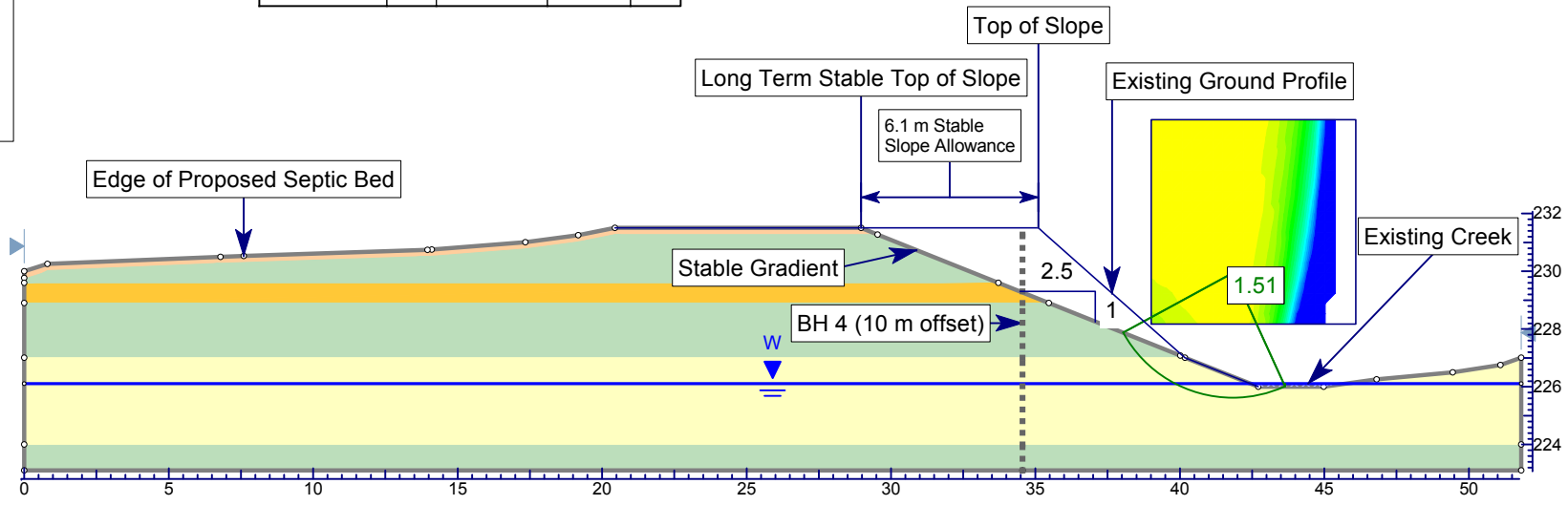
Project Title: Proposed Cottage - 1706 Longwood Road, Town of Innisfil			Load Case: Long-Term Stability
Location: Section A-A			
Drawn By: BS	Checked By: BL	Scale: 1:250	Revision: 1
Date: November 2015		Reference No.: 1508-S056	Drawing No.: 5



Material Name	Color	Unit Weight (kN/m3)	Cohesion (kPa)	Phi (deg)
Silty Sand		20.5	0	31
Fine Sand		20	0	33
Topsoil		18	0	26
Gravelly Sand		21.5	0	35



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Project Title: Proposed Cottage - 1706 Longwood Road, Town of Innisfil			Load Case: Long-Term Stability
Location: Section B-B			
Drawn By: BS	Checked By: BL	Scale: 1:250	Revision: 1
Date: November 2015		Reference No.: 1508-S056	Drawing No.: 6

John D. Bell Associates Ltd.
Ecological Design / Planning, Site Planners, Landscape Architects

ATTACHMENT

DATE: December 16th, 2019

TO: Mr. Cole Leibel, Big East Construction Inc.

FROM: Norman Blais, OALA, ISA ON-1175A

SUBJECT: Proposed Residential Development for 1706 Longwood Rd.

PURPOSE: For Town of Innisfil as Attachment of Tree Inventory/Preservation Plan.

ARBORIST REPORT

On April 2nd, 2019, JDB Associates Ltd. was retained to complete an Arborist Report and Tree Inventory/Preservation Plan for the construction of a boathouse located at 1706 Longwood Rd., Town of Innisfil.
The trees on the proposed site were evaluated to determine their opportunity for preservation as per the Town of Innisfil request.
Notwithstanding the recommendations and conclusions made in this report, it must be realized that trees are living organisms and their health and vigor constantly change over time. They are not immune to changes in site conditions or seasonal variations in the weather.

Scope of Work

This report provides a general assessment of:

- 14 trees located in the area designated for the construction of the boathouse

Summary

- Most of the trees are Eastern Hemlocks, located on the shoreline slope, with a DBH of ±20cm, mature, in fair to poor condition; other trees identified were: 3 White Oaks located on top of the bank, Eastern White Cedars, Paper Birch, White Pine and one Trembling Aspen, located as per the TP-1.
- Due to the advanced erosion of shoreline, the three oaks located on top of the bank have been retained as per tree preservation plan TP-2. Additional slope stabilization measures have been proposed on TP-3.
- Based on the tree health and the compensation ratio, a number of 9 replacement trees are required. Refer to TP-3 for the planting plan

274 Burton Avenue, Unit #1201, Barrie, ON, L4N 5W4 • Tel: (705) 722-6278 • Fax: (705) 722-5660
e-mail: jdbellassociates@rogers.com • www.johndbellassociates.ca

Methodology

- The trees were assessed with guidelines established by the Town of Innisfil. The health assessments were performed without excavation or internal examination such as coring or drilling.
- The following information was obtained for the inventoried trees in the test area:
  - tree species;
  - size range diameter at breast height (DBH);
  - average canopy height;
  - average canopy diameter;
  - overall general tree condition (structure and vigor):
    1. good – dead branches less than 10%; signs of good compartmentalization of any wounds, no structural defects;
    2. fair – 10-30% dead branches, minor wounds of some concern, minor structural defects;
    3. poor – more than 30% dead branches, weak compartmentalization, major structural defects;
- The location of the trees has been triangulated on site.
- *The tree compensation for the trees to be removed* has been calculated as per the Town of Innisfil policy:
  - 1:1 to 4:1 based on the removed tree DBH;
  - tree health coefficients (0.5 poor/ 0.75 fair/ 1 good)

Details of Findings

- A summary of the vegetation and tree data is provided in the attached Tree Inventory Plan.
- The Tree inventory/ preservation plan has been completed based on the proposed building provided by the client and coordinated with the engineer's proposed grading plan.
- A compensation planting plan has been included as per the Town of Innisfil policy.

Limits

Unless expressed otherwise information contained in this report covers only those items that were examined and reflects the condition of those items at the time of inspection, and the inspection is limited to visual examination of accessible items without further dissection, excavation, probing, or coring.

Loss or alteration of any part of a report invalidates the entire report.
There is no warranty or guarantee expressed or implied that problems or deficiencies of the trees in question may not arise in the future.
The report and conclusions expressed herein represent the opinion of *JDB Associates Ltd.* Our fee is no way contingent upon any specified value, a result or occurrence of a subsequent event, or upon any finding to be reported.

Norman Blais
Landscape Architect, Certified Arborist
OALA, ISA ON-1175A

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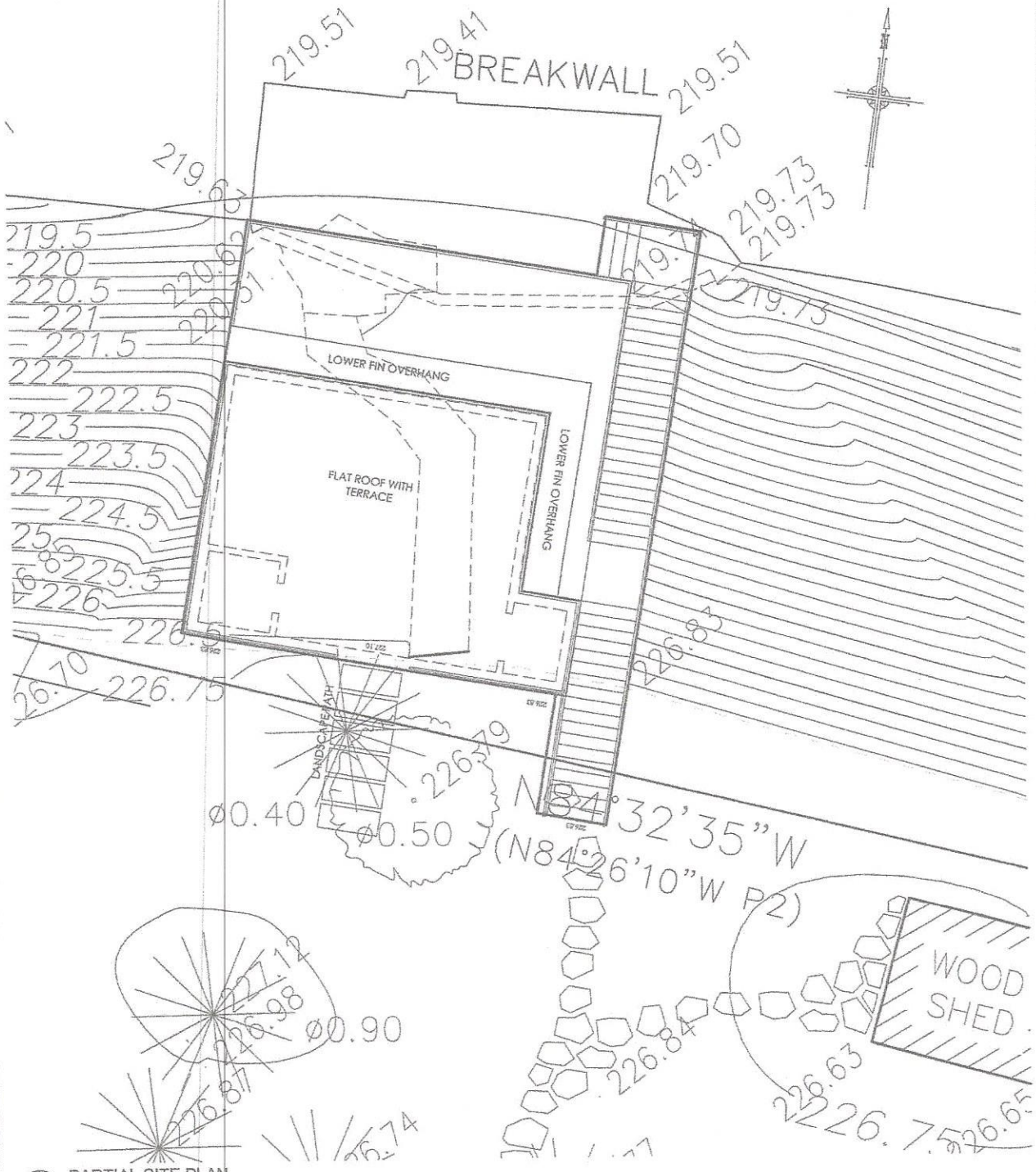
LOT 31001

OF LOTS 18 & 1



PARTIAL SITE PLAN
1/8" = 1'-0"

