SOIL-MAT ENGINEERS & CONSULTANTS LTD.

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PROJECT NO.: SM 241052-G

February 11, 2025
Revised: February 12, 2025

PENN CAPITAL HOLDINGS INC.
C/O DAVID JONES
342 Townline Road, Suite 202
Niagara-on-the-Lake, Ontario
L0S 1J0

Attention: David Jones

SUPPLEMENTAL GEOTECHNICAL AND HYDROGEOLOGICAL CONSIDERATIONS
PROPOSED HOTEL ADDITION
222 GATE STREET
NIAGARA-ON-THE-LAKE, ONTARIO

Dear Mr. Jones,

Further to your authorization, SOIL-MAT ENGINEERS & CONSULTANTS LTD. has completed the fieldwork, laboratory testing, and report preparation in connection with the above noted project. The supplemental fieldwork and reporting were undertaken in general accordance with our proposal P241052, dated November 19, 2024.

INTRODUCTION

It is understood that the project will involve an addition/extension to the existing hotel located on 124 Queen Street, Niagara-on-the-Lake, Ontario, with the location of the addition itself proposed on the 222 Gate Street property. It is noted that SOIL-MAT had previously completed a geotechnical investigation for the 124 Queen Street Hotel (Project No.: SM 177505-G, dated July 5, 2017), and was on site on a periodic basis for construction quality control. The purpose of this supplemental work is to provide further commentary with respect to the anticipated soil and groundwater conditions, and its relation to the proposed addition.

While foundation depths underground structure details were unknown at the time of the completion of our original investigation, it is understood that proposed addition will be constructed to similar depths as the original development, with the proposed basement parking slab at a depth of approximately 3.9 metres below the proposed first floor elevation.

PROCEDURE

A total of three [3] sampled boreholes, identified as Borehole Nos. 1 to 3, inclusive, were advanced at the locations illustrated in the attached Drawing No. 1, Borehole Location Plan. The boreholes were advanced using continuous flight power auger equipment on December 11, 2024 under the direction of a staff member of SOIL-MAT ENGINEERS & CONSULTANTS LTD., to termination at depths of between approximately 8.2 and 9.7 metres below the existing ground surface.

Upon completion of drilling, a groundwater monitoring well was installed at Borehole No. 1. The monitoring well consists of 50-millimetre PVC pipe installed to a depth of 7.6 metres, screened in the lower 1.5 metres. The monitoring wells were encased in well filter sand up to approximately 0.3 metres above the screened portion, then with bentonite 'hole plug' to the surface and fitted with a protective steel 'flush-mount' casing. The remaining boreholes were backfilled in general accordance with Ontario Regulation 903, and the ground surface was reinstated flush with the surrounding grade.

Representative samples of the subsoils were recovered from the borings at selected depth intervals using split barrel sampling equipment driven in accordance with the requirements of ASTM test specification D1586, Standard Penetration Resistance Testing. After undergoing a general field examination, the soil samples were preserved and transported to the SOIL-MAT laboratory for visual, tactile, and olfactory classifications. Routine moisture content tests were performed on all soil samples recovered from the borings. Additionally, two [2] selected samples were subject to grain size analysis for comment on anticipated infiltration rates.

The boreholes were located in the field by a representative of SOIL-MAT ENGINEERS & CONSULTANTS LTD. The ground surface elevation at the borehole locations provided by UPPER CANADA CONSULTANTS, which were also indicated on the Site Plan drawing provided to our office, prepared by UPPER CANADA CONSULTANTS, dated December 16, 2024.

Details of the conditions encountered in the boreholes, together with the results of the field and laboratory tests, are presented in Log of Borehole Nos. 1 to 3, inclusive, following the text of this report. It is noted that the boundaries of soil types indicated on the borehole logs are inferred from non-continuous soil sampling and observations made during drilling. These boundaries are intended to reflect transition zones for the purpose of geotechnical design and therefore should not be construed at the exact depths of geological change.

SITE DESCRIPTION AND SUBSURFACE CONDITIONS

The subject property is located at 222 Gate Street in Niagara-on-the-Lake, Ontario. The property is bordered to the west by Gate Street, the north and east by commercial developments, including the existing hotel properties, and to the south by existing residential properties. At the time of the fieldwork, the site was gravel surfaced from previous construction activities, and was relatively flat and even with the adjacent roadway.

The subsurface conditions encountered at the borehole locations were generally consistent with the findings of our original 2017 report, with conditions below the surficial approximately 450 millimetres of granular fill consisting generally of clayey silt, with sandier seams, and predominately sandy silt at depth. The soils were generally stiff to very stiff in consistency, with a very soft to firm seam encountered at a depth of approximately 4.6 metres.

