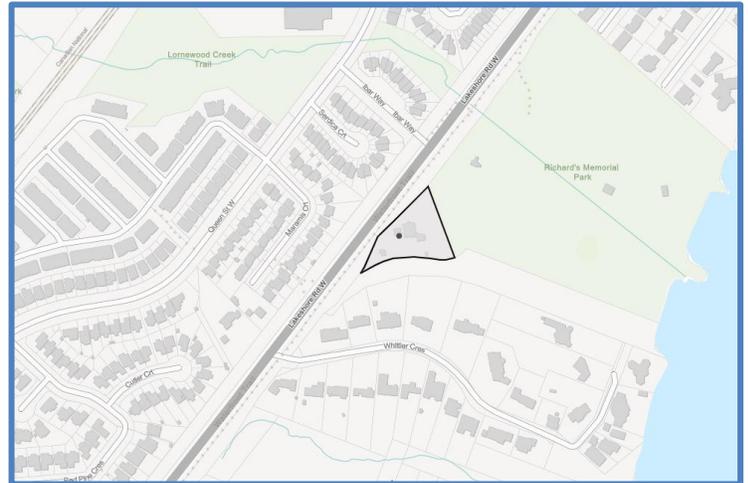


ENGINEERING



GEOTECHNICAL INVESTIGATION



PROPOSED DEVELOPMENT, 900 LAKESHORE ROAD WEST, MISSISSAUGA, ONTARIO

Prepared for:
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Project No. FG 24-14191
December 19, 2023,
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Contact: Ryan Atkinson
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Project Name: Proposed Development
Project Address: 900 Lakeshore Road West, Mississauga, ON., L5H 1H9
Project Number: FG 24-14191
Issued on: December 19, 2023; Revised September 23, 2024



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1. INTRODUCTION

Fisher Engineering Limited (Fisher) was retained by 1000570027 Ontario Inc. to carry out a geotechnical subsurface investigation for the proposed development at 900 Lakeshore Road West, Mississauga, Ontario.

The purpose of the geotechnical investigation was to determine general subsurface conditions at the site and to provide comments/ recommendations for the design of the proposed building by means of five (5) boreholes.

This report presents the results of tests performed in accordance with the general terms of reference outlined in the scope of work.

The report has been prepared specifically and solely for the proposed new buildings in regard to geotechnical aspects of design and construction based on the site plan provided.

The report was revised to reflect changes to the site plan which shows three underground levels instead of the previous two levels.

2. SITE AND PROJECT DESCRIPTION

Site Settings

The subject property is located on the south side of Lakeshore Road West in a predominantly residential neighbourhood east of Lorne Park Road in the City of Mississauga. At the time of the investigation, the property was occupied by a one & a half storey dwelling located towards the middle of the triangular shaped site. A detached garage was observed in front of the dwelling while an in-ground swimming pool was located at the rear of the house, close to the east property line. Several retaining walls/steps/stairs were observed connecting areas of higher elevations to the lower patio/inground pool areas.

The site is bounded by Richard's Memorial Park to the east, residential properties to the south, Whittier Crescent to the west and Lakeshore Road West to the north.

Topography

Site grades drop significantly across the site changing from approximately 89.2m asl towards the front/middle to 79.4m near the southern triangular tip.



Proposed Development

It is understood that a 10 to 11 storey building, terraced in the east portion, with three levels of underground parking, is proposed as redevelopment of the site. Based on the draft site plans, prepared by KFA architects + planners inc., dated 09.01.2024, ground floor elevation will be 86.00m asl with the main P3 level at 77.20m asl. A lower P3 section extends 2.60m below the main P3 level or elevation of 74.60m asl.

3. SCOPE OF GEOTECHNICAL WORK

The geotechnical scope of work included the following:

- Investigation of subsurface conditions at the site by advancing boreholes, soil sampling and visual evaluation of the soil samples.

- Preparation of a geotechnical report with comments and recommendations regarding:
 - Appropriate foundation type and depths.
 - Bearing pressures (SLS & ULS).
 - Seismic site classification.
 - Underground parking garage design/construction and
 - Excavation & shoring design parameters etc.