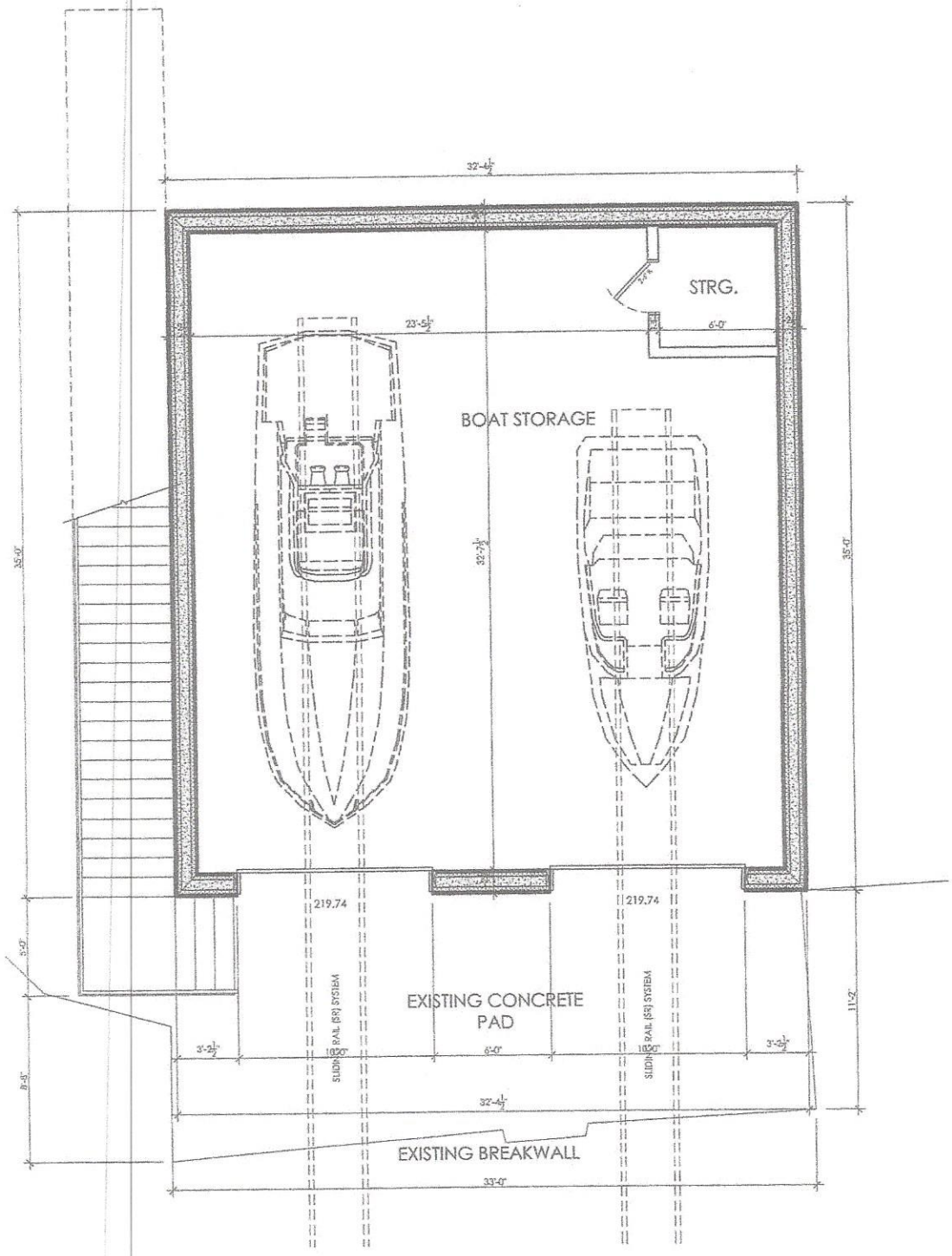
RICHARD WENGLE
ARCHITECT INC.

SLIWIN COTTAGE-BOATHOUSE

1706 LONGWOOD ROAD
INNISFIL, ONTARIO

JANUARY 16, 2018
1503

SK-01



LOWER LEVEL
3/16" = 1'-0"

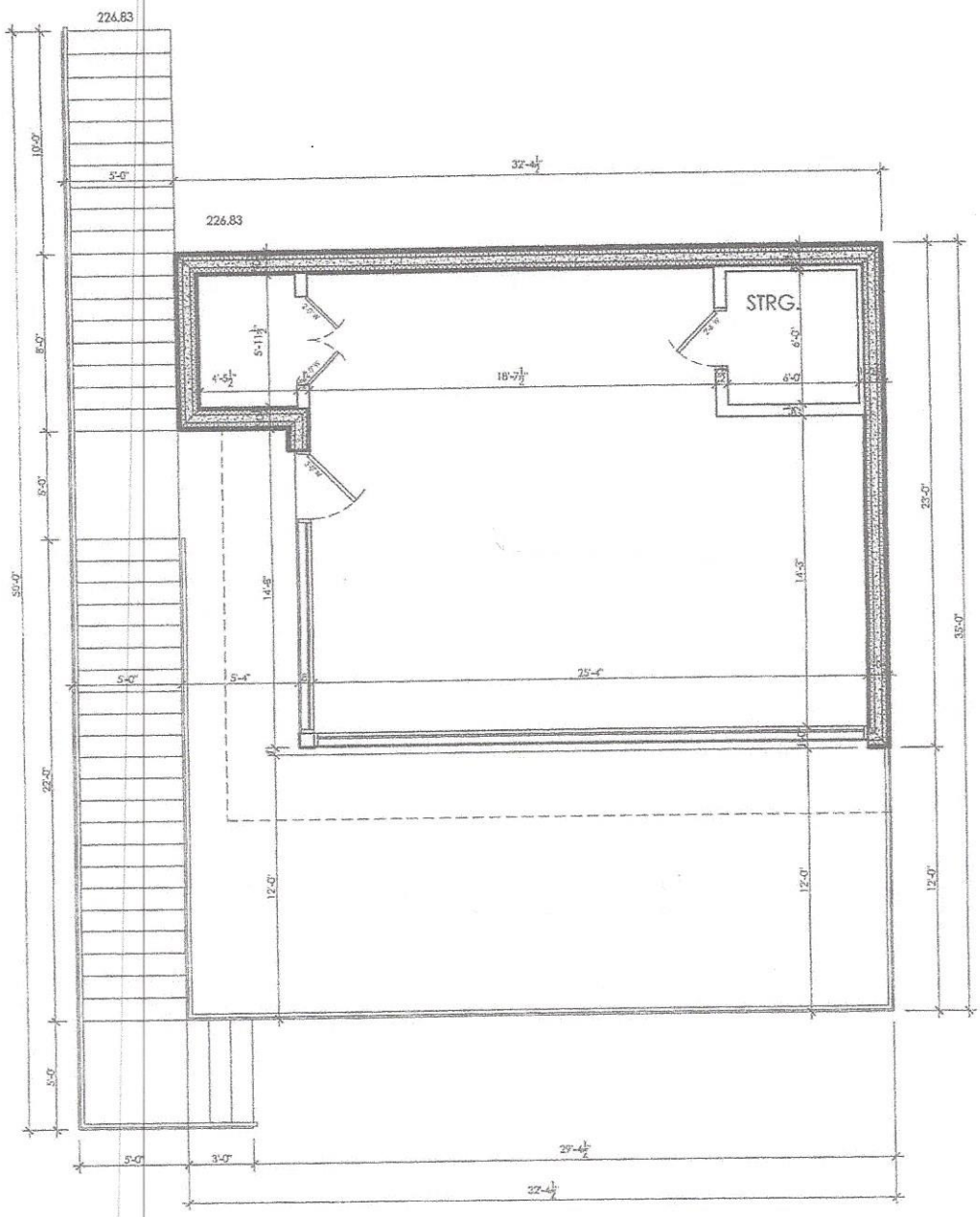
RICHARD WENGLE
ARCHITECT INC.

SLIWIN COTTAGE-BOATHOUSE

1706 LONGWOOD ROAD
INNISFIL, ONTARIO

JANUARY 16, 2018
1503

SK-02



UPPER LEVEL
3/16" = 1'-0"

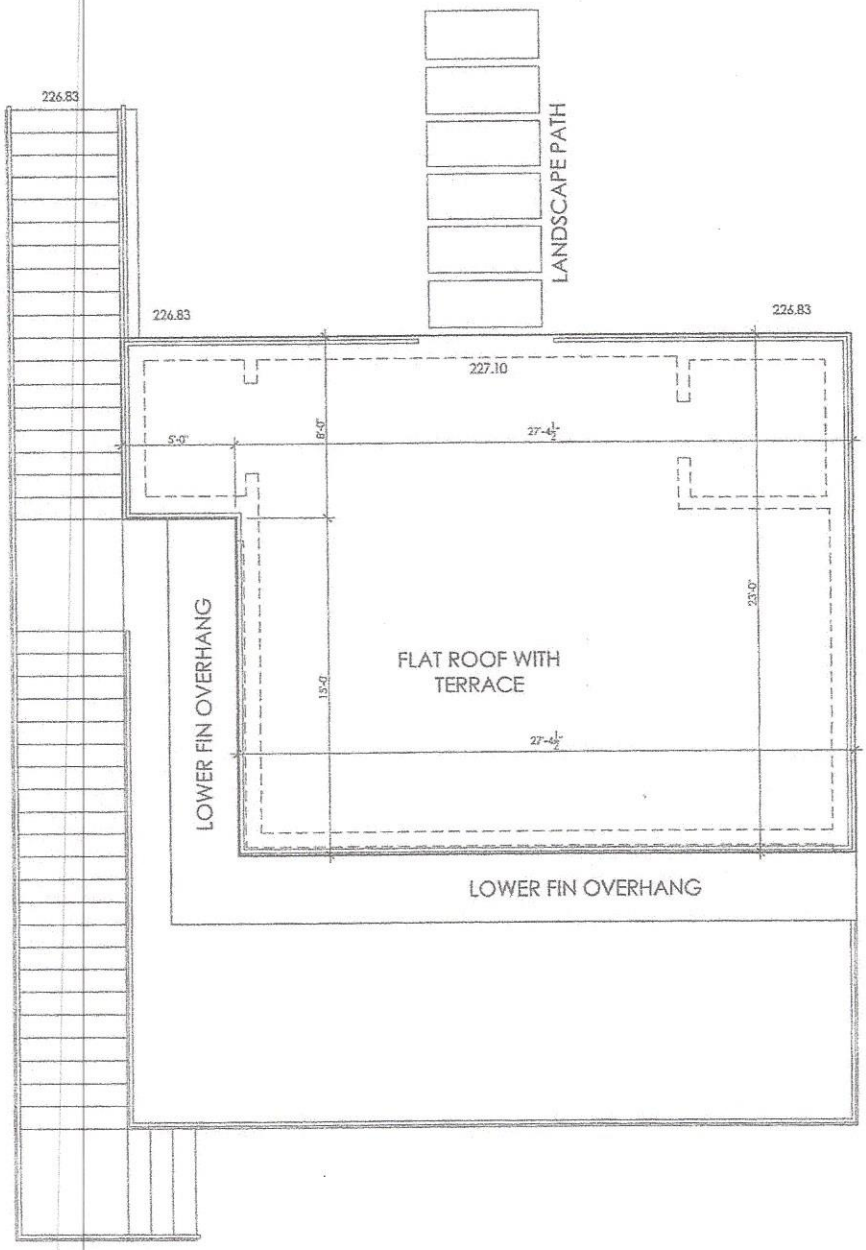
RICHARD WENGLE
ARCHITECT INC.

SLIWIN COTTAGE-BOATHOUSE

1706 LONGWOOD ROAD
INNISFIL, ONTARIO

JANUARY 16, 2018
1503

SK-03



ROOF/TERRACE LEVEL
3/16" = 1'-0"