As noted above, two [2] selected samples of the recovered soil were subjected to grain size analyses including sieve and hydrometer tests. The results of these tests have been summarised in Table A as follows:

TABLE A
GRAIN SIZE ANALYSES SUMMARY

Sample	Sample Depth [m]	Clay [%]	Silt [%]	Sand [%]	Gravel [%]	Effective Diameter [mm]	Estimated Permeability* [cm/sec]
BH1 SS6	4.6	27	68	5	0	0.0002	10^{-8}
BH1 SS7	6.1	14	46	22	18	0.001	10^{-6}

* - estimated using Hazen's equation

The results outlined above indicate the native soil to consist of clayey silt to sandy silt with traces of to some gravel. According to the Unified Soil Classification System these soil samples are generally classified as M.L. – Clayey silts with slight plasticity, inorganic silts, and very fine sands. These results are consistent with our observations of the soils encountered across the site during drilling and our visual assessment of the recovered samples, as well as our experience in the area. It is noted that these soils are of very low permeability.

Groundwater Observations

Borehole Nos. 2 and 3 were noted to be "wet" at depths of approximately 9.4 and 7.6 metres respectively, upon completion of the boreholes, with Borehole No. 1 recorded as being "dry". It is noted that insufficient time would have passed for the static groundwater level to stabilise in the open boreholes. As noted above, a monitoring well was installed at Borehole No. 1 to allow for measurements of the static groundwater level. A data logger was also installed within the well. The static ground water elevation within the monitoring well was measured on January 9, 2025, which was measured as follows:

TABLE B
SUMMARY OF GROUNDWATER OBSERVATIONS

BH/MW #	Ground Surface Elevation (m)	MW Depth (m)	Screened Interval (m)	January 9, 2025	
				Water Depth (m)	Water Elevation (m)
1	84.60	7.6	6.1 to 7.6	3.50	81.10

Based on the above noted reading, and the data recorded in the dataloggers installed within the well, the measured readings above are generally reflective of the static groundwater level, and recharging of the well had been completed, with minor fluctuations on the order of up to 0.3 metres, and a minimum recorded depth of 3.3 metres below the existing ground surface. A chart illustrating the fluctuations has been appended to this letter. Given the above, the static groundwater elevation is anticipated to be on the order of 3 to 4 metres below the existing grade, and would be expected to fluctuate seasonally. While exact basement floor slab elevations are not presently known, it is anticipated the proposed single underground level parking garage could intercept the static groundwater elevation, even if slightly.

SUPPLEMENTAL CONSIDERATIONS

In general, the recommendations made in the original 2017 report would be applicable for the proposed addition. It must be understood that sub-excavations are likely to be required where foundations are founded at, or in close proximity to the softer native soils noted above. This would be consistent with some of the foundations advanced for the existing hotel at depth, where footings extended down into these soft soils, requiring sub-excavation during construction.

Additionally, any proposed footings should be extended to adequate depth to ensure the existing storm water chamber of the original development is not within the line of influence of any new footings. The line of influence would be an imaginary line extending outwards and down from the outside edge of the footing at an inclination of 10 horizontal to 7 vertical.

As noted above, the exact proposed basement floor slab elevation is presently unknown, however it is anticipated to be in close proximity to, or potentially slightly below, the static groundwater elevation based on the static groundwater elevations noted above The encountered soils are of such low permeability that groundwater infiltration would be expected to be relatively low, and would likely be minor to non-existent for the majority of the excavation should work be completed in the drier months of the year. Deeper footing excavations may require pumps from within the localized footing locations, however volumes 'per footing' would expected to be relatively low, such that managing possible dewatering volumes can be readily achieved by limiting the number of footings excavated at a given time.

That said, as this is an addition to the existing hotel, which from our understanding is to be advanced to similar depths of the existing hotel, over a smaller footprint, similar groundwater infiltration conditions would be expected. Where existing construction dewatering information exists from the original construction, and/or where ongoing infiltration into the existing development can be measured, this information may allow for greater confidence in what to expect for the proposed addition. To our knowledge, there have been no complaints arising from dewatering efforts completed during the original construction.

We trust that this supplemental brief is sufficient for your present requirements. Should you require any additional information or clarification as to the contents of this document, please do not hesitate to contact the undersigned.

Yours very truly,
SOIL-MAT ENGINEERS & CONSULTANTS LTD.