4. METHOD OF INVESTIGATION

Subsurface Investigation

Subsurface exploration for the initial geotechnical investigation was conducted concurrent with drilling for a hydrogeological investigation on November 6, 7 and 8, 2023, during which five (5) boreholes (BH1 – BH5) were advanced to approximate depths varying from 10.74m to 17.53m below prevailing grades. Monitoring wells were installed in the five boreholes (MW1 to MW5) and used for groundwater level monitoring and sampling. The monitoring wells were constructed using 50mm diameter PVC pipes with 3.05m (10') long screens. Approximate locations of the boreholes and elevations are shown on the Borehole Location Plan in Appendix A.

Drilling for the current geotechnical and hydrogeological investigations was carried out on September 3, 2024 during which three (3) boreholes were advanced to depths of 12.19m to 17.45m below prevailing grade. The three boreholes were instrumented as monitoring wells.



The boreholes were advanced using a track mounted drill rig equipped with solid stem augurs. Subsurface strata were sampled at regular intervals of depth using a split-spoon sampler following the procedure as detailed in ASTM Standard specification D1586 for Standard Penetration Tests. Field tests to determine engineering parameters of the soil were carried out during drilling, which included Standard Penetration Tests (SPT).

All soil samples were taken to the Fisher Engineering accredited laboratory for final visual assessment, classification and selected moisture content testing & grain size analyses. The samples were tested and classified in general accordance with the Unified Soil Classification System, ASTM D 2487, and Standard Practice for Classification of Soils for Engineering Purposes.

Soil description and test results are presented in the borehole records at Appendix B.

The soil samples recovered during the current investigation will be stored in the Fisher laboratory for a period of 30 days after which they will be discarded unless further instructions are received.

Site Survey

Elevations at borehole/monitoring well locations were interpolated from a topography/survey plan, prepared by Tarasick McMillan Kubicki Limited, dated November 08, 2023, which was provided to Fisher during the investigation.

5. SUBSOIL/SUBSURFACE CONDITIONS

Subsurface conditions encountered at borehole locations are shown on the Borehole Log Sheets in Appendix B. The logs include stratification at borehole locations along with detailed soil description. Variation in soil stratification may occur and should be expected between borehole locations and elsewhere on the site.

Fill/Asphalt/Granular Material/Topsoil – Layers of asphalt/granular materials were found at the surface of BH1 while topsoil was encountered at the surface of BH2 to BH5 and BH101 to BH103. Fill soils were encountered below the surficial layers. Fill composition varied from dark brown to brown sand/silty sand with trace of roots/topsoil. Fill extended to approximate depths below prevailing grades/elevations as shown in Table 1.



Table 1: Approximate Fill Depths/Elevations

Borehole No.	BH1	BH2	BH3	BH4	BH5	TH1	TH2	BH101	BH102	BH103
Surface Elevation (m asl)	86.63	85.68	86.60	83.20	82.63	85.98	86.81	89.10	85.39	82.55
Depth of Borehole (m)	17.53	12.29	13.72	10.97	10.74	1.98	1.98	13.82	12.19	17.45
Elevation at Bottom of Borehole (m asl)	69.10	73.39	72.88	72.23	71.89	84.00	84.83	75.28	73.20	65.10
Depth of Fill (m)	1.37	1.37	1.37	1.52	1.17	1.52	1.52	1.91	3.66	1.67
Elevation at Bottom of Fill (m asl)	85.26	84.31	85.23	81.68	81.46	84.46	85.29	87.19	81.73	80.88
Depth to bedrock surface(m)	12.19	12.19	13.72	9.30	10.67	n/a	n/a	12.04	10.36	10.52
Elevation at surface of Bedrock (m asl)	74.44	73.49	72.88	73.90	71.96			77.06	75.03	72.03

Brown Sand/ Silty Sand – Layers of native, brown to grey, moist, compact to very dense sand/silty sand were found underlying the fill soils of BH1 to BH5 and BH101 extending to approximate depths of 2.59m (BH5) to 5.18m (BH101).

Grey Silt/Sandy Silt – The brown to grey silty sand layers were underlain by grey, moist, dense to very dense silt to sandy silt extending to depths of 5.18m in BH101 to 9.76m in BH3.