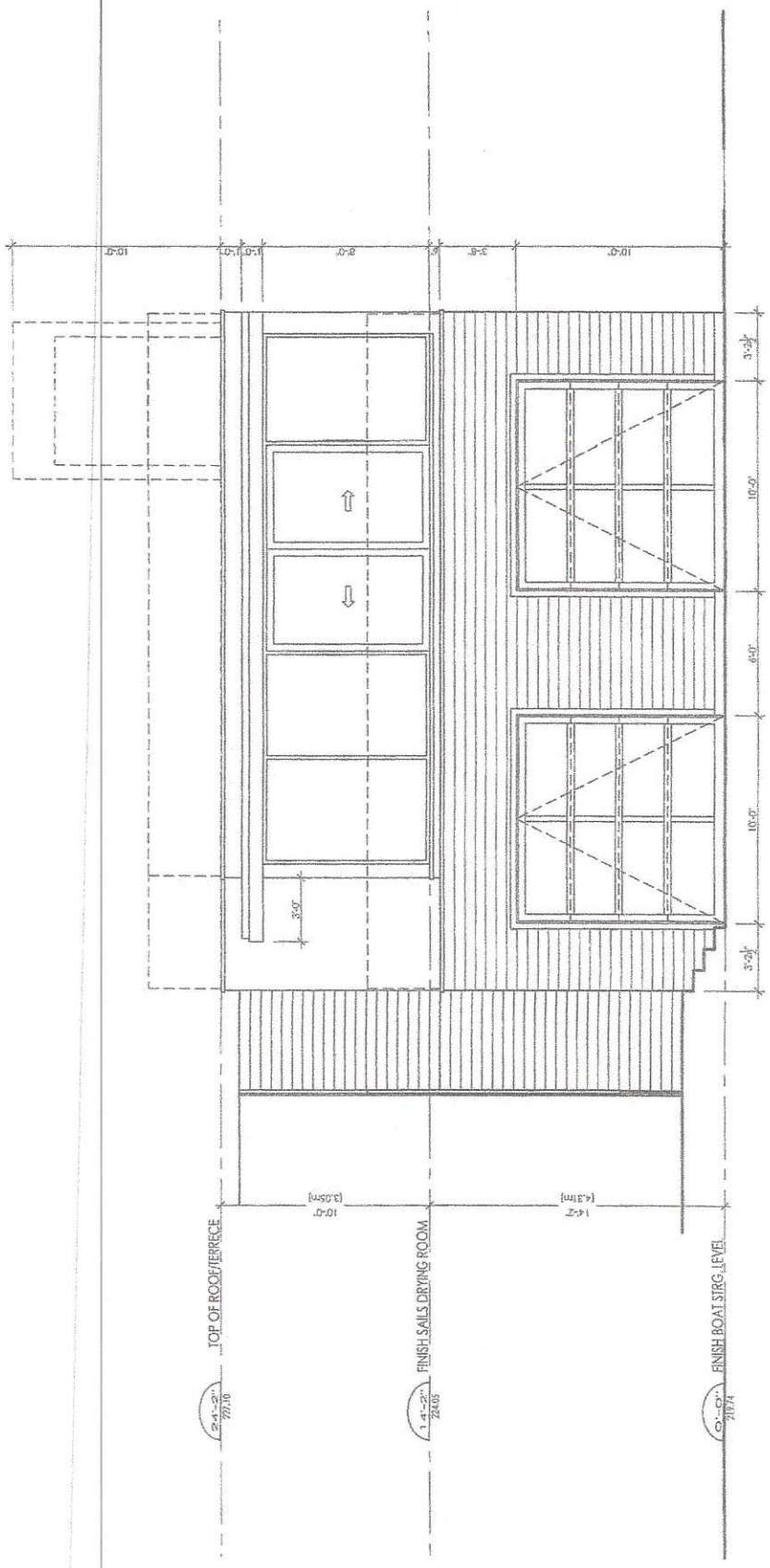
RICHARD WENGLE
ARCHITECT INC.

SLIWIN COTTAGE-BOATHOUSE

1706 LONGWOOD ROAD
INNISFIL, ONTARIO

JANUARY 16, 2018
1503

SK-04



NORTH ELEVATION
3/16" = 1'-0"

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INNISFIL, ONTARIO

JANUARY 16, 2018
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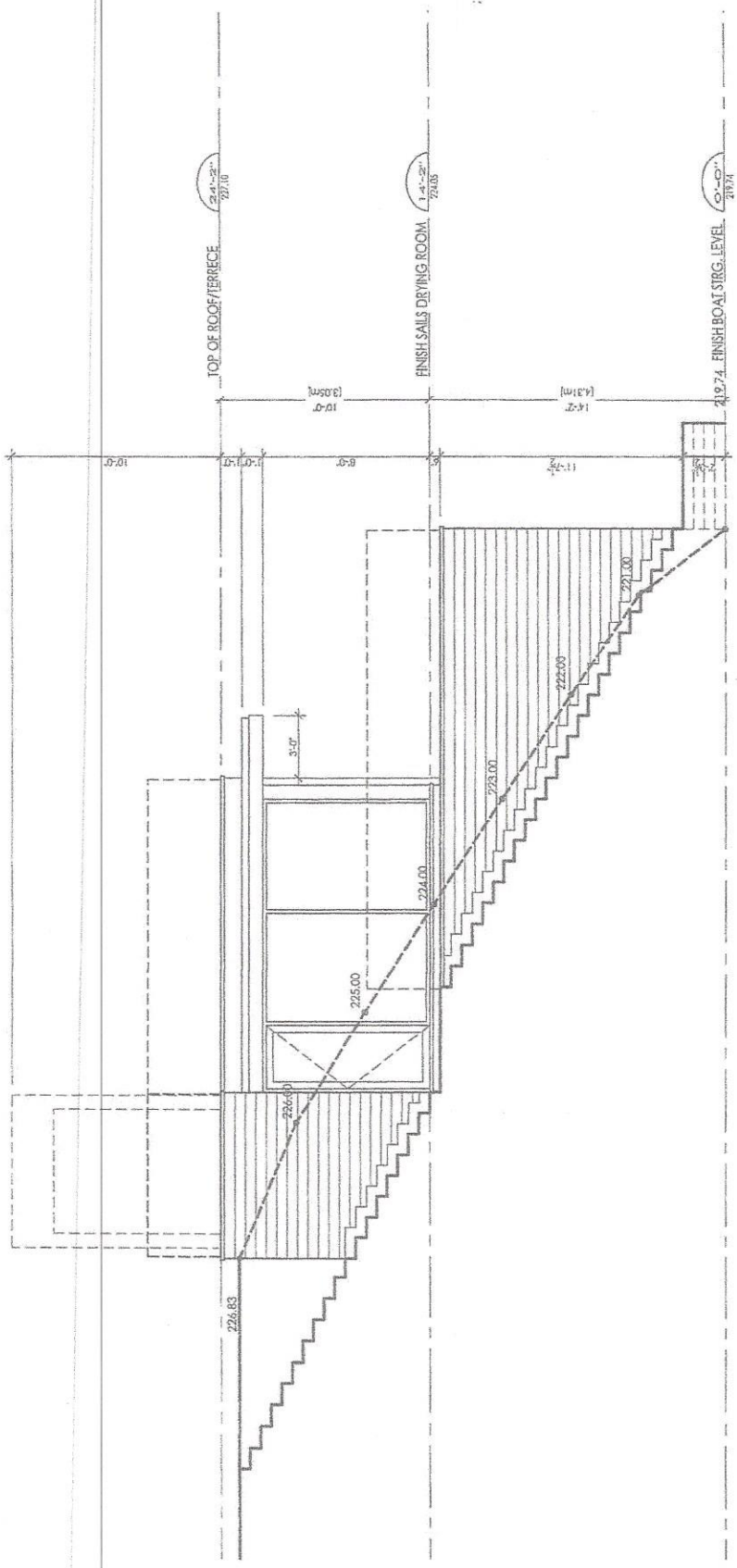
SK-05



EAST ELEVATION
3/16" = 1'-0"

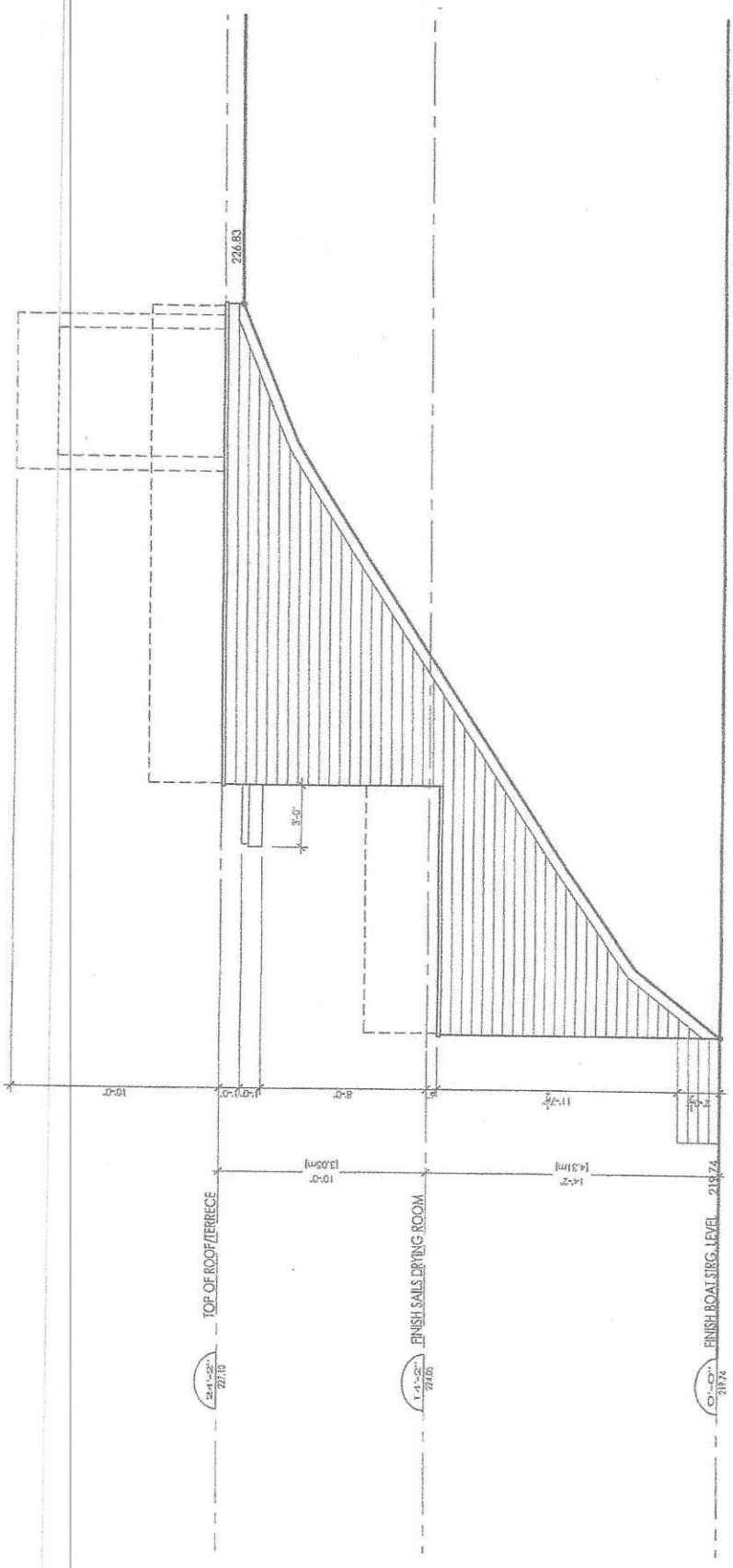
RICHARD WENGLE
ARCHITECT INC.

SLIWIN COTTAGE-BOATHOUSE

1706 LONGWOOD ROAD
INNISFIL, ONTARIO

JANUARY 16, 2018
1503

SK-06



WEST ELEVATION
3/16" = 1'-0"

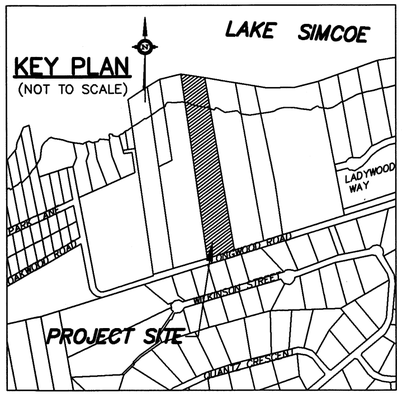
RICHARD WENGLE
ARCHITECT INC.

SLIWIN COTTAGE-BOATHOUSE

1706 LONGWOOD ROAD
INNISFIL, ONTARIO

JANUARY 16, 2018
1503

SK-07



KEMPENFELDT BAY

WATER LOT 57868 C.L.S.
IN FRONT OF LOT 19

SITE GRADING PLAN OF ALL OF

LOT
REGISTERED PLAN 675

GEOGRAPHIC TOWNSHIP OF INNISFIL

TOWN OF INNISFIL
COUNTY OF SIMCOE

SCALE 1 : 200

2 0 10 20
metres

RUDY MAK SURVEYING LTD.

