Soil Engineers Ltd.
CONSULTING ENGINEERS
GEOTECHNICAL • ENVIRONMENTAL • HYDROGEOLOGICAL • BUILDING SCIENCE
90 WEST BEAVER CREEK ROAD, SUITE #100, RICHMOND HILL, ONTARIO L4B 1E7 · TEL (416) 754-8515 · FAX (905) 881-8335

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: (905) 881-8335	FAX: (705) 684-8522	FAX: (905) 725-1315	FAX: (905) 542-2769

November 23, 2020 Reference No. 2009-S189

8181926 Canada Inc.
160 Avenue Labrosse
Pointe-Claire, Quebec
H9R 1A1

Attention: Mr. Raj Chahal

Re: Geotechnical Investigation for Proposed Truck and Trailer Parking
12434 Dixie Road
Town of Caledon

Dear Sir:

In accordance with the written authorization dated September 29, 2020, we have completed the geotechnical investigation at the captioned property. The findings and resulting recommendations are presented in this report.

SITE CONDITION

The subject property, encompassing an area of 10.7 hectares, is a farm field with barns, farm houses and water ponds located on the west side of Dixie Road in the Town of Caledon. The existing site gradient drops uniformly towards the north and west. It is understood that the farm field will be regraded for truck and trailer parking.

FIELD WORK

The field work, consisting of eleven (11) sampled boreholes extending to a depth of 3.3 to 3.5m from the prevailing ground surface, was performed on October 14 and 15, 2020, at the locations shown on the Plan, Drawing No. 1.

The boreholes 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 non-cohesive 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 ground elevation at each borehole location was obtained using a hand-held Global Navigation Satellite System (GNSS) surveying equipment (Trimble Geoexplorer 6000).

SUBSURFACE CONDITIONS

The area of investigation is a farm field. The investigation has disclosed that beneath a veneer of topsoil, with a layer of earth fill, the site is generally underlain by a stratum of sandy silt till.

Detailed descriptions of the encountered subsurface conditions are presented on the Borehole Logs, comprising Figures 1 to 11, inclusive. The revealed stratigraphy is plotted on the Subsurface Profile, Drawing Nos. 2 and 3. The engineering properties of the disclosed soils are discussed herein.

Topsoil (All Boreholes)

A layer of topsoil, 18 to 25 cm in thickness, was contacted at the ground surface.

Earth Fill (All Boreholes)

Beneath the topsoil, a layer of earth fill, extending to a depth of 0.5 to 1.4 m from the existing ground surface, was contacted at the borehole locations. It consists of silty clay with sand and gravel, occasional topsoil and organic inclusions. Part of the earth fill may represent the ploughed earth and the fill at the lower depth may represent earth filling in the past for pre-grading.

One must be aware that the samples retrieved from boreholes may not be truly representative of the geotechnical and environmental quality of the fill, and do not indicate whether the topsoil beneath the earth fill was completely stripped. This should be further assessed by laboratory testing and/or test pits.

Sandy Silt Till (All Boreholes)

The native sandy silt till deposit was contacted below the earth fill. It consists of a random mixture of soil particle sizes ranging from clay to gravel, with the sand and silt being the predominant fraction. It is heterogeneous and amorphous, with occasional sand seams, cobbles and boulders.

Grain size analyses were conducted on 6 samples collected from the test pits for infiltration assessment; the results are presented on Figures 12 to 15, inclusive.

The obtained 'N' values range from 14 to 54, with a median of 29 blows per 30 cm of penetration, indicating the silt till deposit is compact to very dense, generally being compact in relative density.

The natural water content values of the soil samples were determined; the results are plotted on the Borehole Logs. The values range from 7% to 16%, with a median of 11%, showing a moist condition.

The engineering properties of the sandy silt till deposit are given below:

- High frost susceptibility.
- Moderately low water erodibility.
- Low permeability, with an estimated coefficient of permeability of 10^{-6} to 10^{-7} cm/sec, a percolation rate of 60 to 80 min/cm, and runoff coefficients of:

Slope	
0% - 2%	0.15
2% - 6%	0.20
6% +	0.28

- The shear strength is primarily derived from internal friction and is augmented by cementation.
- In excavation, the silt till will be stable in relatively steep cut; however, prolonged exposure may lead to local erosion in the sand pockets and resulting in sheet collapse.
- Fair pavement-supportive material, with an estimated California Bearing Ratio value of 6% o 10%.
- Moderate corrosivity to buried metal, with an estimated electrical resistivity of 4000 ohm·cm.

GROUNDWATER CONDITIONS

No free groundwater was recorded in the boreholes during the drilling operation and upon the completion of drilling. It is our opinion that continuous groundwater does not exist in the boreholes within the depth of investigation.

DISCUSSION AND RECOMMENDATIONS

The investigation has disclosed that beneath a veneer of topsoil, with a layer of earth fill extending to a depth of 0.5 to 1.4 m, the site is underlain by a stratum of compact to very dense, generally dense sandy silt till in a moist condition. Continuous groundwater does not exist in the boreholes within the depth of investigation.

It is understood that the farm field will be regraded for truck and trailer parking. The geotechnical findings warranting special consideration are presented below.

Site Preparation

Topsoil, vegetation and organic-containing material must be removed from the farm field. The exposed subgrade must be inspected and proof-rolled prior to regrading or any fill placement. Any soft spot or soils with high organic content should be sub-excavated and removed.

The existing barns and houses will be left on site. In case any structure will be demolished, the debris and rubble must be removed and disposed off-site.

After the demolition, the cavities should be backfilled with selected material, free of organics, compacted in layers to the job specification and requirements. If imported fill is to be used, it should be inorganic soils, free of deleterious material and any environmental issue (contamination). The potential imported earth fill from off-site must be reviewed for geotechnical and environmental quality by the appropriate personnel as authorized by the developer or agency, before being hauled to the site.