Grey Clayey Silt/Clayey Silt Till – Layers of grey clayey silt to clayey silt till, of variable thickness/depth (less than 1.12m thick in BH103 to 2.6m thick in BH4), and consistency (firm to very stiff), were encountered below the grey to brown silt to sandy silt. Moisture content of the clayey silt varied from 11.5% to 23.1% in the samples tested.

Grey Sandy Silt Till – Deposits of grey, moist, dense to very dense sandy silt till were encountered beneath the grey clayey silt of BH2, BH3, BH5, BH102 and BH103 extending to approximate depths of 8.84m (BH103) to 13.72m (BH3).

Grey Shale/Weathered Shale – Weathered shale bedrock was found underlying the grey clayey silt/clayey silt till of BH1, BH4 & BH101 and grey sandy silt till/silty sand of BH2, BH5, BH102 & BH103. Shale was found to be hard in consistency and dry within the depths explored. Rock coring carried out in BH1 and BH103 indicated that the upper 1.3m of shale is severely weathered.



RQD values of 85% to 100% below depth of 14.48m in BH1 and 12.79m in BH103 indicate very good to excellent quality of bedrock. Core samples retrieved from BH1 yielded compressive strength of 13 MPa & 21.2MPa at depths of 14m and 16.5m. One core sample from BH103 yielded compressive strength of 24.8MPa at 15.85m below prevailing grade.

Inferred bedrock surface elevation are as follows:

BH1	BH2	BH3	BH4	BH5	BH101	BH102	BH103
74.44m	73.49m	72.88m	73.90m	71.96m	77.06m	75.03m	72.03m

Based on the preceding, bedrock surface elevations fall away significantly towards south across the site.

6. GROUNDWATER CONDITIONS

The boreholes were advanced using dry solid stem auguring and seepage water measured at approximate depths of 9.14m (BH1), 10.51m (BH5) & 10.67m (BH3) on completion of the respective soil boring operations. The other boreholes were observed to be dry on completion of the respective soil borings.

Monitoring wells were installed in all boreholes to observe groundwater levels and for water sampling and testing.

Groundwater depths/elevations as measured on completion of boreholes and from the monitoring wells are presented in Table 2.



Table 2: Groundwater Depths and Elevations

Monitoring Wells		MW1	MW2	MW3	MW4	MW5	MW101	MW102	MW103
Surface Elevation, m asl		86.63	85.68	86.60	83.20	82.63	89.10	85.39	82.55
Depth of Well, m bgs		7.62	7.62	7.62	6.10	4.57	10.18	10.49	14.41
Elevation at well base, m asl		79.01	78.06	78.98	77.10	78.06	78.92	74.90	68.14
In open BH on completion	GW level, m bgs	9.14	dry	10.67	dry	10.51	dry	dry	dry
	GW Ele, m asl	77.49		75.93		72.12			
28-Nov-23	GW level, m bgs	3.17	3.96	4.41	2.42	3.21	n/a		
	GW Ele, m asl	83.46	81.72	82.19	80.78	79.42			
6-Dec-23	GW level, m bgs	2.96	3.89	4.18	2.16	3.11			
	GW Ele, m asl	83.67	81.79	82.42	81.04	79.52			
10-Dec-23	GW level, m bgs	3.36	4.53	4.70	2.66	3.79			
	GW Ele, m asl	83.27	81.15	81.90	80.54	78.84			
15-Jan-24	GW level, m bgs	3.39	4.58	4.79	2.61	3.84			
	GW Ele, m asl	83.24	81.10	81.81	80.59	78.79			
3-Apr-24	GW level, m bgs	3.37	4.05	4.10	2.35	3.65			
	GW Ele, m asl	83.26	81.63	82.50	80.85	78.98			
17-Apr-24	GW level, m bgs	3.35	3.86	3.91	2.31	3.54			
	GW Ele, m asl	83.28	81.82	82.69	80.89	79.09			
8-May-24	GW level, m bgs	3.32	3.74	3.77	2.26	3.01			
	GW Ele, m asl	83.31	81.94	82.83	80.94	79.62			