NOTES:

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH CURRENT ONTARIO PROVINCIAL STANDARD DRAWINGS AND SPECIFICATION UNLESS NOTED.
2. MAXIMUM CONTINUOUS LANDSCAPED SIDE SLOPES NOT TO EXCEED 3:1.
3. ALL SWALES TOPSOILED AND SODDED.
4. ALL DISTURBED AREAS TO BE STABILIZED.
5. ALL DISTURBED AREAS TO BE SODDED OR SEEDED OVER 100mm OF TOPSOIL.
6. ALL RAIN LEADERS AND DOWNSPOUTS TO DRAIN TO PROPOSED SWALES.
7. SILT FENCE SHALL BE INSTALLED PRIOR TO ANY CONSTRUCTION AND MAINTAINED UNTIL SITE STABILIZATION HAS OCCURRED.
8. DRAINAGE WILL BE CONTAINED ON SITE BY THE CONSTRUCTION OF SWALES AND BERMS AND SHALL NOT IMPACT ABUTTING PROPERTIES.
9. ALL BOULEVARD RESTORATION SHALL BE REINSTATED EQUAL TO OR BETTER THAN IT'S ORIGINAL CONDITION AND TO THE SATISFACTION OF THE TOWNSHIP OF INNISFIL.
10. ALL CURB CUTS/OR DRIVEWAY ENTRANCES ARE TO BE CONSTRUCTED TO THE TOWNSHIP OF INNISFIL SATISFACTION AT THE APPLICANT'S EXPENSE.
11. THE APPLICANT IS REQUIRED TO OBTAIN AN ENTRANCE PERMIT FOR A NEW ENTRANCE AND A ROAD OCCUPANCY PERMIT PRIOR TO CONSTRUCTION.
12. SANITARY AND WATER LATERALS TO BE FIELD LOCATED. IN THE EVENT THE LATERALS ARE DEEMED UNACCEPTABLE BY THE TOWNSHIP OF INNISFIL, THE APPLICANT IS REQUIRED TO CONTACT THE (PUBLIC WORKS OPERATION) TO ARRANGE INSTALLATION AT THE APPLICANTS EXPENSE.

	DENOTES	FLOW DIRECTION & SLOPE GRADE
x219.31	DENOTES	EXISTING GRADE ELEVATION
x 220.80	DENOTES	PROPOSED GRADE ELEVATION
	DENOTES	DOWNSPOUT AND SPLASH PAD

BOATHOUSE ELEVATIONS	
FINISHED FIRST FLOOR	219.74
TOP OF FOUNDATION WALL	220.36
FINISHED 2ND FLOOR	224.05
FINISHED FLAT ROOF TOTAL HEIGHT FROM WATER	227.10 7.36
TOTAL HEIGHT FROM TOP OF SLOPE	0.27

SITE DEVELOPMENT

1706 LONGWOOD ROAD, INNISFIL

ZONING

(BY-LAW 080-13)
C.P.P.S.
COMMUNITY PLANNING PERMIT (C.P.P.) BY-LAW 062-17, SECTION3.6

BUILDING USE

SINGLE DETACHED BOATHOUSE

CALCULATIONS:

SETBACKS (C.P.P. SEC. 5.1.2.a):
LOT FRONTAGE : 57.8 M
LOT DEPTH : ±459.0 M

	REQUIRED MIN.	PROPOSED
EAST SIDE YARD:	3.0 M.	13.13 M.
WEST SIDE YARD:	3.0 M.	48.3 M.

AREA CALCULATIONS:

LOT AREA:	43284.2± SQ.M.
BUILDING:	625.3 SQ.M.
PROPOSED BUILDING:	105.3 SQ.M.
TOTAL BUILDING:	730.6 SQ.M.

LOT COVERAGE (C.P.P. SEC. 5.1.2.a):

REQUIRED MAX.	PROPOSED
35%	1.7 %

ELEVATION

ELEVATION ARE GEODETIC IN ORIGIN AND WERE DERIVED FROM OBSERVED REFERENCE POINTS (ORP) USING THE LEICA SMARTNET NETWORK (2002 EPOCH) AND ARE REFERRED TO THE CGVD-1928:1978 DATUM.

BENCHMARK

SITE BENCHMARK IS THE TOP OF THE SIB AT THE EAST SIDE OF THE TOP OF THE SLOPE HAVING AN ELEVATION OF 226.84.

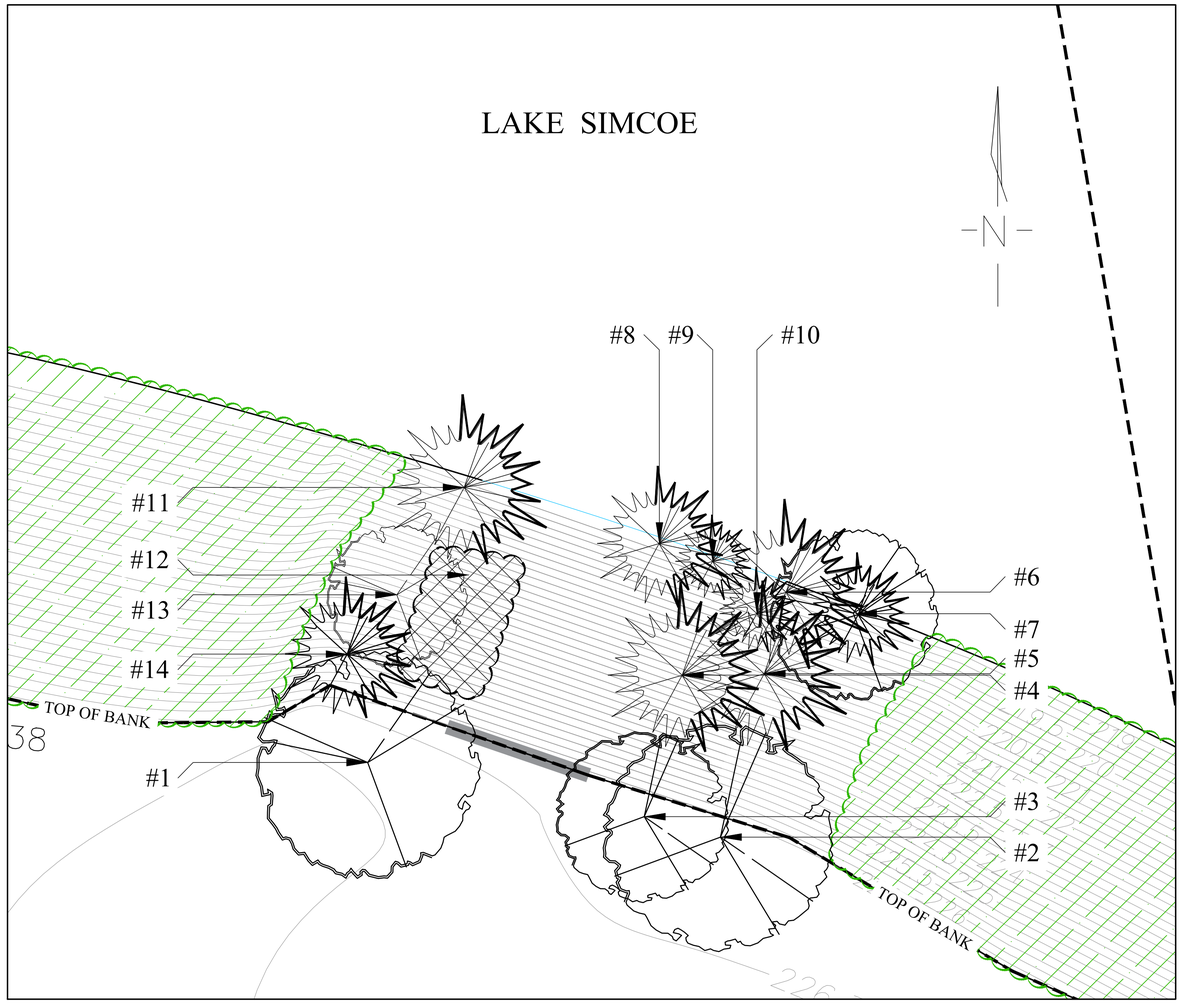
JULY 24, 2020
DATE

RUDY MAK
ONTARIO LAND SURVEYOR

REVISION	BY	DATE
FIRST ISSUE	LM	JULY 2, 2020

RUDY MAK SURVEYING LTD.
ONTARIO LAND SURVEYORS
89 BIG BAY POINT ROAD
BARRIE, ONTARIO L4N 8M5 (705) 722-3845
E-MAIL MAIL@MAKSURVEYING.COM

DRAWN BY: LM | CHECK BY: RM | FILE No.14265



TREE INVENTORY PLAN

SCALE 1 : 100

SUBJECT LANDS. REFER TO SITE PLAN.

AREA OF EXISTING MAJOR BANK EROSION.

#2 EXISTING TREE NUMBER

EXISTING TREES LOCATED ON SUBJECT SITE.

EXISTING UN-INVENTORIED SHORELINE CANOPY.

LEGEND

TREE INVENTORY 11/20/2019

Tree #	Nr. of trees	Botanical Name	Common name	DBH cm	Height m	Crown Ø (m)	Maturity	Health conditions	
1	1	*Quercus alba*	White Oak	45	18	8	Mature	Fair	
2	1	*Quercus alba*	White Oak	39	18	6	Mature	Fair/Poor	Only top canopy
3	1	*Quercus alba*	White Oak	28	18	8	Mature	Fair/Poor	Only top canopy, Asymmetric
4	1	*Thuja occidentalis*	Eastern White Cedar	+/- 20	12	6	Mature	Fair/Poor	Leaning
5	1	*Tsuga canadensis*	Eastern Hemlock	+/- 20	12	6	Mature	Fair/Poor	Leaning
6	1	*Thuja occidentalis*	Eastern White Cedar	+/- 20	12	6	Mature	Fair	Leaning
7	1	*Thuja occidentalis*	Eastern White Cedar	+/- 15	12	4	Immature	Fair	Leaning
	1	*Betula papyrifera*	White Birch			6			
8	1	*Tsuga canadensis*	Eastern Hemlock	+/- 25	12	5	Mature	Fair/Poor	
9	1	*Thuja occidentalis*	Eastern White Cedar	+/- 20	12	3	Mature	Fair/Poor	Leaning
10	1	*Tsuga canadensis*	Eastern Hemlock	+/- 20	12	3	Mature	Fair/Poor	Leaning
11	1	*Pinus strobus*	Eastern White Pine	+/- 35	16	6	Mature	Poor	Leaning
12	Group	*Tsuga canadensis*	Eastern Hemlock	>10	>10	>3	Immature	Fair	
13	1	*Populus tremuloides*	Trembling Aspen	25	14	5	Mature	Fair/Poor	Only top canopy
14	1	*Tsuga canadensis*	Eastern Hemlock	20	14	5	Mature	Fair	

TREES #2 & 3

MAJOR BANK EROSION

BANK EROSION DOCUMENTATION

KEY PLAN

GENERAL NOTES

CONTRACTOR IS RESPONSIBLE FOR ALL LOCATES INCLUDING ALL UNDERGROUND SERVICES PRIOR TO ANY EXCAVATION OR INSTALLATIONS.

ANY ACCOMPANYING DOCUMENTATION RELATING TO THE PRESERVATION PLAN SUCH AS TENDER DOCUMENTS AND CHANGE NOTICES ARE TO BE ENDORSED BY JOHN D. BELL ASSOCIATES LIMITED PRIOR TO THE BEGINNING OF ANY SITE WORKS. IN THE EVENT THAT OF A DISCREPANCY THE DRAWING SHALL BE ASSUMED CORRECT.

IT IS THE RESPONSIBILITY OF THE PERSON OR PERSONS RESPONSIBLE FOR THE CONSTRUCTED WORKS TO NOTIFY THE LANDSCAPE ARCHITECT, A MINIMUM OF 48 HOURS PRIOR, FOR ANY REQUIRED INSPECTIONS AND SIGN OFFS.

SCHEDULED MEETINGS SHALL TAKE PLACE AT THE CLOSEST MUTUALLY CONVENIENT TIME. LAYOUT AND INSTALLATION OF PROTECTIVE HOARDING WITHOUT THE PRESENCE OF THE LANDSCAPE ARCHITECT WILL BE THE CONTRACTOR'S RESPONSIBILITY. THE LANDSCAPE ARCHITECT RESERVES THE RIGHT TO HAVE TREE PRESERVATION FENCE RELOCATED WHETHER INSTALLED OR NOT AT THE COST OF THE CONTRACTOR IN THE EVENT THE LANDSCAPE ARCHITECT WAS NOT PRESENT FOR THE LAYOUT AND INSTALLATION OF THE PROTECTIVE TREE PRESERVATION FENCE.

BASE INFORMATION PROVIDED BY: SITE PLAN REVISED: MARCH, 2016
RICHARD WENGLE ARCHITECT INC.
102 AVENUE ROAD, TORONTO, ONT., M5R 2H3

TOWN ACCEPTED FOR CONSTRUCTION

TOWN OF INNISFIL DEVELOPMENT ENGINEERING

DATE: _____

TOWN ACCEPTED FOR CONSTRUCTION

TOWN PEER REVIEW ENGINEER

DATE: _____

LANDSCAPE ARCHITECTS STAMP
STAMP AND SIGNATURE VOID IF REPRODUCED

JDB ASSOCIATES LTD.