Underground Services

The subgrade for underground service pipes and manholes should consist of sound native soils

or properly compacted inorganic earth fill. Where badly weathered soil or organic soil is encountered, it should be subexcavated and replaced with the bedding material, compacted to at least 95% of Standard Proctor compaction.

A Class 'B' granular bedding, consisting of compacted 20-mm Crusher-Run Limestone, or equivalent, is recommended for construction of underground services.

The pipe joints into catch basins and manholes must be leak-proof to prevent the migration of fines through the joints. Openings to subdrains and catch basins should be shielded with a fabric filter to prevent blockage by silting.

In order to prevent pipe floatation when the service trench is deluged with water, a soil cover of at least two times the pipe diameter should be in place at all times after completion of the pipe installation.

Backfilling in Trenches and Excavated Areas

The on-site inorganic soils are generally suitable for use as trench backfill. The backfill should be compacted to at least 95% of its maximum Standard Proctor dry density. The compaction can be carried out on the wet side of the optimum to allow a wider latitude of lift thickness.

In the zone within 1.0 m below the pavement subgrade, the material should be compacted with the water content at 2% to 3% drier than the optimum and the compaction should be increased to at least 98% of the maximum Standard Proctor dry density. This is to provide the required stiffness for pavement and slab construction.

In normal construction practice, the problem areas of ground settlement largely occur adjacent to manholes, catch basins, services crossings, foundation walls and columns. In areas which are inaccessible to a heavy compactor, imported sand backfill should be used and compacted with a lighter equipment.

The narrow trenches should be cut at 1 vertical:2 or + horizontal so that the backfill can be effectively compacted. Otherwise, soil arching will prevent the achievement of proper compaction. The lift of each backfill layer should either be limited to a thickness of 20 cm, or the thickness should be determined by test strips.

Sidewalk and Structures

The on-site subsoil is highly frost susceptible, the sidewalk and minor structures in open areas should be designed to tolerate the seasonal movement.

If no movement is tolerable, the structure should be supported on conventional footings extending into the native soil stratum or well-compacted earth fill, with a minimum earth cover of 1.2 m. The recommended soil bearing pressures for use in the design of conventional footings are given below:

- Maximum Allowable Bearing Pressure, at Serviceability Limit State (SLS) = 150 kPa
- Factored Ultimate Bearing Pressure, at Ultimate Limit State (ULS) = 240 kPa

The total and differential settlements of footing designing for the recommended bearing pressure at SLS are estimated to be 25 mm and 20 mm, respectively.

Pavement Design

The recommended pavement design at the driveway entrance and heavy duty parking is presented below:

Course	Thickness (mm)	OPS Specifications
Asphalt Surface	40	HL 3
Asphalt Binder	65	HL 8
Granular Base	150	OPSS Granular 'A', 20-mm CRL or equivalent
Granular Sub-base	350	OPSS Granular 'B', 50-mm CRL or equivalent

In case a gravel lot will be constructed for the truck and trailer parking, a minimum of 200 mm of 20 mm crusher run limestone on 300 mm of 50 mm crusher run limestone is recommended.

The gravel must be placed on a woven geotextile of Terrafix 400W or Biaxial Geogrid of Terrafix TBX2000, or equivalent, to separate the soil and the granular fill, in order to maintain a continuous support, even the gravel and the subgrade is saturated after rainfall.

In preparation of the subgrade for pavement construction, compressible topsoil and high organic content material should be removed. The fine graded subgrade should be proof-rolled with a heavy roller or loaded dump-truck. Any soft subgrade as identified should be sub-excavated and replaced by selected organic-free material and compacted properly to the job specifications.

In the zone within 1.0 m below the pavement subgrade, the earth fill 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.

All the granular bases should be compacted to their maximum Standard Proctor dry density.

The pavement subgrade will suffer a strength regression if water is allowed to infiltrate prior to paving. The following measure should therefore be incorporated into the construction procedures and road design:

- The pavement subgrade should be properly crowned and smooth-rolled to allow interim precipitation to be properly drained.
- Subdrains connected into the catch basins should be provided to drain the infiltrated water at the lower spots. The subdrains should consist of filter-sleeved weepers to prevent blockage by silting.
- Areas adjacent to the pavement should be properly graded to prevent the ponding of large amounts of water. Swales should be provided to drain the surface water runoff from the pavement.

LIMITATIONS OF REPORT

This report was prepared by Soil Engineers Ltd. for the account of 8181926 Canada Inc., and for review by the designated consultants and government agencies. The material in the report reflects the judgment of Daric Yang, B.A.Sc., and Bennett Sun, P.Eng., in light of the information available to it at the time of preparation.

Use of this report is subject to the conditions and limitations of the contractual agreement. 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.

Yours truly,
SOIL ENGINEERS LTD.

Daric Yang, B.A.Sc.

Bennett Sun, P.Eng.
DY/BS:

ENCLOSURES

Log of Boreholes	Figures 1 to 11
Grain Size Distribution Curves	Figures 12 to 15
Borehole and Test Pit Location Plan	Drawing No. 1
Subsurface Profile	Drawing Nos. 2 and 3

c. Malone Given Parsons
Attn. Mr. Rohan Sovig

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.: 2009-S189

LOG OF BOREHOLE NO.: 1

FIGURE NO.: 1

PROJECT DESCRIPTION: Proposed Truck and Trailer Parking

METHOD OF BORING: Flight Auger

PROJECT LOCATION: 12434 Dixie Road, Town of Caledon

DRILLING DATE: October 14, 2020

El. (m) / Depth (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value	Depth Scale (m)	Dynamic Cone (blows/30 cm) 10 30 50 70 90 / Shear Strength (kN/m²) 50 100 150 200 / Penetration Resistance (blows/30 cm) 10 30 50 70 90	Atterberg Limits PL LL / Moisture Content (%) 10 20 30 40	WATER LEVEL
267.9	Ground Surface							
	20 cm TOPSOIL				0			
0.2	EARTH FILL Dark brown silty clay traces of sand and gravel occ. topsoil and organic inclusions	1	DO	6			17	
		2	DO	14	1		11	
266.8 1.1	Brown, compact to very dense SANDY SILT TILL traces of clay and gravel occ. sand seams and layers, cobbles and boulders	3	DO	25			11	
		4	DO	40	2		10	
		5	DO	79/24	3		8	Dry on completion
264.5 3.4	END OF BOREHOLE				4			
					5			
					6			