Adam Roemmele, P. Eng
Project Engineer

Stephen R. Sears, B. Eng. Mgmt., P. Eng., QP_{ESA}
Senior Engineer

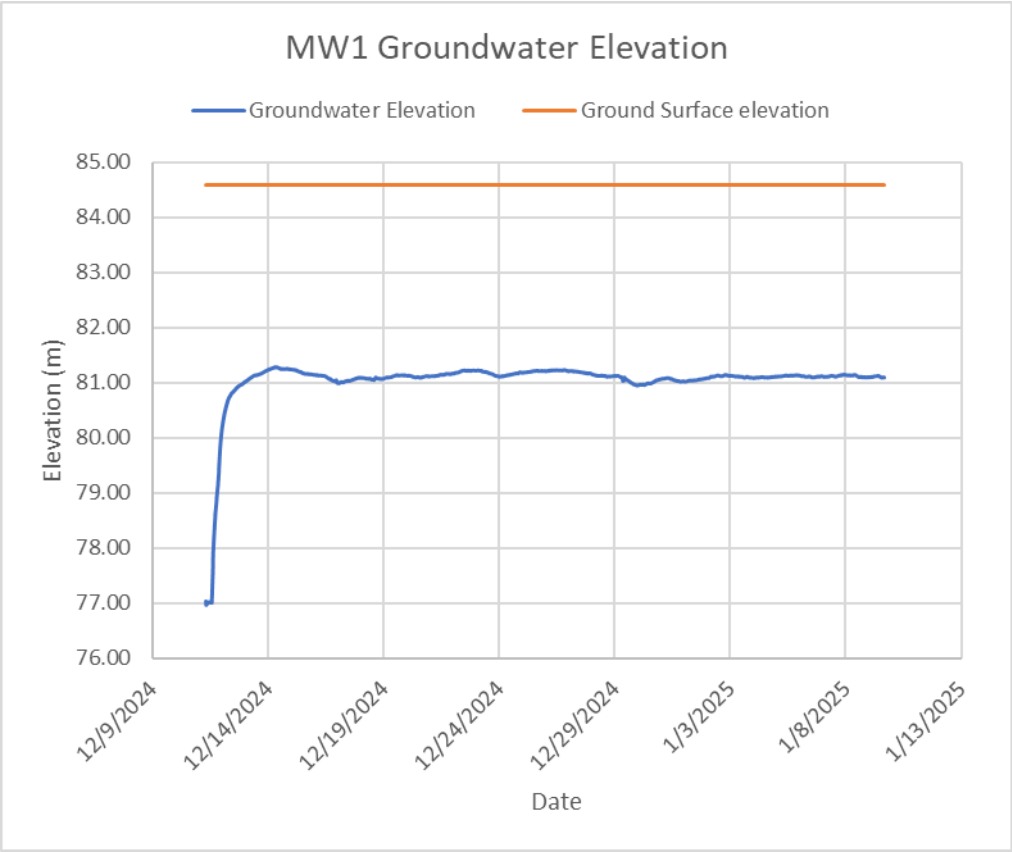
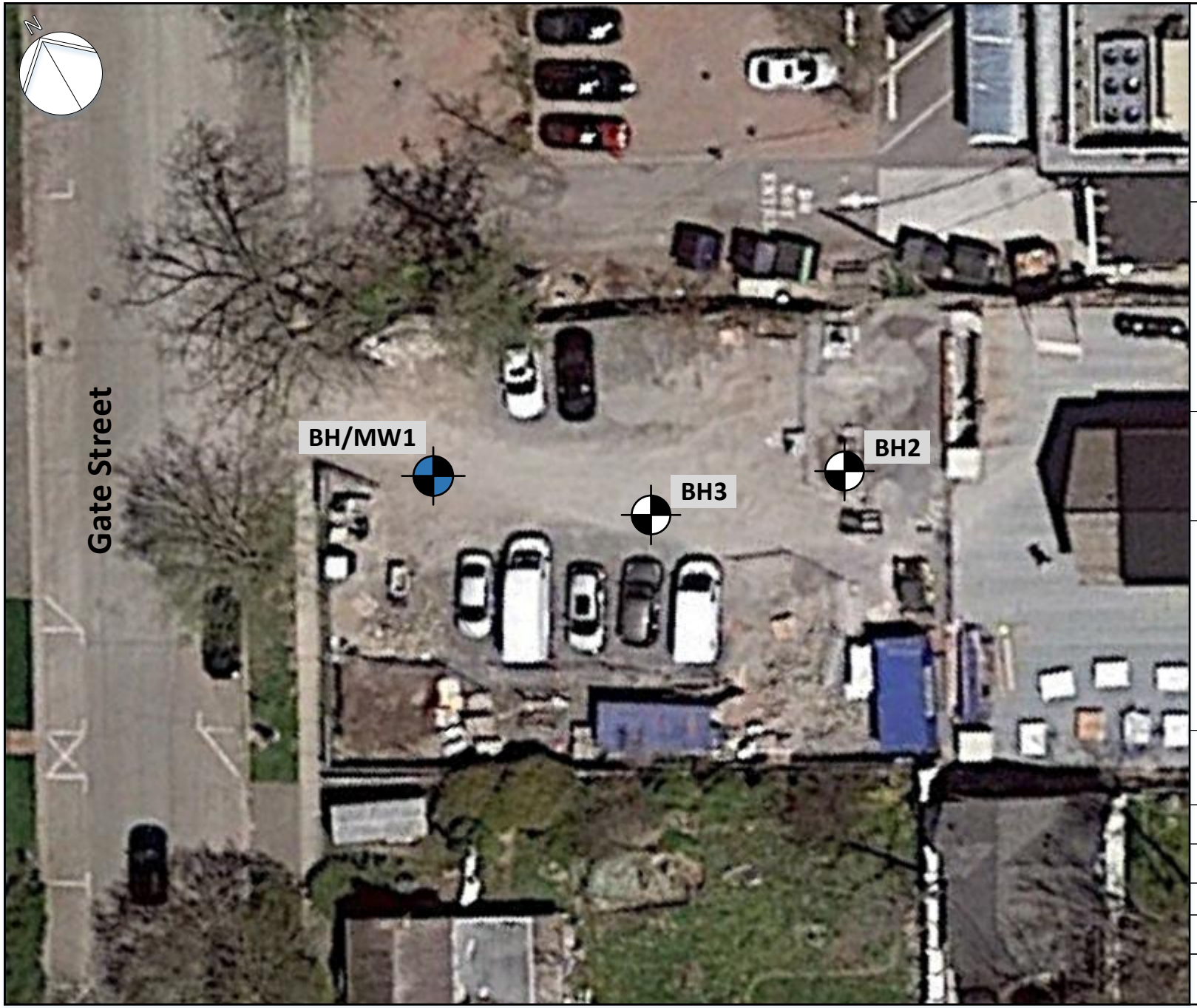