Urban Designers
Landscape Architects
Arborists

274 Burton Ave., Suite 1201
Barrie, Ontario
L4N 5W4

Fax: 705-722-5660
Tel: 705-722-8278

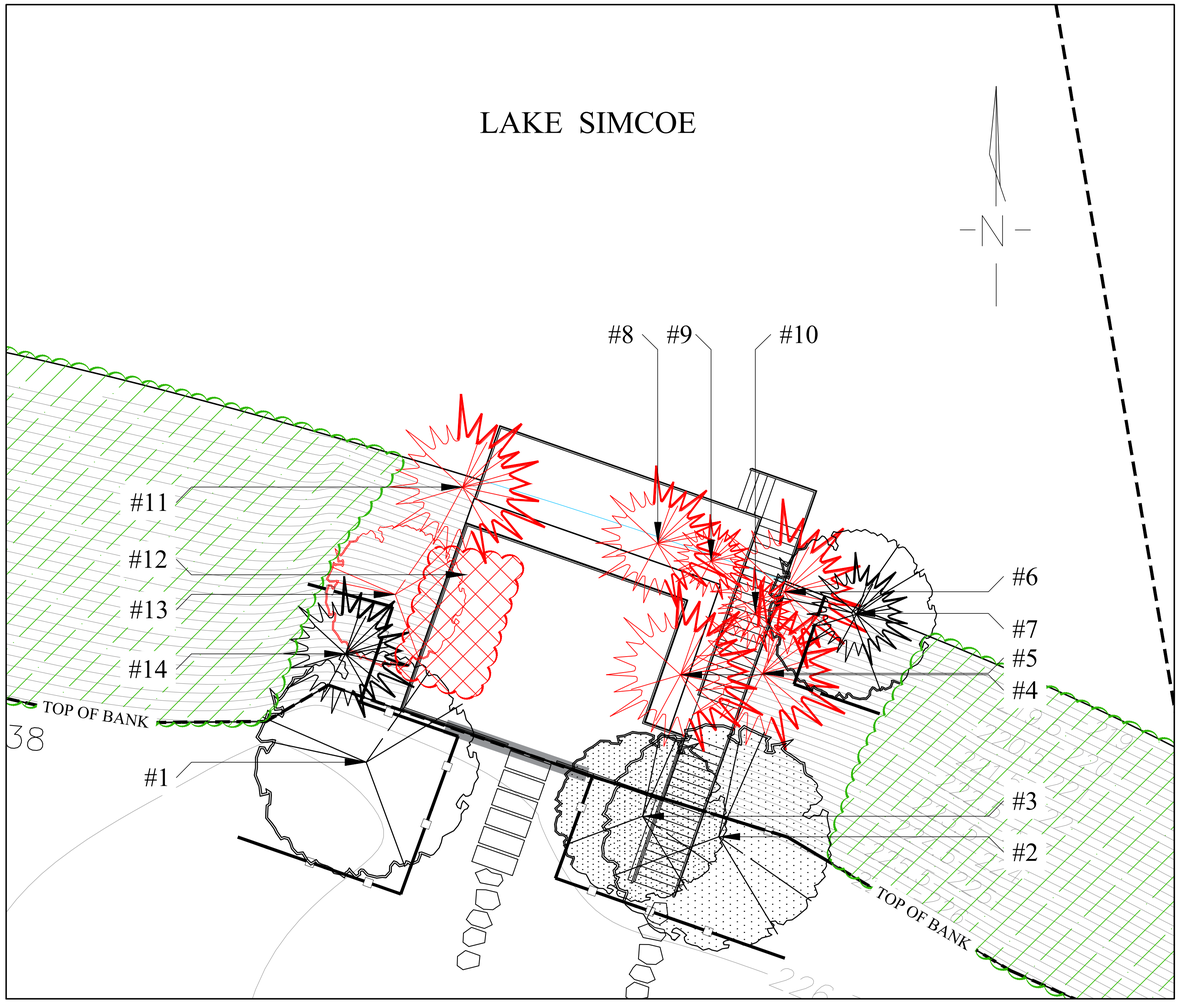
No.	REVISION	DATE	APRVD.
1.	CLIENT REVIEW	MAY 27, 2019	MC
2.	CLIENT REVIEW	NOV. 21, 2019	MC

1706 Longwood Rd.

INNISFIL, ONTARIO

TREE INVENTORY PLAN

TOWN FILE REF. #	PLOT DATE: JULY 23, 2018	DESIGNED BY: St./T./MC.	REVIEWED BY: NB
SCALE: 1:100	OUR FILE REF. # 10-19	DRAWN BY: St./T./MC.	TP-1



TREE REMOVAL/PRESERVATION PLAN

SCALE 1 : 100

SUBJECT LANDS. REFER TO SITE PLAN.

AREA OF EXISTING MAJOR BANK EROSION.

#2 EXISTING TREE NUMBER

EXISTING TREES TO BE PRESERVED. REFER TO LIST ON THIS PAGE

EXISTING TREES TO BE CONDITIONALLY PRESERVED. REFER TO LIST AND NOTE ON THIS PAGE

EXISTING TREES TO BE REMOVED. REFER TO LIST ON THIS PAGE

TREE PRESERVATION FENCE. REFER TO LP-4

EXISTING UN-INVENTORIED SHORELINE CANOPY.

LEGEND

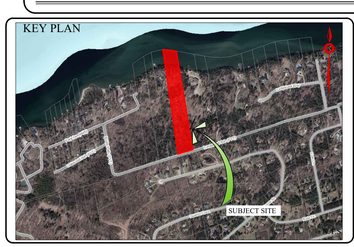
TREE PRESERVATION / REMOVAL 11/20/2019

Tree #	Nr. of trees	Botanical Name	Common name	DBH cm	Height m	Crown Ø (m)	Maturity	Health conditions		Recommended Action
1	1	*Quercus alba*	White Oak	45	18	8	Mature	Fair		**Preserve**
2	1	*Quercus alba*	White Oak	39	18	6	Mature	Fair/Poor	Only top canopy	**Preserve**
3	1	*Quercus alba*	White Oak	28	18	8	Mature	Fair/Poor	Only top canopy, Asymmetric	**Preserve**
4	1	*Thuja occidentalis*	Eastern White Cedar	+/- 20	12	6	Mature	Fair/Poor	Leaning	Remove
5	1	*Tsuga canadensis*	Eastern Hemlock	+/- 20	12	6	Mature	Fair/Poor	Leaning	Remove
6	1	*Thuja occidentalis*	Eastern White Cedar	+/- 20	12	6	Mature	Fair	Leaning	Remove
7	1	*Thuja occidentalis*	Eastern White Cedar	+/- 15	12	4	Immature	Fair	Leaning	**Preserve**
	1	*Betula papyrifera*	White Birch			6				
8	1	*Tsuga canadensis*	Eastern Hemlock	+/- 25	12	5	Mature	Fair/Poor		Remove
9	1	*Thuja occidentalis*	Eastern White Cedar	+/- 20	12	3	Mature	Fair/Poor	Leaning	Remove
10	1	*Tsuga canadensis*	Eastern Hemlock	+/- 20	12	3	Mature	Fair/Poor	Leaning	Remove
11	1	*Pinus strobus*	Eastern White Pine	+/- 35	16	6	Mature	Poor	Leaning	Remove
12	Group	*Tsuga canadensis*	Eastern Hemlock	>10	>10	>3	Immature	Fair		Remove
13	1	*Populus tremuloides*	Trembling Aspen	25	14	5	Mature	Fair/Poor	Only top canopy	Remove
14	1	*Tsuga canadensis*	Eastern Hemlock	20	14	5	Mature	Fair		**Preserve**

NOTES

TREES #2 & 3 ARE TO PRESERVED UNDER THE CONDITION THAT NO SLOPE STABILITY MEASURES HAVE BEEN TAKEN TO STABILIZE THE SHORE BANK. THESE TREES AND THEIR ROOT SYSTEMS ARE CURRENTLY STABILIZING THIS PORTION OF THE BANK.

KEY PLAN



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SCHEDULED MEETINGS SHALL TAKE PLACE AT THE CLOSEST MUTUALLY CONVENIENT TIME. LAYOUT AND INSTALLATION OF PROTECTIVE HOARDING WITHOUT THE PRESENCE OF THE LANDSCAPE ARCHITECT WILL BE THE CONTRACTOR'S RESPONSIBILITY. THE LANDSCAPE ARCHITECT RESERVES THE RIGHT TO HAVE TREE PRESERVATION FENCE RELOCATED WHETHER INSTALLED OR NOT AT THE COST OF THE CONTRACTOR IN THE EVENT THE LANDSCAPE ARCHITECT WAS NOT PRESENT FOR THE LAYOUT AND INSTALLATION OF THE PROTECTIVE TREE PRESERVATION FENCE.

BASE INFORMATION PROVIDED BY:
RICHARD WENGLE ARCHITECT INC.
102 AVENUE ROAD, TORONTO, ONT., M5R 2H3

SITE PLAN REVISED: MARCH, 2016

TOWN ACCEPTED FOR CONSTRUCTION

TOWN OF INNISFIL DEVELOPMENT ENGINEERING

DATE:

TOWN ACCEPTED FOR CONSTRUCTION

TOWN PEER REVIEW ENGINEER

DATE:

LANDSCAPE ARCHITECTS STAMP
STAMP AND SIGNATURE VOID IF REPRODUCED

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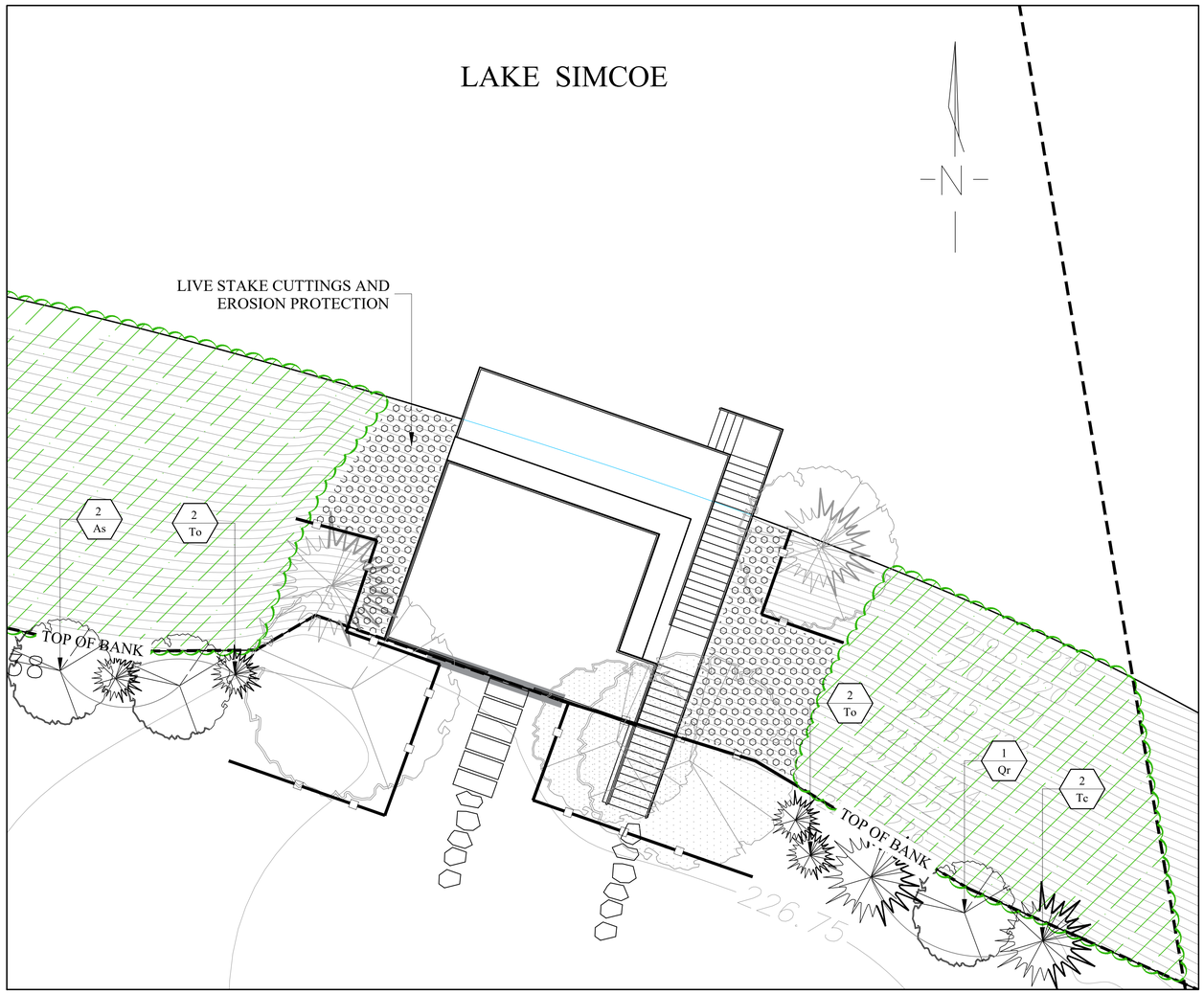
No.	REVISION	DATE	APRVD.
1.	CLIENT REVIEW	MAY 27, 2019	MC
2.	CLIENT REVIEW	NOV. 21, 2019	MC