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LOG OF BOREHOLE NO.: 10

FIGURE NO.: 10

PROJECT DESCRIPTION: Proposed Truck and Trailer Parking

METHOD OF BORING: Flight Auger

PROJECT LOCATION: 12434 Dixie Road, Town of Caledon

DRILLING DATE: October 14, 2020

El. (m) / Depth (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value	Depth Scale (m)	Dynamic Cone (blows/30 cm) 10 30 50 70 90 / Shear Strength (kN/m²) 50 100 150 200 / Penetration Resistance (blows/30 cm) 10 30 50 70 90	Atterberg Limits PL LL / Moisture Content (%) 10 20 30 40	WATER LEVEL
266.0	Ground Surface							
0.0	20 cm TOPSOIL				0			
0.2	EARTH FILL Dark brown silty clay traces of sand and gravel scattered topsoil occ. organic inclusions	1	DO	7			18	
265.1 0.9	Brown, compact to dense SANDY SILT TILL traces of clay and gravel occ. sand seams and layers, cobbles and boulders	2	DO	24	1		16	
		3	DO	28			12	
					2			
		4	DO	27			12	
					3			
		5	DO	47			10	
262.5 3.5	END OF BOREHOLE							Dry on completion
					4			
					5			
					6			

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JOB NO.: 2009-S189

LOG OF BOREHOLE NO.: 11

FIGURE NO.: 11

PROJECT DESCRIPTION: Proposed Truck and Trailer Parking

METHOD OF BORING: Flight Auger

PROJECT LOCATION: 12434 Dixie Road, Town of Caledon

DRILLING DATE: October 14, 2020

El. (m) / Depth (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value	Depth Scale (m)	Dynamic Cone (blows/30 cm) 10 30 50 70 90 / Shear Strength (kN/m²) 50 100 150 200 / Penetration Resistance (blows/30 cm) 10 30 50 70 90	Atterberg Limits PL LL / Moisture Content (%) 10 20 30 40	WATER LEVEL
264.2	Ground Surface							
0.0	25 cm TOPSOIL				0			
0.3	EARTH FILL Dark brown silty clay traces of sand and gravel scattered topsoil occ. organic inclusions	1	DO	10			16	
263.3								
0.9	Brown, compact to dense SANDY SILT TILL traces of clay and gravel occ. sand seams and layers, cobbles and boulders	2	DO	31	1		10	
		3	DO	27			12	
					2			
		4	DO	27			11	
					3			
		5	DO	45			13	
260.7								
3.5	END OF BOREHOLE				4			Dry on completion
					5			
					6			

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LOG OF BOREHOLE NO.: 2

JOB NO.: 2009-S189

FIGURE NO.: 2

PROJECT DESCRIPTION: Proposed Truck and Trailer Parking

METHOD OF BORING: Flight Auger

PROJECT LOCATION: 12434 Dixie Road, Town of Caledon

DRILLING DATE: October 14, 2020

El. (m) / Depth (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value	Depth Scale (m)	Dynamic Cone (blows/30 cm) 10 30 50 70 90 / Shear Strength (kN/m²) 50 100 150 200 / Penetration Resistance (blows/30 cm) 10 30 50 70 90	Atterberg Limits PL LL / Moisture Content (%) 10 20 30 40	WATER LEVEL
268.7	Ground Surface							
	20 cm TOPSOIL				0			
0.2	EARTH FILL Dark brown silty clay traces of sand and gravel occ. topsoil and organic inclusions	1	DO	10			17	
267.8								
0.9	Brown, compact SANDY SILT TILL traces of clay and gravel occ. sand seams and layers	2	DO	26	1		11	
		3	DO	28			11	
					2			
		4	DO	26			12	
					3			
		5	DO	29			7	
265.2								
3.5	END OF BOREHOLE							
					4			
					5			
					6			

Dry on completion

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JOB NO.: 2009-S189

LOG OF BOREHOLE NO.: 3

FIGURE NO.: 3

PROJECT DESCRIPTION: Proposed Truck and Trailer Parking

METHOD OF BORING: Flight Auger

PROJECT LOCATION: 12434 Dixie Road, Town of Caledon

DRILLING DATE: October 14, 2020

El. (m) / Depth (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value	Depth Scale (m)	Dynamic Cone (blows/30 cm) 10 30 50 70 90 / Shear Strength (kN/m²) 50 100 150 200 / Penetration Resistance (blows/30 cm) 10 30 50 70 90	Atterberg Limits PL LL / Moisture Content (%) 10 20 30 40	WATER LEVEL
268.2	Ground Surface							
0.0	18 cm TOPSOIL				0			
0.2	EARTH FILL Dark brown sandy silt a trace of d gravel occ. topsoil inclusions	1	DO	16			8	
267.3 0.9	Brown, compact to dense SANDY SILT TILL traces of clay and gravel occ. sand seams and layers	2	DO	25	1		12	
		3	DO	26			13	
					2			
		4	DO	27			10	
		5	DO	32	3		10	Dry on completion
264.7 3.5	END OF BOREHOLE							
					4			
					5			
					6			