Monitoring Wells		MW1	MW2	MW3	MW4	MW5	MW101	MW102	MW103			
Surface Elevation, m asl		86.63	85.68	86.60	83.20	82.63	89.10	85.39	82.55			
Depth of Well, m bgs		7.62	7.62	7.62	6.10	4.57	10.18	10.49	14.41			
Elevation at well base, m asl		79.01	78.06	78.98	77.10	78.06	78.92	74.90	68.14			
22-May-24	GW level, m bgs	3.30	3.52	3.56	2.11	2.65						
	GW Ele, m asl	83.33	82.16	83.04	81.09	79.98						
5-Jun-24	GW level, m bgs	3.31	3.51	3.53	2.07	2.31						
	GW Ele, m asl	83.32	82.17	83.07	81.13	80.32						
19-Jun-24	GW level, m bgs	3.30	3.50	3.51	2.10	2.30						
	GW Ele, m asl	83.33	82.18	83.09	81.10	80.33						
29-Aug-24	GW level, m bgs	3.37	3.54	3.90	2.09	2.39						
	GW Ele, m asl	83.26	82.14	82.70	81.11	80.24						
9-Sep-24	GW level, m bgs	3.31	4.85	5.11	3.86	3.67				4.11	2.86	2.43
	GW Ele, m asl	83.32	80.83	81.49	79.34	78.96				84.99	82.53	80.12

Based on the preceding information and visual examination of the soil samples, we consider that water bearing soils were encountered within the depths penetrated by all boreholes and that measured groundwater levels probably represent the local groundwater table.

Groundwater may also be encountered from the wet seams/pockets/layers trapped inside the fill. The groundwater table may fluctuate with seasonal weather changes.

It should be noted that Fisher also carried out a hydrogeological investigation in conjunction with this geotechnical investigation. Issues pertaining to the groundwater, such as requirements for temporary dewatering, permanent drainage, amount/quality of water for discharge etc., have been discussed/addressed separately in the hydrogeological investigation report. These reports should be read in conjunction when finalizing the subsurface structure design process.



7. GEOTECHNICAL DISCUSSIONS AND RECOMMENDATIONS

7.1 General Discussion

Based on the latest site drawings, provided to Fisher, it was understood that the proposed development will likely consist of the construction of a 10-storey building, with mechanical penthouse, (terraced in the southeast portion to 4 storey high podium) with three levels of underground parking garage. Finished floor for parking level P3 is generally at elevation 77.2m asl along with a lower P3 area at 74.60m asl.

The following sections provide general geotechnical recommendations for design and construction of the typical proposed development.

7.2 Foundation Considerations

Boreholes indicate that a layer of grey clayey silt/clayey silt till of variable strength/consistency and thickness exist generally between elevations 76.9m and 72.9m across the site.

With the anticipated large loads/footing sizes, we consider that the natural soils of silt to clayey silt/clayey silt till encountered below estimated founding elevation of 77.8m cannot be used for foundation support using conventional strip and/or spread footing foundations because of potential excessive/indeterminate differential settlements.

We recommend that footing excavations be carried down to the shale bedrock encountered generally between elevations 74.5m and 72.0m.

For footings placed over undisturbed shale encountered generally between above elevations, bearing pressures of 1200kPa (SLS) and 1800kPa (ULS) will be available for foundation design purposes.

Alternatively, the use of caisson foundations may be considered. Caissons socketed at least 1.0m into sound bedrock can be designed using SLS bearing pressure of 3,000kPa.

The following comments are applicable:

- For footings founded at different levels in the vicinity of each other or located adjacent to excavated and backfilled areas, such as sewer trenches/existing footing/other previous excavations etc., the slope of the imaginary line joining the bottom of two footings, or the bottom of footing and excavation should not be steeper than 10H:7V as shown in Figure A5.



- For stepped footings the horizontal distance between two risers should not be less than 600mm and the vertical distance between two horizontal portions should be limited to 600mm.
- Subgrade conditions at footing founding levels/bases should be inspected by soils engineer from our office, prior to pouring concrete, to ensure that the design soil bearing pressures are being attained.
- Footings subject to seasonal winter weather, such as exterior wall and column footings, should be founded at least 1.2m below adjacent finished grades to prevent any damage due to frost penetration.
- During cold/freezing weather conditions founding soils should be adequately protected to prevent any damage due to frost penetration.