1706 Longwood Rd.

INNISFIL, ONTARIO

TREE REMOVAL/PRESERVATION PLAN

TOWN FILE REF. #	PLOT DATE: JULY 23, 2018	DESIGNED BY: St./MC.	REVIEWED BY: NB
SCALE: 1:100	OUR FILE REF. # 10-19	DRAWN BY: St./MC.	TP-2



LANDSCAPE PLAN

SCALE 1 : 100

1706 Longwood Tree Health Coefficient Calculation

Tree #	Tree quantity	Botanical Name	Common name	DBH cm	Height m	Crown Ø (m)	Maturity	Health conditions	Health coeficient
4	1	*Thuja occidentalis*	Eastern White Cedar	+/- 20	12	6	Mature	Fair/Poor	0.60
5	1	*Tsuga canadensis*	Eastern Hemlock	+/- 20	12	6	Mature	Fair/Poor	0.60
6	1	*Thuja occidentalis*	Eastern White Cedar	+/- 20	12	6	Mature	Fair	0.75
8	1	*Tsuga canadensis*	Eastern Hemlock	+/- 25	12	5	Mature	Fair/Poor	0.60
9	1	*Thuja occidentalis*	Eastern White Cedar	+/- 20	12	3	Mature	Fair/Poor	0.60
10	1	*Tsuga canadensis*	Eastern Hemlock	+/- 20	12	3	Mature	Fair/Poor	0.60
12	Group	*Tsuga canadensis*	Eastern Hemlock	>10	>10	>3	Immature	Fair	0.00
13	1	*Populus tremuloides*	Trembling Aspen	25	14	5	Mature	Fair/Poor	0.60

Health coefficient:	
	poor = 0.5
	fair-poor = 0.6
	fair = 0.75
	fair-good = 0.85
	good = 1.0

1706 Longwood Tree Compensation Calculation

Tree DBH	Health coefficent sum	Compensation ratio	Nr. of replacement trees
100mm - 150mm	0.00	1	0
151mm - 350mm	4.32	2	9
351mm - 500mm	0.00	3	0
>501mm	0.00	4	0
	Nr. of replacement trees required:		**9**

9 PLANTED TREES (9x500=4500) RESULTS IN A SUBTRACTION OF $4,500.00 FROM THE COMPENSATION TOTAL OF $4,500.00.
A TOTAL OF $0.00 REMAINS TO BE PAID AS COMPENSATION FOR TREES NOT PLANTED.

TREE COMPENSATION SUMMARY

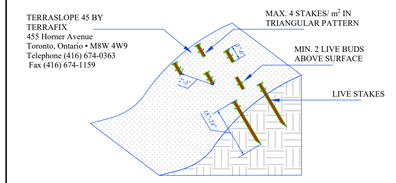
LIVE STAKE CUTTINGS

APPROXIMATELY 46 sq/m
SUPPLY AND INSTALL LIVE STAKING AT 600mm O.C. IN TRIANGULAR PATTERN, FOLLOWING MIX OF CUTTINGS:

- 33% Cornus sericea
- 33% Cornus alternifolia
- 33% Viburnum acerifolium

TAKE CUTTINGS FROM LOCAL INDIGENOUS PLANT MATERIAL, KEEP MOIST UNTIL INSTALLED.
INSTALL ON 45° ANGLE, BURRY MIN 300mm OF CUTTING AND AT LEAST 4 BUD SCARS.
COMPLETE ALL WORK BETWEEN MARCH 15 AND APRIL 15.

REFER TO INSTALLATION NOTES ON THIS PAGE



LIVE STAKE INSTALLATION (Typ.)

1. CUT STAKES FROM LONG, UPRIGHT BRANCHES TAKEN OFF THE PARENT PLANT. TYPICALLY, LIVES STAKES SHOULD BE BETWEEN 18 AND 24 INCHES LONG AND AT LEAST THREE-EIGHTHS OF AN INCH IN DIAMETER.
2. MAKE A STRAIGHT CUT AT THE NARROW END OF THE STAKE (TOWARD THE TIP OF THE BRANCH). AT THE THICKER END (TOWARD THE TRUNK) CUT THE BRANCH AT AN ANGLE, SO THAT IT MAKES A POINT. THIS WAY YOU WILL KNOW WHICH END IS UP AND IT WILL ALSO BE EASIER TO DRIVE THE STAKES INTO THE GROUND. IT IS IMPORTANT TO PLANT LIVE STAKES WITH THE CORRECT END IN THE GROUND; OTHERWISE THEY WILL DIE.
3. REMOVE THE LEAVES AND SMALL BRANCHES FROM THE STAKES AS SOON AS POSSIBLE AFTER CUTTING THEM, TO KEEP THE STAKES FROM DRYING OUT.
4. PLANT THE STAKES WITHIN 24 HOURS FOR BEST RESULTS. IN THE MEANTIME, KEEP THEM MOIST AND WET IN BUCKETS OR WET BURLAP SACKS. ON HOT DAYS, KEEP THEM IN THE SHADE UNTIL YOU PLANT THEM.
5. SOAK OR DIP THE BOTTOM ENDS OF CUTTINGS IN A SOLUTION OF PLANT ROOTING HORMONE BEFORE PLANTING TO SPEED UP GROWTH (YOU DON'T NEED TO USE ROOTING HORMONE FOR MOST WILLOWS OR RED OSIER DOGWOOD. THESE SPECIES HAVE INCIPIENT ROOT BUDS READY TO GO AND WILL ROOT IMMEDIATELY.)
6. DRIVE THE STAKES INTO THE STREAMBANK OR WETLAND SOIL AT LEAST ONE FOOT DEEP (THE DEEPER THE BETTER). LEAVE THREE TO SIX INCHES ABOVE GROUND SURFACE SO THEY CAN SPROUT LEAVES.
7. MINIMUM TWO LIVE BUDS MUST BE ABOVE THE SURFACE WHEN INSTALLED.
8. DRIVE STAKES INTO THE GROUND WITH A RUBBER MALLET TO AVOID DAMAGING THEM. USE A PLANTING BAR OR LENGTH OF REBAR TO START THE HOLE IN HARD SOILS.
9. USE LONGER STAKES AND LEAVE ONE-FOOT STICKING ABOVE THE GROUND IF THE STAKE WILL BE SHADED BY SURROUNDING VEGETATION. IF A WILLOW STAKE GETS TOO MUCH SHADE, IT WILL DROP ITS NEW LEAVES AND DIE.
10. KEEP THE WHIPS! (THE SLENDER TWIGS SNIPPED OFF DURING STAKE CUTTING.) WHIPS WILL GROW NICELY IF THEY ARE PLANTED IN VERY MOIST AREAS AT THE EDGES OF STREAMS AND WETLANDS. PUSH THEM INTO THE GROUND AS FAR AS THEY WILL GO WITHOUT BREAKING.

LIVE STAKE INSTALLATION NOTES

- SUBJECT LANDS. REFER TO SITE PLAN.
- AREA OF EXISTING MAJOR BANK EROSION.
- EXISTING TREES TO BE PRESERVED. REFER TO LP-2
- EXISTING TREES TO BE CONDITIONALLY PRESERVED. REFER TO LP-2
- PROPOSED COMPENSATION PLANTINGS. REFER TO PLANTING NOTES ON LP-4
- TREE PRESERVATION FENCE. REFER TO LP-4
- EXISTING UN-INVENTORIED SHORELINE CANOPY.

LEGEND

CODE	QNTY	COMMON NAME	BOTANICAL NAME	SIZE	FORM	SPACING	DETAIL	NOTES
DECIDUOUS TREES								
As	2	SUGAR MAPLE	*Acer saccharum*	60mm	WB	As Per Drawing	TOISD 903	Full form / Do not cut leader
Qr	1	RED OAK	*Quercus rubrum*	60mm	WB	As Per Drawing	TOISD 901	Full form / Do not cut leader
CONIFEROUS TREES								
Tc	2	EASTERN HEMLOCK	*Tsuga canadensis*	200cm	WB	As Per Drawing	TOISD 902	Full form / Do not cut leader
To	4	EASTERN WHITE CEDAR	*Thuja occidentalis*	200cm	WB	As Per Drawing	TOISD 902	Full form / Do not cut leader

PLANT LIST (COMPENSATION TREES)

REFER TO PLANTING NOTES AND DETAILS ON TP-4

KEY PLAN

GENERAL NOTES

CONTRACTOR IS RESPONSIBLE FOR ALL LOCATES INCLUDING ALL UNDERGROUND SERVICES PRIOR TO ANY EXCAVATION OR INSTALLATIONS.

ANY ACCOMPANYING DOCUMENTATION RELATING TO THE PRESERVATION PLAN SUCH AS TENDER DOCUMENTS AND CHANGE NOTICES ARE TO BE ENDORSED BY JOHN D. BELL ASSOCIATES LIMITED PRIOR TO THE BEGINNING OF ANY SITE WORKS. IN THE EVENT THAT OF A DISCREPANCY THE DRAWING SHALL BE ASSUMED CORRECT.

IT IS THE RESPONSIBILITY OF THE PERSON OR PERSONS RESPONSIBLE FOR THE CONSTRUCTED WORKS TO NOTIFY THE LANDSCAPE ARCHITECT, A MINIMUM OF 48 HOURS PRIOR, FOR ANY REQUIRED INSPECTIONS AND SIGN OFFS.

SCHEDULED MEETINGS SHALL TAKE PLACE AT THE CLOSEST MUTUALLY CONVENIENT TIME. LAYOUT AND INSTALLATION OF PROTECTIVE HOARDING WITHOUT THE PRESENCE OF THE LANDSCAPE ARCHITECT WILL BE THE CONTRACTOR'S RESPONSIBILITY. THE LANDSCAPE ARCHITECT RESERVES THE RIGHT TO HAVE TREE PRESERVATION FENCE RELOCATED WHETHER INSTALLED OR NOT AT THE COST OF THE CONTRACTOR IN THE EVENT THE LANDSCAPE ARCHITECT WAS NOT PRESENT FOR THE LAYOUT AND INSTALLATION OF THE PROTECTIVE TREE PRESERVATION FENCE.