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JOB NO.: 2009-S189

LOG OF BOREHOLE NO.: 4

FIGURE NO.: 4

PROJECT DESCRIPTION: Proposed Truck and Trailer Parking

METHOD OF BORING: Flight Auger

PROJECT LOCATION: 12434 Dixie Road, Town of Caledon

DRILLING DATE: October 14, 2020

El. (m) / Depth (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value	Depth Scale (m)	Dynamic Cone (blows/30 cm) 10 30 50 70 90 / Shear Strength (kN/m²) 50 100 150 200 / Penetration Resistance (blows/30 cm) 10 30 50 70 90	Atterberg Limits PL LL / Moisture Content (%) 10 20 30 40	WATER LEVEL
267.5	Ground Surface							
0.0	18 cm TOPSOIL				0			
0.2	EARTH FILL Dark brown silty clay traces of sand and gravel occ. topsoil and organic inclusions	1	DO	7			11	
		2	DO	17	1		13	
266.1								
1.4	Brown, compact to very dense SANDY SILT TILL traces of clay and gravel occ. sand seams and layers, cobbles and boulders	3	DO	26			12	
		4	DO	53	2		9	
		5	DO	50/15	3		10	Dry on completion
264.2								
3.3	END OF BOREHOLE				4			
					5			
					6			

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LOG OF BOREHOLE NO.: 5

JOB NO.: 2009-S189

FIGURE NO.: 5

PROJECT DESCRIPTION: Proposed Truck and Trailer Parking

METHOD OF BORING: Flight Auger

PROJECT LOCATION: 12434 Dixie Road, Town of Caledon

DRILLING DATE: October 15, 2020

El. (m) / Depth (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value	Depth Scale (m)	Dynamic Cone (blows/30 cm) 10 30 50 70 90 / Shear Strength (kN/m²) 50 100 150 200 / Penetration Resistance (blows/30 cm) 10 30 50 70 90	Atterberg Limits PL LL / Moisture Content (%) 10 20 30 40	WATER LEVEL
267.2	Ground Surface							
0.0	18 cm TOPSOIL				0			
0.2	EARTH FILL Dark brown silty clay traces of sand and gravel occ. topsoil and organic inclusions	1	DO	13			13	
		2	DO	13	1		15	
266.1 1.1	Brown, compact to very dense SANDY SILT TILL traces of clay and gravel occ. sand seams and layers, cobbles and boulders	3	DO	30			12	
		4	DO	54	2		13	
		5	DO	45	3		10	Dry on completion
263.7 3.5	END OF BOREHOLE				4 5 6			

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LOG OF BOREHOLE NO.: 6

JOB NO.: 2009-S189

FIGURE NO.: 6

PROJECT DESCRIPTION: Proposed Truck and Trailer Parking

METHOD OF BORING: Flight Auger

PROJECT LOCATION: 12434 Dixie Road, Town of Caledon

DRILLING DATE: October 14, 2020

El. (m) / Depth (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value	Depth Scale (m)	Dynamic Cone (blows/30 cm) 10 30 50 70 90 / Shear Strength (kN/m²) 50 100 150 200 / Penetration Resistance (blows/30 cm) 10 30 50 70 90	Atterberg Limits PL LL / Moisture Content (%) 10 20 30 40	WATER LEVEL
267.1	Ground Surface							
0.0	23 cm TOPSOIL				0			
0.2	EARTH FILL Dark brown silty clay traces of sand and gravel scattered topsoil occ. organic inclusions	1	DO	9			15	
266.6 0.5	Brown, compact to dense SANDY SILT TILL traces of clay and gravel occ. sand seams and layers, cobbles and boulders	2	DO	33	1		10	
		3	DO	29			11	
					2			
		4	DO	42			14	
					3			
		5	DO	43			9	
263.6 3.5	END OF BOREHOLE							Dry on completion
					4			
					5			
					6			

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LOG OF BOREHOLE NO.: 7

JOB NO.: 2009-S189

FIGURE NO.: 7

PROJECT DESCRIPTION: Proposed Truck and Trailer Parking

METHOD OF BORING: Flight Auger

PROJECT LOCATION: 12434 Dixie Road, Town of Caledon

DRILLING DATE: October 15, 2020

El. (m) / Depth (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value	Depth Scale (m)	Dynamic Cone (blows/30 cm) 10 30 50 70 90 / Shear Strength (kN/m²) 50 100 150 200 / Penetration Resistance (blows/30 cm) 10 30 50 70 90	Atterberg Limits PL LL / Moisture Content (%) 10 20 30 40	WATER LEVEL
266.6	Ground Surface							
0.0	15 cm TOPSOIL				0			
0.1	EARTH FILL Dark brown silty clay traces of sand and gravel occ. topsoil and organic inclusions	1	DO	8			16	
		2	DO	24	1		12	
265.5 1.1	Brown, compact to dense SANDY SILT TILL traces of clay and gravel occ. sand seams and layers, cobbles and boulders	3	DO	22			12	
		4	DO	41	2		11	
		5	DO	39	3		9	Dry on completion
263.1 3.5	END OF BOREHOLE				4			
					5			
					6			

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LOG OF BOREHOLE NO.: 8

JOB NO.: 2009-S189

FIGURE NO.: 8

PROJECT DESCRIPTION: Proposed Truck and Trailer Parking

METHOD OF BORING: Flight Auger

PROJECT LOCATION: 12434 Dixie Road, Town of Caledon

DRILLING DATE: October 14, 2020

El. (m) / Depth (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value	Depth Scale (m)	Dynamic Cone (blows/30 cm) 10 30 50 70 90 / Shear Strength (kN/m²) 50 100 150 200 / Penetration Resistance (blows/30 cm) 10 30 50 70 90	Atterberg Limits PL LL / Moisture Content (%) 10 20 30 40	WATER LEVEL
265.9	Ground Surface							
0.0	23 cm TOPSOIL				0			
0.2	EARTH FILL Dark brown silty clay traces of sand and gravel scattered topsoil occ. organic inclusions	1	DO	9			16	
		2	DO	10	1		16	
264.5								
1.4	Brown, compact to very dense SANDY SILT TILL traces of clay and gravel occ. sand seams and layers, cobbles and boulders	3	DO	26			12	
		4	DO	47	2		9	
		5	DO	51	3		8	Dry on completion
262.4								
3.5	END OF BOREHOLE				4			
					5			
					6			

Soil Engineers Ltd.