Figure A: Datalogger Readings Summary



LEGEND

Borehole Location
BH#

Monitoring Well Location
MW#

NOTES

1. This drawing should be read in conjunction with Soil-Mat Engineers & Consultants Ltd. Report No. SM 241052-G.

2. Borehole locations are approximate.

SOIL-MAT
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Geotechnical Investigation
Proposed Hotel Addition
222 Gate Street
NOTL, Ontario

Borehole Location Plan

Project No. SM 241052-G

Date: December 2024

Drawn: YP

Checked: AR

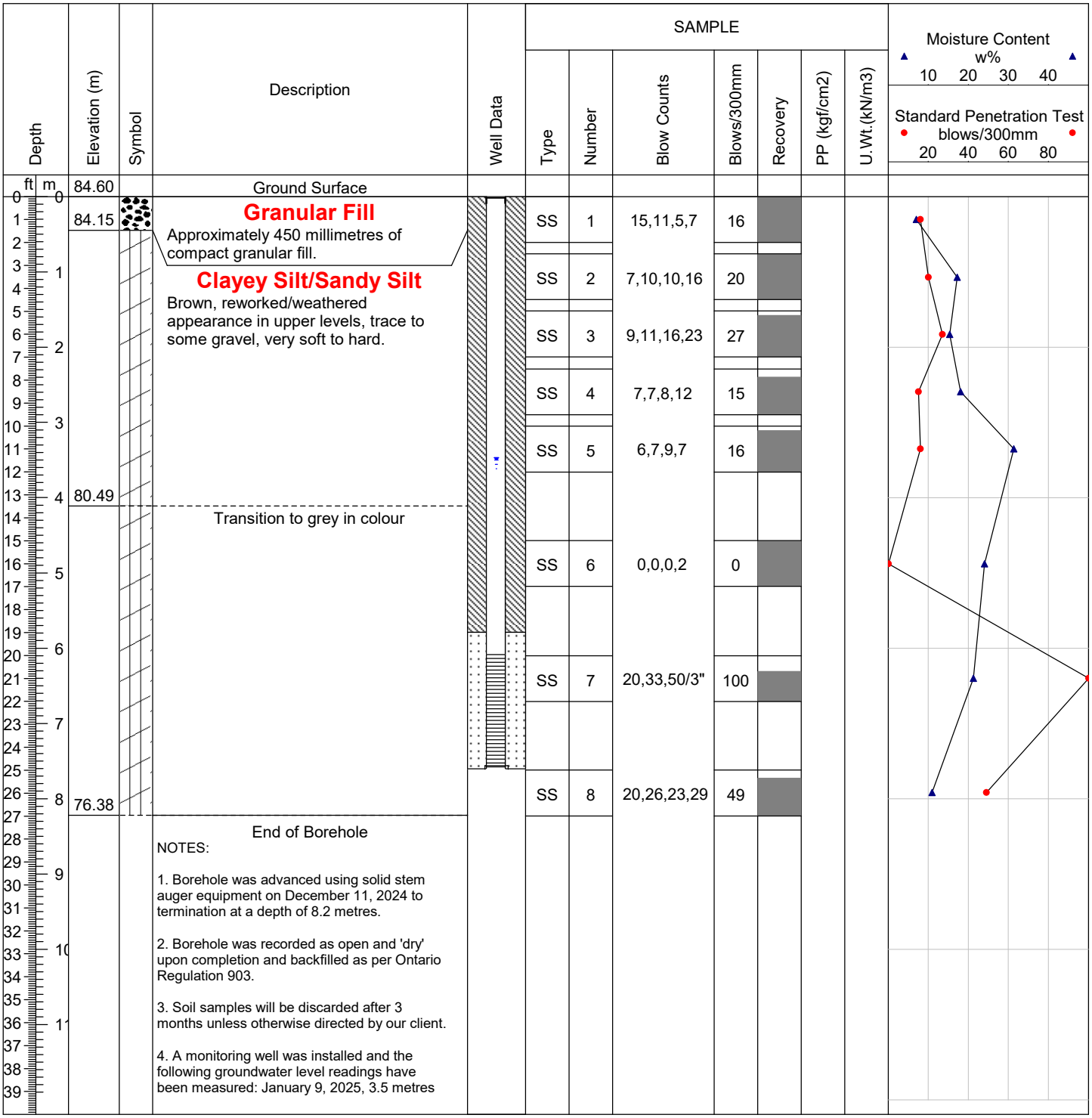
Drawing No. 1

Log of Borehole No. 1

Project No: SM 241052-G
Project: Proposed Hotel Addition
Location: 222 Gate Street, NOTL
Client: Penn Capital Holdings Inc.

Project Manager: Adam Roemmele, P. Eng.
Borehole Location: See Drawing No.1
UTM Coordinates - N: 4791079
E: 656176

Depth (ft)	Depth (m)	Elevation (m)	Description	Type	Number	Blow Counts	Blows/300mm	Recovery	PP (kgf/cm2)	U.Wt.(kN/m3)
		84.60	Ground Surface							
0	0	84.15	**Granular Fill** Approximately 450 millimetres of compact granular fill.							
1			**Clayey Silt/Sandy Silt** Brown, reworked/weathered appearance in upper levels, trace to some gravel, very soft to hard.	SS	1	15,11,5,7	16			
2				SS	2	7,10,10,16	20			
3	1			SS	3	9,11,16,23	27			
4				SS	4	7,7,8,12	15			
5				SS	5	6,7,9,7	16			
6										
7	2			SS	6	0,0,0,2	0			
8										
9				SS	7	20,33,50/3"	100			
10	3									
11										
12										
13	4	80.49	Transition to grey in colour							
14										
15										
16	5									
17										
18										
19										
20	6									
21										
22										
23	7									
24										
25										
26				SS	8	20,26,23,29	49			
27	8	76.38	End of Borehole							
28										
29										
30	9									
31										
32										
33	10									
34										