BASE INFORMATION PROVIDED BY:
RICHARD WENGLE ARCHITECT INC.
102 AVENUE ROAD, TORONTO, ONT., M5R 2H3

SITE PLAN REVISED: MARCH, 2016

TOWN ACCEPTED FOR CONSTRUCTION

TOWN OF INNISFIL DEVELOPMENT ENGINEERING

DATE: _____

TOWN ACCEPTED FOR CONSTRUCTION

TOWN PEER REVIEW ENGINEER

DATE: _____

LANDSCAPE ARCHITECTS STAMP
STAMP AND SIGNATURE VOID IF REPRODUCED

JDB ASSOCIATES LTD.
Urban Designers
Landscape Architects
Arborists
274 Burton Ave., Suite 1201
Barrie, Ontario
L4N 5W4
Fax: 705-722-5660
Tel: 705-722-6278

No.	REVISION	DATE	APRVD.
1.	CLIENT REVIEW	MAY 27, 2019	MC
2.	CLIENT REVIEW	NOV. 21, 2019	MC

1706 Longwood Rd.

INNISFIL, ONTARIO

TREE COMPENSATION PLAN

TOWN FILE REF. #	PLOT DATE: JULY 23, 2018	DESIGNED BY: St.T./MC.	REVIEWED BY: NB
SCALE: 1:100	OUR FILE REF. # 10-19	DRAWN BY: St.T./MC.	TP-3

1. PROTECTION AREA IS INITIALLY IDENTIFIED IN THE FIELD BY A LICENSED ONTARIO SURVEYOR. THIS LINE APPROXIMATELY ESTABLISHES THE LIMITS OF TREE PRESERVATION SUBJECT TO AN ON-SITE MEETING WITH TOWN OF INNISFIL PARKS PLANNING & DEVELOPMENT STAFF AND THE LANDSCAPE ARCHITECT/ARBORIST.

2. THE LANDSCAPE ARCHITECT/ARBORIST AND THE TOWN OF INNISFIL PARKS PLANNING & DEVELOPMENT STAFF MEET TO REVIEW THE SURVEYED LINE PRIOR TO ANY TREE REMOVAL OCCURRING, AND TO ADJUST THE LINE WHERE APPROPRIATE TO REFLECT THE ACTUAL NATURE OF A TREED AREA AS OPPOSED TO A STRAIGHT CUT LINE.

3. TREES THAT ARE SUSCEPTIBLE TO FALLING ONTO PRIVATE PROPERTY OR MUNICIPAL PROPERTY FROM WITHIN THE TREE PRESERVATION ZONE WILL BE IDENTIFIED FOR REMOVAL. REMOVAL WILL TAKE PLACE AS PRESCRIBED IN ITEM #6 BELOW.

4. ONCE THE SITE VISIT HAS CONCLUDED, THEN TREE PRESERVATION FENCING WILL BE ERECTED ALONG THE AGREED TREE PRESERVATION LINE.

5. FULL TREE REMOVAL OUTSIDE OF THE TREED AREAS MAY OCCUR ONCE THE PRESERVATION FENCING HAS BEEN ERECTED, TREE REMOVAL PERMIT ISSUED, AND SIGNAGE POSTED A MINIMUM OF 7 DAYS PRIOR TO COMMENCING TREE REMOVAL ACTIVITIES ON SITE (AS PER BY-LAW 2014-115).

6. TREES ARE TO BE FELLED IN SUCH A MANNER AS TO NOT DISTURB VEGETATION TO REMAIN. NO MACHINERY OR EQUIPMENT SHALL BE OPERATED OR STORED WITHIN THE DRIPLINE OF PROTECTED TREES.

7. STUMP REMOVALS ARE TO BE IMPLEMENTED AS TO NOT TO DISTURB THE GROUND WITHIN THE TREE PRESERVATION ZONE.

8. ONCE TREE REMOVAL HAS OCCURRED, AND PRIOR TO THE ISSUANCE OF THE UNDERGROUND CERTIFICATE, A RE-INSPECTION OF THE TREE PRESERVATION AREAS MUST OCCUR WITH TOWN OF INNISFIL STAFF AND THE LANDSCAPE ARCHITECT/ARBORIST. ANY ADDITIONAL TREES TO BE REMOVED WILL BE NOTED BY THE TOWN OF INNISFIL PARKS PLANNING & DEVELOPMENT STAFF AND LANDSCAPE ARCHITECT/ ARBORIST.

9. ALL TREES ON ADJACENT PRIVATE LAND SHALL RECEIVE DRIPLINE PROTECTION.

TREE PRESERVATION PROCESS

THE INTENT OF TREE PRESERVATION AND PROTECTION IS TO PROVIDE AN INVENTORY OF EXISTING TREES ON SITE. IT IS NOT A SURVEY AND THEREFORE THE EXACT LOCATION OF EXISTING TREES MUST BE VERIFIED ON SITE PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION WORKS.

ALL TREES TO BE PRESERVED SHALL BE INDICATED AND MARKED AS SUCH ON SITE BY THE LANDSCAPE ARCHITECT PRIOR TO THE COMMENCING OF THE CLEARING AND GRUBBING CONTRACT.

AS PART OF THE CLEARING AND GRUBBING CONTRACTUAL WORK, TREES LOCATED AT THE EDGES OF ALL PRESERVATION AREAS REGARDLESS OF SIZE ARE TO BE PRUNED OF DEAD AND DISEASED LIMBS AND INDIVIDUAL SPECIMENS AND ARE TO BE REMOVED IN ACCORDANCE WITH ACCEPTED HORTICULTURAL PRACTICES AND TO THE SATISFACTION OF THE TOWN OF INNISFIL UNDER THE DIRECT SUPERVISION OF THE LANDSCAPE ARCHITECT.

IN THE EVENT THAT A TREE THAT HAS BEEN DESIGNATED FOR PRESERVATION IS DAMAGED OR REMOVED WITHOUT PRIOR WRITTEN PERMISSION FROM THE LANDSCAPE ARCHITECT AND TOWN OF INNISFIL, THE LAND OWNER SHALL BE RESPONSIBLE FOR THE REMOVAL AND OR DAMAGE AS OUTLINED IN BYLAW 2005-120, SECTION 15.

SPECIFICATIONS FOR PRESERVATION & PROTECTION

PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION WORKS, ALL TREES OR BLOCKS OF TREES THAT HAVE BEEN DESIGNATED FOR PRESERVATION, AS INDICATED ON THE ACCOMPANYING PLAN SHALL BE FULLY PROTECTED BY THE ERECTION OF HOARDING OUTSIDE OF OR AT THE DRIP LINE (SEE DETAIL D2).

EQUIPMENT OR VEHICLES SHALL NOT BE PARKED, REPAIRED OR REFUELED WITHIN TREE PROTECTION ZONE, CONSTRUCTION MATERIALS SHALL NOT BE STORED AND EARTH MATERIALS SHALL NOT BE STOCKPILED WITHIN THE DRIP LINE AREA OF ANY TREE NOT DESIGNATED FOR REMOVAL.

ANY TREES NOT DESIGNATED FOR REMOVAL SHALL NOT HAVE RIGGING CABLES ATTACHED OR WRAPPED AROUND THEM. NOR SHALL ANY CONTAMINANTS BE DUMPED WITHIN THE PROTECTIVE AREAS. FURTHER, NO CONTAMINANTS SHALL BE DUMPED OR FLUSHED WHERE THEY MAY COME INTO CONTACT WITH THE FEEDER ROOTS OF THE TREES TO BE PRESERVED.

THE CONTRACTOR OR LAND OWNER SHALL TAKE EVERY PRECAUTION TO PREVENT DAMAGE TO TREES OR SHRUBS THAT ARE NOT DESIGNATED FOR REMOVAL AS PER THE ACCOMPANYING PLAN.

UNLESS THE CONTRACT WORK SPECIFICALLY REQUIRES WORK WITHIN THE DRIP LINE OF TREES NOT DESIGNATED FOR REMOVAL, EQUIPMENT SHALL NOT BE OPERATED WITHIN THAT DRIP LINE AREA. WHEN CONTRACT WORK MUST BE COMPLETED WITHIN THE DRIP LINE OF TREES NOT DESIGNATED FOR REMOVAL, OPERATION OF EQUIPMENT WITHIN THAT DRIP LINE SHALL BE KEPT TO THE MINIMUM AMOUNT REQUIRED TO COMPLETE THE WORKS. PRIOR TO THE COMMENCEMENT OF SUCH WORKS THE LANDSCAPE ARCHITECT AND TOWN OF INNISFIL MUST BE GIVEN WRITTEN NOTIFICATION AND WILL SUBSEQUENTLY BE REQUIRED TO INSPECT SAID WORKS.

THE CONTRACTOR'S OPERATION SHALL IN NO WAY CAUSE DAMAGE TO THE TRUNK OR BRANCHES OF TREES NOT DESIGNATED FOR REMOVAL.

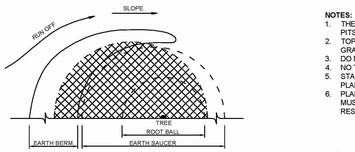
THE CONTRACTOR'S OPERATION SHALL NOT CAUSE FLOODING OR SEDIMENT DEPOSITS IN AREAS WHERE TREES ARE NOT DESIGNATED FOR REMOVAL.

IN THE EVENT THAT IT IS NECESSARY TO REMOVE LIMBS OR PORTIONS OF TREES NOT DESIGNATED FOR REMOVAL, WRITTEN APPROVAL AND DIRECTION MUST BE GIVEN BY THE LANDSCAPE ARCHITECT AND TOWN OF INNISFIL PRIOR TO ANY WORKS. THE REMOVALS MUST BE EXECUTED CAREFULLY AND IN ACCORDANCE WITH STANDARD HORTICULTURAL PRACTICES AND TECHNIQUES.

IN THE EVENT THAT GRADES AROUND A TREE DESIGNATED FOR PRESERVATION ARE TO BE CHANGED, THE DEVELOPER, AGENT OR LAND OWNER SHALL BE REQUIRED TO TAKE PRECAUTIONS TO PRESERVE THE TREE, SUCH AS DRY WELLING AND ROOT FEEDING. THE PROTECTION MEASURES MUST BE DONE TO THE SATISFACTION OF THE LANDSCAPE ARCHITECT AND TOWN OF INNISFIL.

THE DEVELOPER SHALL BE RESPONSIBLE FOR THE MAINTENANCE AND/OR REMOVAL OF DEAD, DYING, DISEASED TREES WITHIN THE LIMIT OF THIS PLAN UNTIL END OF GENERAL MAINTENANCE.

NOTES FOR TREE PRESERVATION AND PROTECTION



NOTES:
1. THE USE OF AUGERS OR TREE SPADES FOR EXCAVATING PITS IS NOT PERMITTED.
2. TOP OF ROOT BALL TO BE ELEVATED 100mm ABOVE GRADE
3. DO NOT ALLOW FOR AIR POCKETS WHEN BACKFILLING.
4. NO TREE PITS ARE TO BE LEFT OPEN OVERNIGHT.
5. STAKES AND TIES TO BE REMOVED ONE YEAR AFTER PLANTING.
6. PLANTINGS FOR DECIDUOUS AND CONIFEROUS TREES MUST ALSO ADHERE TO TOISD 901 AND TOISD 902 RESPECTIVELY.

- 100mm DEPTH MULCH AS PER SPECIFICATION, 75mm AWAY FROM AROUND TREE.
- TWO 2" X 2" WOOD STAKES OR 2.5" ROUND PEGS PER TREE, TOPS COLOURED AS INDICATED BY MUNICIPALITY. TO BE ERECTED IMMEDIATELY AFTER PLANTING, LOCATED AWAY FROM ALL BRANCHES, ONE ON THE SIDE OF PREVAILING WIND, THE OTHER ON THE OPPOSITE SIDE. DO NOT DRIVE STAKES THROUGH ROOT BALL.
- FORM EARTH WATERING SAUCER / TREE WELL AROUND TREE, 150mm HIGH.
- PLANTING SOIL MIXTURE: 2 PARTS TOPSOIL TO 1 PART COMPOSTED SOIL LIGHTLY COMPACT AND WATER VERY WELL TO ELIMINATE AIR POCKETS.
- SCARIFY SIDES AND BOTTOM OF EXCAVATION PIT.
- ORIGINAL GRADE OF SLOPE.
- 150mm MIN. HIGH EARTH BERM.