LOG OF BOREHOLE NO.: 9

JOB NO.: 2009-S189

FIGURE NO.: 9

PROJECT DESCRIPTION: Proposed Truck and Trailer Parking

METHOD OF BORING: Flight Auger

PROJECT LOCATION: 12434 Dixie Road, Town of Caledon

DRILLING DATE: October 14, 2020

El. (m) / Depth (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value	Depth Scale (m)	Dynamic Cone (blows/30 cm) 10 30 50 70 90 / Shear Strength (kN/m²) 50 100 150 200 / Penetration Resistance (blows/30 cm) 10 30 50 70 90	Atterberg Limits PL LL / Moisture Content (%) 10 20 30 40	WATER LEVEL
265.5	Ground Surface							
0.0	18 cm TOPSOIL				0			
0.2	EARTH FILL Dark brown silty clay traces of sand and gravel scattered topsoil occ. organic inclusions	1	DO	10			16	
		2	DO	17	1		16	
264.4 1.1	Brown, compact to dense SANDY SILT TILL traces of clay and gravel occ. sand seams and layers, cobbles and boulders	3	DO	34			15	
		4	DO	28	2		9	
		5	DO	37	3		10	Dry on completion
262.0 3.5	END OF BOREHOLE				4			
					5			
					6			

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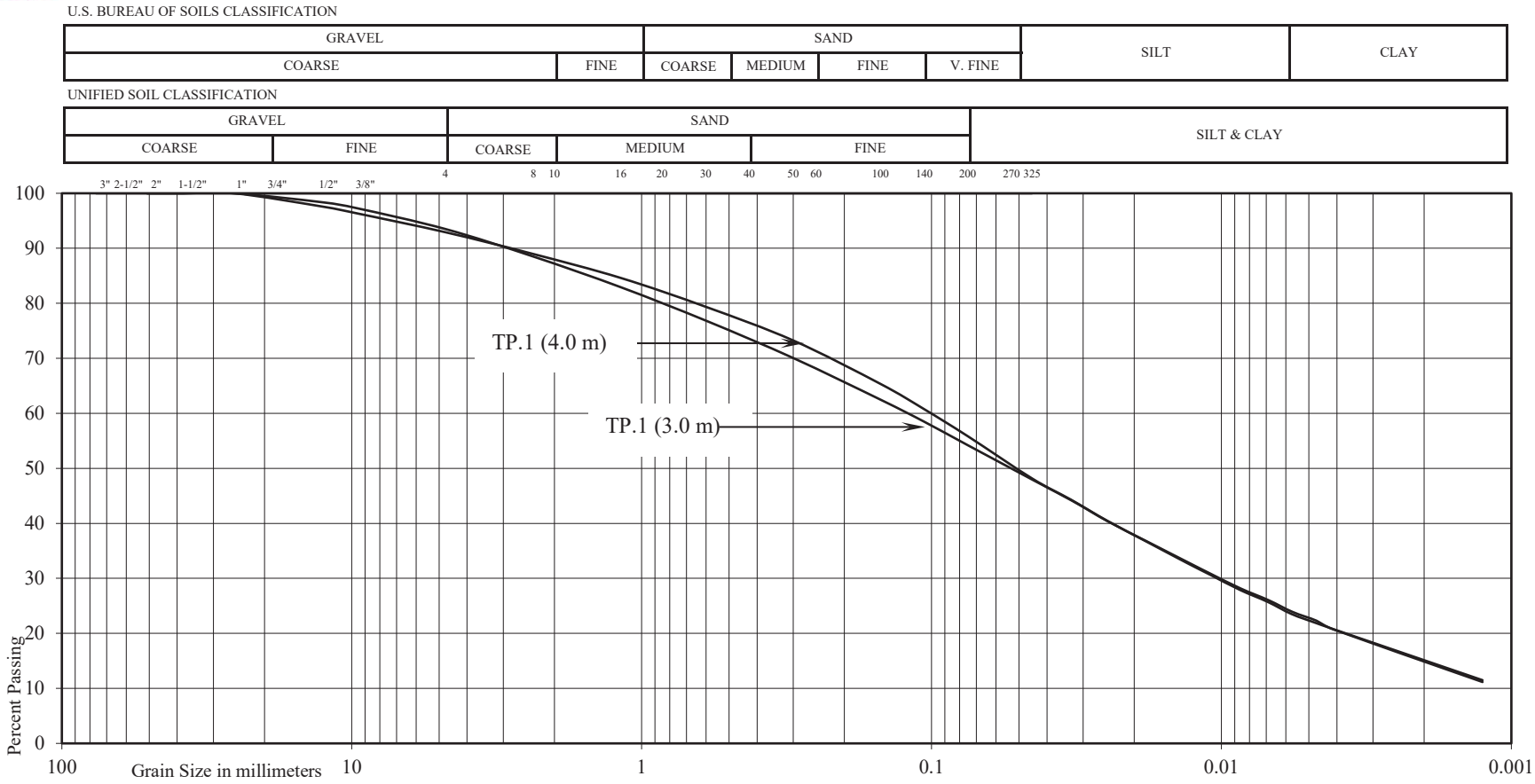
GRAIN SIZE DISTRIBUTION

Reference No: 2009-S189



Project: Proposed Truck and Trailer Parking

Location: 12434 Dixie Road, Town of Caledon

Test Pit No:	1	1
Sample No:	-	-
Depth (m):	3.0	4.0
Elevation (m):	-	-

TP.	1 (3.0 m)	1 (4.0 m)
Liquid Limit (%) =	-	-
Plastic Limit (%) =	-	-
Plasticity Index (%) =	-	-
Moisture Content (%) =	-	-
Estimated Permeability (cm./sec.) =	10^{-6}	10^{-6}

Classification of Sample [& Group Symbol]: SANDY SILT TILL, some clay to clayey, a trace of gravel