35										
36	11									
37										
38										
39										



NOTES:

1. Borehole was advanced using solid stem auger equipment on December 11, 2024 to termination at a depth of 8.2 metres.

2. Borehole was recorded as open and 'dry' upon completion and backfilled as per Ontario Regulation 903.

3. Soil samples will be discarded after 3 months unless otherwise directed by our client.

4. A monitoring well was installed and the following groundwater level readings have been measured: January 9, 2025, 3.5 metres

Drill Method: Solid Stem Auger
Drill Date: December 11, 2024
Hole Size: 150 Millimetres
Drilling Contractor: Terra Firma Enironmental Services Ltd.

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Datum: Geodetic
Field Logged by: YP
Checked by: AR
Sheet: 1 of 1

Log of Borehole No. 2

Project No: SM 241052-G
Project: Proposed Hotel Addition
Location: 222 Gate Street, NOTL
Client: Penn Capital Holdings Inc.

Project Manager: Adam Roemmele, P. Eng.
Borehole Location: See Drawing No.1
UTM Coordinates - N: 4791073
E: 656192

Depth (ft / m)	Elevation (m)	Description	Well Data	SAMPLE Type	Number	Blow Counts	Blows/300mm	Recovery	PP (kgf/cm2)	U.Wt.(kN/m3)
	84.75	Ground Surface								
0 / 0	84.30	**Granular Fill** Approximately 450 millimetres of compact granular fill.		SS	1	19,18,18,11	36			
3 / 1		**Clayey Silt/Sandy Silt** Brown, reworked/weathered appearance in upper levels, trace to some gravel, stiff to hard.		SS	2	9,7,7,8	14			
6 / 2				SS	3	7,7,8,12	15			
9 / 3				SS	4	11,11,12,15	23			
12 / 4	80.64			SS	5	7,7,8,10	15			
		Transition to grey in colour								
15 / 5				SS	6	2,5,5,6	10			
18 / 6				SS	7	1,3,5,30	8			
24 / 7				SS	8	11,11,20,21	31			
27 / 8				SS	9	12,17,24,27	41			
30 / 9	75.00									
33 / 10		End of Borehole								

NOTES:

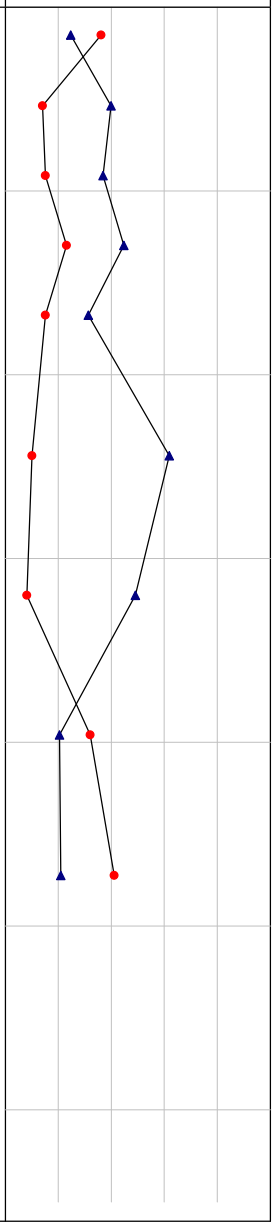
1. Borehole was advanced using solid stem auger equipment on December 11, 2024 to termination at a depth of 9.7 metres.

2. Borehole was recorded as open and 'wet' at a depth of 9.4 metres upon completion and backfilled as per Ontario Regulation 903.

3. Soil samples will be discarded after 3 months unless otherwise directed by our client

Moisture Content w%
10 20 30 40

Standard Penetration Test blows/300mm
20 40 60 80



Drill Method: Solid Stem Auger
Drill Date: December 11, 2024
Hole Size: 150 Millimetres
Drilling Contractor: Terra Firma Enironmental Services Ltd.

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Datum: Geodetic
Field Logged by: YP
Checked by: AR
Sheet: 1 of 1

Log of Borehole No. 3

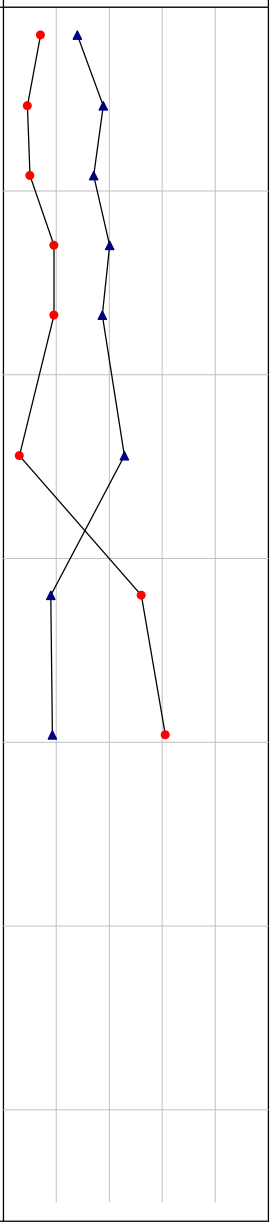
Project No: SM 241052-G
Project: Proposed Hotel Addition
Location: 222 Gate Street, NOTL
Client: Penn Capital Holdings Inc.

Project Manager: Adam Roemmele, P. Eng.
Borehole Location: See Drawing No.1
UTM Coordinates - N: 4791073
E: 656182

Depth (ft / m)	Elevation (m)	Description	Well Data	SAMPLE Type	Number	Blow Counts	Blows/300mm	Recovery	PP (kgf/cm2)	U.Wt.(kN/m3)
	84.68	Ground Surface								
0 / 0	84.23	**Granular Fill** Approximately 450 millimetres of compact granular fill.		SS	1	11,9,5,5	14			
3 / 1		**Clayey Silt/Sandy Silt** Brown, reworked/weathered appearance in upper levels, trace to some gravel, firm to hard.		SS	2	3,4,5,6	9			
6 / 2				SS	3	3,5,5,7	10			
9 / 3				SS	4	8,9,10,12	19			
12 / 4	80.57			SS	5	8,8,11,15	19			
		Transition to grey in colour								
16 / 5				SS	6	0,3,3,5	6			
19 / 6				SS	7	16,25,27,34	52			
23 / 7										
26 / 8	76.46			SS	8	21,27,34,37	61			
		End of Borehole								
33 / 10										
36 / 11										
39 / 12										
42 / 13										

Moisture Content w%: 10 20 30 40

Standard Penetration Test blows/300mm: 20 40 60 80



NOTES:

1. Borehole was advanced using solid stem auger equipment on December 11, 2024 to termination at a depth of 8.2 metres.

2. Borehole was recorded as open and 'wet' at a depth of 7.6 metres upon completion and backfilled as per Ontario Regulation 903.

3. Soil samples will be discarded after 3 months unless otherwise directed by our client

Drill Method: Solid Stem Auger
Drill Date: December 11, 2024
Hole Size: 150 Millimetres
Drilling Contractor: Terra Firma Enironmental Services Ltd.