Innisfil

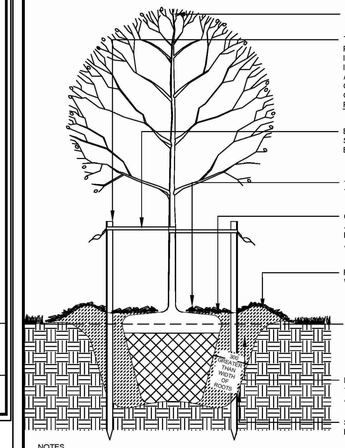
TREE PLANTING ON SLOPE

DRAWN: TOI | APR'D:
SCALE: N.T.S. | DATE: MARCH 2016

NO.	REVISIONS	APR'D	DATE

METRIC
ALL DIMENSIONS IN mm UNLESS OTHERWISE NOTED

TOISD 903



NOTES
1. DO NOT ALLOW AIR POCKETS WHEN BACKFILLING.
2. POSITION CROWN OF ROOT BALL 100mm ABOVE FINISHED GRADE TO ALLOW FOR SETTLING.
3. DO CORRECTIVE PRUNING TO RETAIN NATURAL FORM OF TREE AS DIRECTED BY THE ARBORIST OR LANDSCAPE ARCHITECT, INCLUDING REMOVAL OF DEAD, BROKEN, OR CROSSING BRANCHES OR CODOMINANT LEADERS. DO NOT REMOVE MORE THAN 20% OF LIVE CANOPY.
4. PRUNE GIRDLING ROOTS.
5. WHEN TREES ARE PLANTED ON SLOPES, SEE DRAWING TOISD 903, BOTTOM OF PLANTING PIT TO BE SLOPED TO PROVIDE POSITIVE DRAINAGE.
6. NO TREE PITS SHALL BE LEFT OPEN OVERNIGHT.
7. STAKES AND TIES TO BE REMOVED ONE YEAR AFTER PLANTING. TREES SHOULD BE STRAIGHT AND HAVE A MINIMUM OF 50mm DBH.
8. TREE SHOULD HAVE A STRONG LEADER.
9. BARE ROOT STOCK WILL NOT BE ACCEPTED.

NO.	REVISIONS	APR'D	DATE
3.	TO REFLECT TOWN STANDARDS	TOI	MAY 2016
2.	REVISED TOWN LOGO	TOI	APRIL 2015
1.	TO REFLECT TOWN STANDARDS		MAY/14

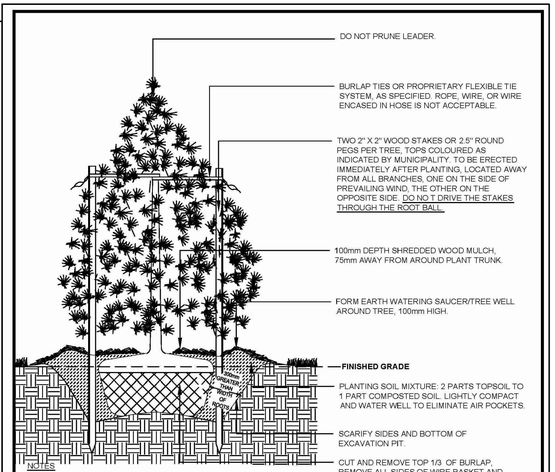
Innisfil

DECIDUOUS TREE PLANTING

DRAWN: A&A | APR'D:
SCALE: N.T.S. | DATE: JUNE 2011

METRIC
ALL DIMENSIONS IN mm UNLESS OTHERWISE NOTED

TOISD 901



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4. PRUNE GIRDLING ROOTS.
5. WHEN TREES ARE PLANTED ON SLOPES, SEE DRAWING TOISD 903, BOTTOM OF PLANTING PIT TO BE SLOPED TO PROVIDE POSITIVE DRAINAGE.
6. NO TREE PITS SHALL BE LEFT OPEN OVERNIGHT.
7. STAKES AND TIES TO BE REMOVED ONE YEAR AFTER PLANTING.
8. TREE SHOULD BE STRAIGHT AND BE A MINIMUM OF 200mm TALL.
9. TREE SHOULD HAVE A STRONG LEADER.
10. BARE ROOT STOCK WILL NOT BE ACCEPTED.

NO.	REVISIONS	APR'D	DATE
3.	TO REFLECT TOWN STANDARDS	TOI	MAY 2016
2.	REVISED TOWN LOGO	TOI	APRIL 2015
1.	TO REFLECT TOWN STANDARDS		MAY/14

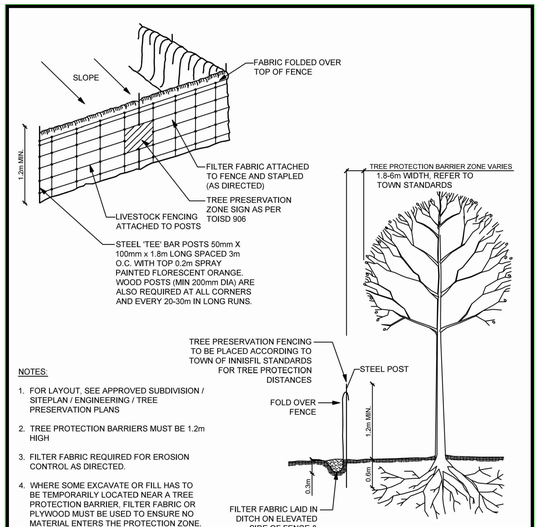
Innisfil

CONIFEROUS TREE PLANTING

DRAWN: A&A | APR'D:
SCALE: N.T.S. | DATE: JUNE 2011

METRIC
ALL DIMENSIONS IN mm UNLESS OTHERWISE NOTED

TOISD 902



NOTES:
1. FOR LAYOUT, SEE APPROVED SUBDIVISION / SITEPLAN / ENGINEERING / TREE PRESERVATION PLANS
2. TREE PROTECTION BARRIERS MUST BE 1.2m HIGH
3. FILTER FABRIC REQUIRED FOR EROSION CONTROL AS DIRECTED.
4. WHERE SOME EXCAVATE OR FILL HAS TO BE TEMPORARILY LOCATED NEAR A TREE PROTECTION BARRIER, FILTER FABRIC OR PLYWOOD MUST BE USED TO ENSURE NO MATERIAL ENTERS THE PROTECTION ZONE.
5. ALL SUPPORTS AND BRACING SHOULD BE OUTSIDE THE PROTECTION ZONE. ALL SUCH SUPPORTS SHOULD MINIMIZE DAMAGING ROOTS OUTSIDE THE TREE PROTECTION BARRIER.
6. NO CONSTRUCTION ACTIVITY, GRADE CHANGES, SURFACE TREATMENT OR EXCAVATIONS OF ANY KIND ARE PERMITTED WITHIN THE TREE PROTECTION ZONE.

NO.	REVISIONS	APR'D	DATE
1	ADDED REFERENCE TO TOISD 906	TOI	APRIL 2015

Innisfil

TREE PROTECTION BARRIER

DRAWN: A&A | APR'D:
SCALE: N.T.S. | DATE: JUNE 2011

METRIC
ALL DIMENSIONS IN mm UNLESS OTHERWISE NOTED

TOISD 905

1. VERIFY ALL EXISTING SITE CONDITIONS AND REPORT ANY DISCREPANCIES BEFORE COMMENCING WORK.
2. PLANT MATERIAL LISTED IN THE PLANT SCHEDULE ARE MINIMUM SIZES +/- NURSERY GROWN AND UNIFORM SPECIMENS. NO SUBSTITUTIONS WILL BE PERMITTED WITHOUT WRITTEN APPROVAL FROM THE LANDSCAPE ARCHITECTS.
3. ALL PLANT MATERIAL WHICH ARE SPECIFIED BY O.C. (ON CENTRE SPACING) ARE TO BE PLANTED AS NOTED IN THE PLANT SCHEDULE.
4. ALL PLANT MATERIAL IS TO MEET THE STANDARDS OF THE NURSERY TRADES ASSOCIATION.
5. ALL PLANT MATERIALS WHICH CAN NOT BE PLANTED IMMEDIATELY UPON ARRIVAL ON SITE SHALL BE PROPERLY HEELED IN OR WELL PROTECTED WITH SOIL OR SIMILAR MATERIALS TO PREVENT DRYING OUT AND SHALL BE KEPT MOIST UNTIL COMMENCEMENT OF PLANTING.
6. GIVE TIMELY NOTICE TO THE LANDSCAPE ARCHITECT WHEN INSPECTIONS OF WORK AND MATERIALS ARE REQUIRED.
7. FINAL ACCEPTANCE OF THE PROJECT WILL BE CARRIED OUT UPON COMPLETION OF ALL WORK INCLUDED IN THE CONTRACT.
8. ALL NEW WORK TO BLEND NEATLY AND SMOOTHLY WITH EXISTING CONDITIONS.
9. FOR ALL AREAS OF DISTURBANCE: NATIVE TOPSOIL IS TO BE STRIPPED, STOCK PILED AND REPLACED TO A MINIMUM DEPTH OF 300mm.
10. LOCATIONS FOR PLANT MATERIAL AND PLANTING BEDS ARE TO BE MARKED OR STAKED OUT BY THE CONTRACTOR AND APPROVED BY THE LANDSCAPE ARCHITECT AND MUNICIPAL STAFF PRIOR TO INSTALLATION.
11. ALL TREES ARE TO BE STAKED OR GUY WIRED ACCORDING TO DETAILS PROVIDED. NO ACCESSIBLE OPEN HOLE TREE PITS SHALL BE PERMITTED OVERNIGHT. ALL OPEN PITS SHALL BE ADEQUATELY PROTECTED BY BARRIERS OR FILLED IN WITH SOIL PRIOR TO THE END OF EACH PLANTING DAY.
12. REMOVE BURLAP AND ROPE FROM THE TOP 1/3 OF ROOT BALLS.
13. IN THE EVENT OF A DISCREPANCY BETWEEN THE PLANT LIST AND DRAWING, THE DRAWING WILL BE ASSUMED TO BE CORRECT.
14. INSTALLATION OF PLANT MATERIAL PRIOR TO INSPECTION BY THE LANDSCAPE ARCHITECT WILL BE THE CONTRACTOR'S RESPONSIBILITY. THE LANDSCAPE ARCHITECT RESERVES THE RIGHT TO REJECT ANY PLANTS, WHETHER INSTALLED OR NOT, WHICH DO NOT CONFORM TO THE SPECIFICATIONS AND/OR SITE DRAWING. REMOVE ALL REJECTED PLANTS FROM THE SITE IMMEDIATELY. DO NOT REMOVE ANY LABELS FROM PLANTS UNTIL PLANTS HAVE BEEN INSPECTED AND APPROVED BY THE LANDSCAPE ARCHITECT.
15. ALL TREE PITS SHALL INCLUDE TREATMENT WITH MICORRHIZAL FUNGI OF THE WALLS BEFORE PLANTING (2L OF "MIKE" OR SIMILAR PRODUCT SHALL BE USED FOR EACH 60mm CALIPER TREE)
16. PREPARED SOIL MIXTURE FOR TREE PITS AND PLANT BEDS SHALL CONSIST OF:
- SIX PARTS SANDY LOAM SOIL (50-60% SAND, 20-40% SILT, 6-10%CLAY), pH ≤7.5, FREE OF CLAY LUMPS, DEBRIS, TOXIC SUBSTANCES, STONES, WOODY MATERIAL, WEED SEEDS AND GRASS ROOTS.
- ONE PART FINE PULVERIZED CANADIAN PEAT MOSS
- ONE PART OF WELL-ROTTED FARM MANURE

PLANTING NOTES

KEY PLAN

GENERAL NOTES

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BASE INFORMATION PROVIDED BY: SITE PLAN REVISED: MARCH, 2016
RICHARD WENGLE ARCHITECT INC.
102 AVENUE ROAD, TORONTO, ONT., M5R 2H3

TOWN ACCEPTED FOR CONSTRUCTION

TOWN OF INNISFIL DEVELOPMENT ENGINEERING

DATE: _____

TOWN ACCEPTED FOR CONSTRUCTION

TOWN PEER REVIEW ENGINEER

DATE: _____

LANDSCAPE ARCHITECTS STAMP
STAMP AND SIGNATURE VOID IF REPRODUCED

JDB ASSOCIATES LTD.
Urban Designers
Landscape Architects
Arborists
274 Burton Ave., Suite 1201
Barrie, Ontario
L4N 5W4
Fax: 705-722-5660
Tel: 705-722-4278

No.	REVISION	DATE	APRVD.
1.	CLIENT REVIEW	MAY 27, 2019	MC
2.	CLIENT REVIEW	NOV. 21, 2019	MC

1706 Longwood Rd.

INNISFIL, ONTARIO

PLANTING/PRESERVATION DETAILS

TOWN FILE REF. #	PLOT DATE: JULY 23, 2018	DESIGNED BY: St.T./MC.	REVIEWED BY: NB
SCALE: NTS	OUR FILE REF. # 10-19	DRAWN BY: St.T./MC.	TP-4