Figure: 12

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GRAIN SIZE DISTRIBUTION

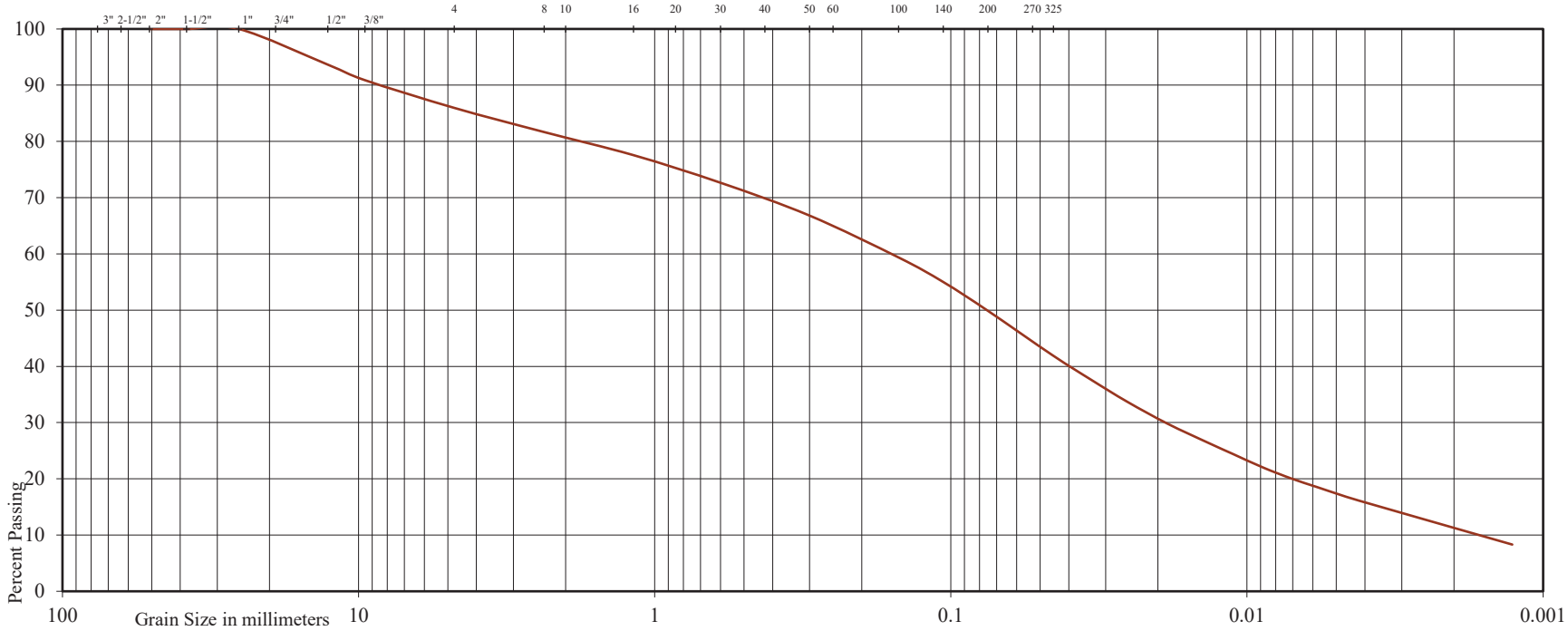
Reference No: 2009-S189

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 Truck and Trailer Parking

Location: 12434 Dixie Road, Town of Caledon

Test Pit No: 2

Sample No:

Depth (m): 3.0

Elevation (m):

Liquid Limit (%) = -

Plastic Limit (%) = -

Plasticity Index (%) = -

Moisture Content (%) = -

Estimated Permeability (cm./sec.) = 10^{-6}

Classification of Sample [& Group Symbol]: SANDY SILT TILL, some clay and gravel

Figure: 13

Soil Engineers Ltd.