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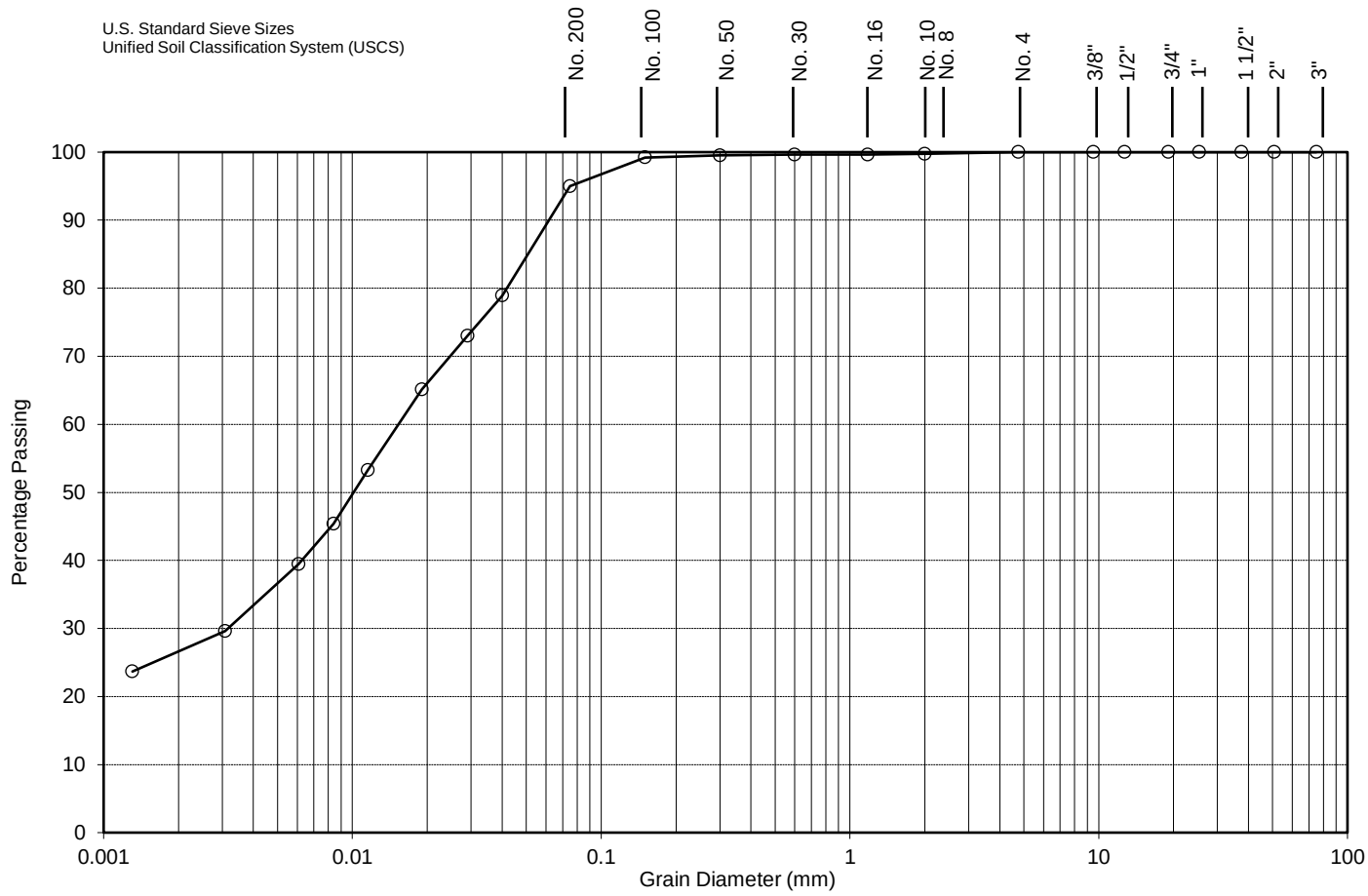
Mechanical & Hydrometer Analyses