GRAIN SIZE DISTRIBUTION

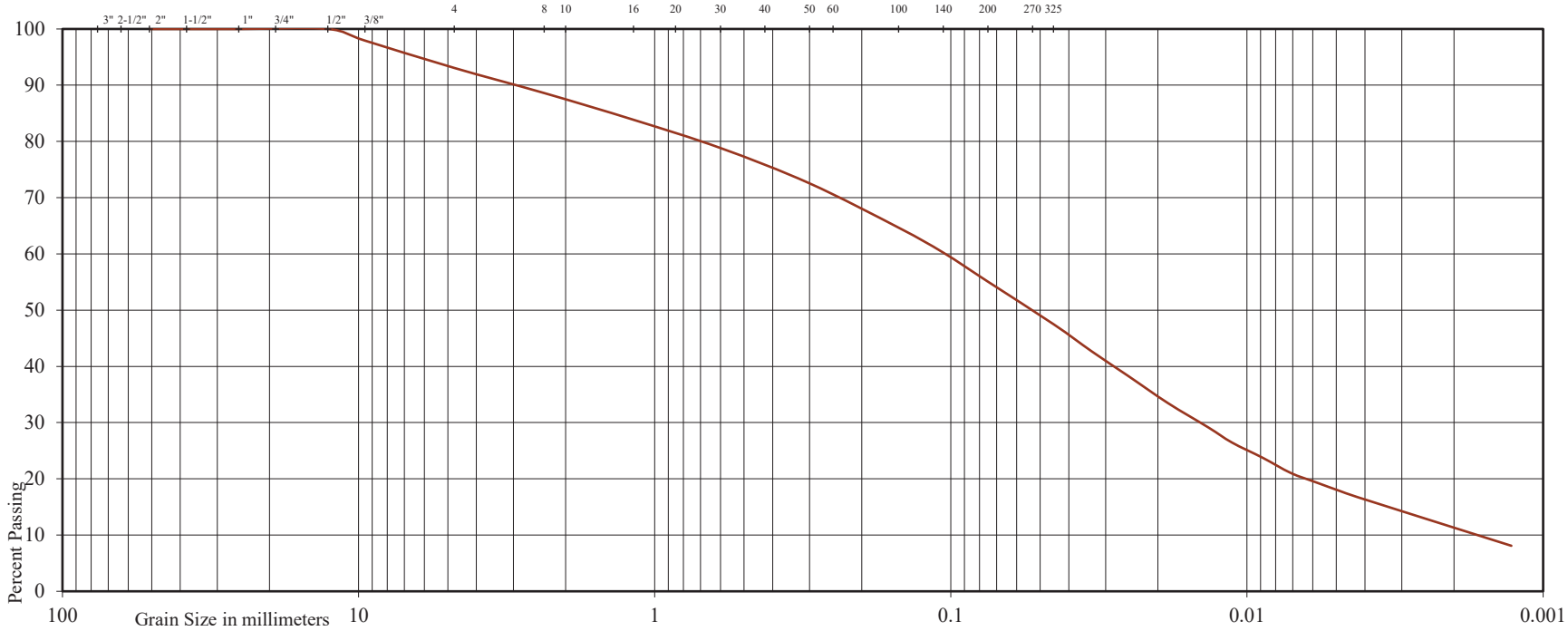
Reference No: 2009-S189

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 Truck and Trailer Parking

Location: 12434 Dixie Road, Town of Caledon

Test Pit No: 3

Sample No:

Depth (m): 4.0

Elevation (m):

Liquid Limit (%) = -

Plastic Limit (%) = -

Plasticity Index (%) = -

Moisture Content (%) = -

Estimated Permeability (cm./sec.) = 10^{-6}

Classification of Sample [& Group Symbol]: SANDY SILT TILL, some clay, a trace of gravel

Figure: 14

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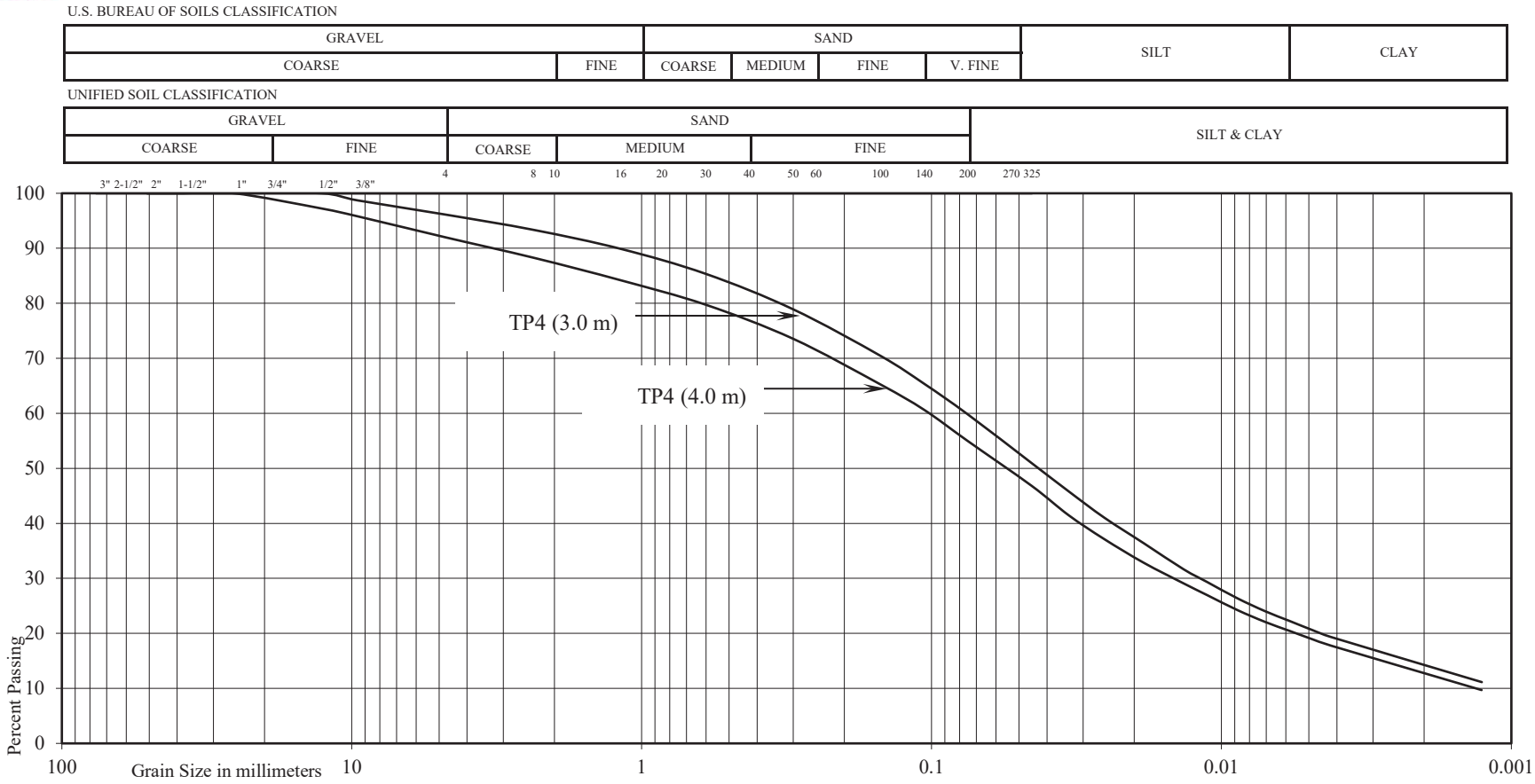
GRAIN SIZE DISTRIBUTION

Reference No: 2009-S189



Project:	Proposed Truck and Trailer Parking	
Location:	12434 Dixie Road, Town of Caledon	
Test Pit No:	4	4
Sample No:	-	-
Depth (m):	3.0	4.0
Elevation (m):	-	-

TP.	4 (3.0 m)	4 (4.0 m)
Liquid Limit (%) =	-	-
Plastic Limit (%) =	-	-
Plasticity Index (%) =	-	-
Moisture Content (%) =	-	-
Estimated Permeability (cm./sec.) =	10^{-6}	10^{-}

Classification of Sample [& Group Symbol]: ?
?

Figure: 15

Environmental Study
may be required

BH 1
BH 2
BH 3
BH 4
BH 5
BH 6
BH 7
BH 8
BH 9
BH 10
BH 11

Limit of Greenbelt

POND
POND

Existing Structures

23.0
12.0
19.9
12.0

DIXIE ROAD

Subject Lands - 10.7 ha

Limit of Greenbelt

LEGEND

Borehole

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GEOTECHNICAL | ENVIRONMENTAL | HYDROGEOLOGICAL | BUILDING SCIENCE
90 WEST BEAVER CREEK ROAD, SUITE #100, RICHMOND HILL, ONTARIO L4B 1E7 · TEL: (416) 754-8515 · FAX: (905) 881-8335

Borehole Location Plan

SITE: 12434 Dixie Road, Town of Caledon			
DESIGNED BY: D.Y.	**CHECKED BY:** B.S.	**DWG NO.:** 1	
SCALE: 1:2000	**REF. NO.:** 2009-S189	**DATE:** November 2020	**REV**

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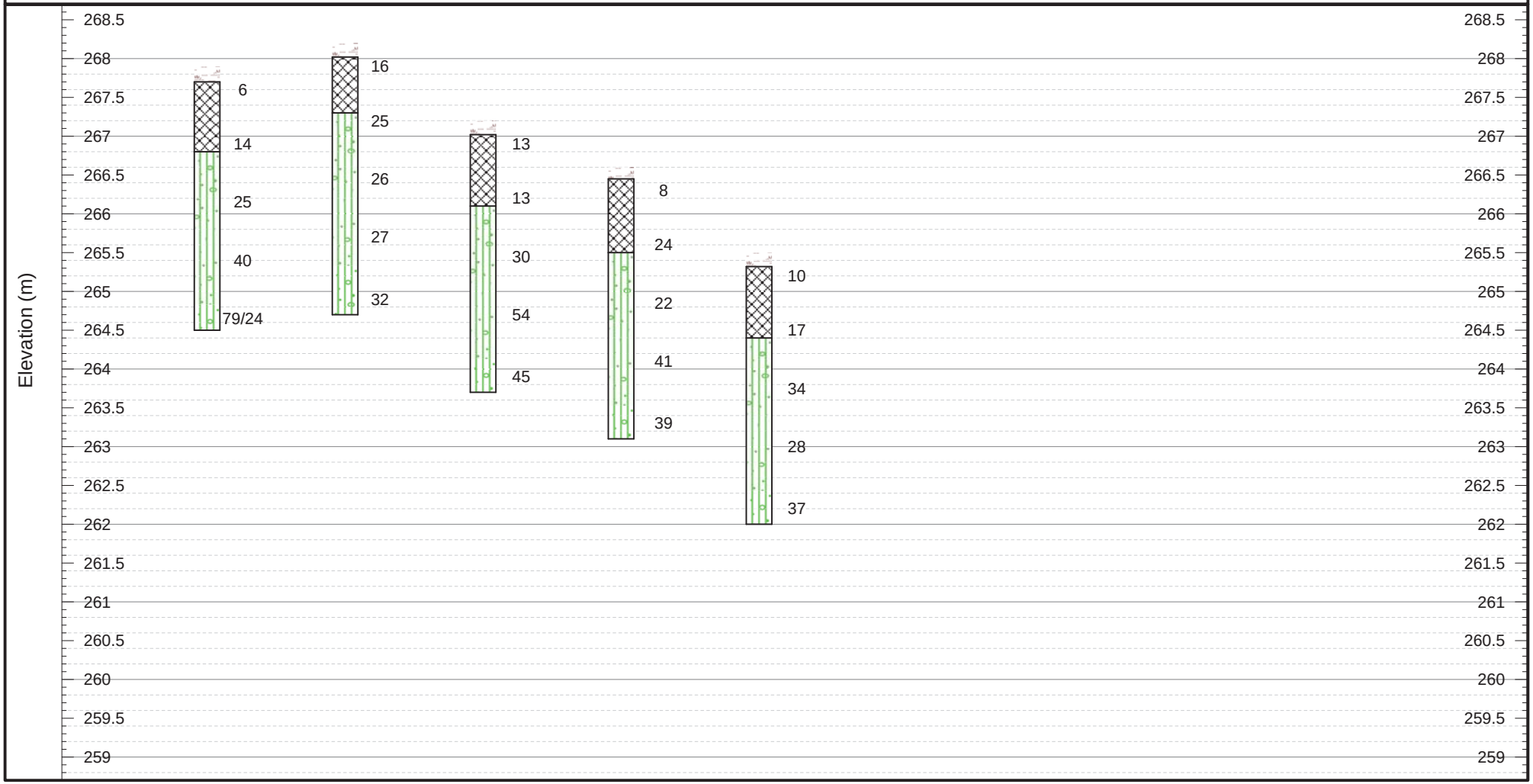
SUBSURFACE PROFILE
DRAWING NO. 2
SCALE: AS SHOWN

JOB NO.: 2009-S189
REPORT DATE: November 2020
PROJECT DESCRIPTION: Proposed Truck and Trailer Parking

PROJECT LOCATION: 12434 Dixie Road, Town of Caledon

LEGEND
TOPSOIL FILL SANDY SILT TILL



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SUBSURFACE PROFILE
DRAWING NO. 3
SCALE: AS SHOWN

JOB NO.: 2009-S189
REPORT DATE: November 2020
PROJECT DESCRIPTION: Proposed Truck and Trailer Parking

PROJECT LOCATION: 12434 Dixie Road, Town of Caledon

LEGEND
TOPSOIL FILL SANDY SILT TILL