CLAY	SILT	FINE	MEDIUM	COARSE	FINE	COARSE
		SAND			GRAVEL	

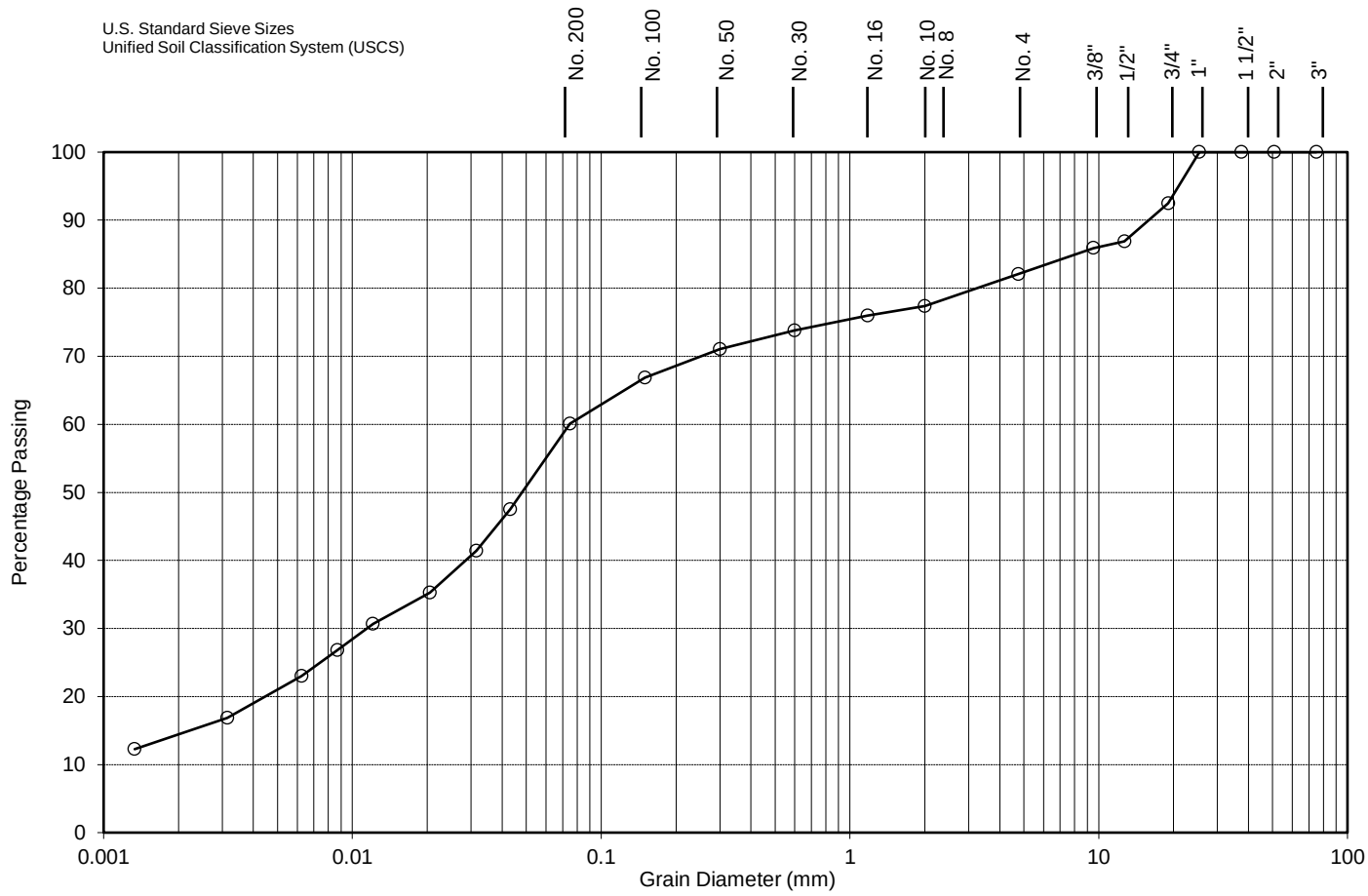
Lab No.:	**25-023**	Notes: Depth: 15'			
Borehole No.:	**1**				
Sample No.:	**6**				
CLAY [%]:	**27**	Soil Description:	**Greyish Brown Clayey Silt w/ a trace of Sand**		
SILT [%]:	**68**		**M.L. - Clayey silts with slight plasticity, inorganic silts and very fine sands**		
SAND [%]:	**5**				
GRAVEL [%]:	**0**	Estimated Infiltration Rate [mm/hr] :	**< 10**	Estimated Permeability, k [cm/s]:	**10^{-8}**
D_{10} (Effective Diam. in mm):	**0.0002**	Coefficient of Uniformity C_U:	**85.0**	Coefficient of Curvature C_C:	**3.0**

SOIL-MAT ENGINEERS & CONSULTANTS LTD.

222 Gate Street, Niagara-on-the-Lake ON

January 2025	**Grain Size Analysis No. 1**	**Project No.: SM 241052-T**

Mechanical & Hydrometer Analyses



CLAY	SILT	FINE	MEDIUM	COARSE	FINE	COARSE
		SAND			GRAVEL	

Lab No.:	**25-024**	Notes: Depth: 20'	
Borehole No.:	**1**		
Sample No.:	**7**		
CLAY [%]:	**14**	Soil Description:	**Greyish Brown Sandy Silt w/ some Gravel and Clay**
SILT [%]:	**46**		**M.L. - Inorganic silts and very fine sands**
SAND [%]:	**22**		
GRAVEL [%]:	**18**	Estimated Infiltration Rate [mm/hr] : **10**	Estimated Permeability, k [cm/s]: **10^{-6}**
D_{10} (Effective Diam. in mm):	**0.0010**	Coefficient of Uniformity C_U: **75.0**	Coefficient of Curvature C_C: **1.9**

SOIL-MAT ENGINEERS & CONSULTANTS LTD.

222 Gate Street, Niagara-on-the-Lake ON

January 2025	**Grain Size Analysis No. 2**	**Project No.: SM 241052-T**