7.3 Earthquake Considerations

The 2012 OBC Subsection 4.1.8 stipulates that a building should be designed to meet the requirements of the Earthquake Load and Effects. The Site Classification for Seismic Site Response (Table 4.1.8.4.A) is determined from the average Standard Penetration Resistance (N_{60}) and/or the undrained shear strength (S_u) of the soils within the upper 30m.

Based on the results of standard penetration tests i.e., “N” values from the current geotechnical investigation, we consider the site designation for seismic analysis for the proposed building with the footings placed over grey silt to sandy silt with underlying stiff to very stiff clayey silt is expected to be "**Class D**".

For building supported by/over bedrock, Site Class is anticipated to be **Class ‘C’**.

However, we recommend that shear wave velocity measurements be carried out to confirm the site classification.

Seismic parameters and analysis requirements are detailed in Subsection 4.1.8 of the 2012 OBC.

7.4 Underground Parking Garage

Due to potential change in the hydrogeological conditions because of current or future developments, the underground structure should be equipped with an efficient drainage system, which includes perimeter weeping tiles around the bottom of the garage wall footings and interior



weeping tiles below the floor slab. The perimeter weepers should be surrounded by clear stone or pea gravel encased in a granular filter or filter cloth. Both weepers should be connected to independently positive frost-free sump pits from where the water is constantly removed.

Where there is insufficient space for the installation of exterior perimeter weeping tiles, the drainage system can be modified by providing vertical drainage between the garage walls and the adjacent shoring. A series of drain holes should be precast through the walls below the garage floor slab level, forming a complete drainage path to the interior weeping tiles placed beside the garage wall footings.

Underfloor weeping tile drainage system should be provided under the floor slab to release any potential uplift pressure on the slab-on-grade due to fluctuations/potential periodical/future rise in the groundwater levels. The drains should be encased in 150mm of clear stone/pea gravel wrapped in geotextile filter and connected positively to sump pit. The geotextile filter should have equipment opening size of less than 60µm.

The entire drainage system should be designed by competent professionals, to ensure its capacity and effectiveness concerning the efficient transmittal of volume of water generated without any migration of fines from the surrounding soils.

In the event of power or mechanical failure, a backup system should be designed for pumping/dewatering operations. Water relief valves/plates may be installed in the garage floor slab to relieve any excess hydrostatic pressure in the event of malfunction of the drainage system. The floor slab should also be designed to accommodate the maximum allowable pressure for relief valves.

The lowest floor slab can be constructed as slab-on-grade. After excavating to the desired level, any loose or wet soil should be sub-excavated and replaced with granular material compacted to 98% of the Standard Proctor Maximum Dry Density. A 19mm clear stone granular bedding of at least 200mm in thickness should be provided.

The parking garage walls under free drainage conditions, can be designed for a lateral earth pressure P , as given by the following expression:

$$P = K (Yh + q)$$

where K = Coefficient of earth pressure
 Y = Unit weight of soil
 Q = Surcharge load, if any



Design parameters K , γ are suggested in section 7.5 of this report.

If the perimeter/underfloor drainage systems are not feasible or permitted, water tight structure (bath tub) design is adopted then parking garage walls & floor slabs must be designed to resist hydrostatic/uplift pressures. Highest groundwater level should be used for determining the water pressures. Walls should be waterproofed to at least 1m above the highest water level.

For a waterproofed basement, the lateral earth pressures acting on basement walls may be calculated from the following expression:

$$p = K (\gamma h_1 + \gamma' h_2 + q) + \gamma_w h_2$$

where p = lateral earth pressure in kPa acting at depth h

K = earth pressure coefficient, assumed to be 0.4 for vertical walls and horizontal backfill

γ' = submerged unit weight of backfill of 12kN/m³ may be assumed

γ_w = Unit weight of water, a value of 10kN/m³ can be used

h_1 = depth to the highest groundwater table in metre

h_2 = depth below water table in metres

q = Equivalent value of surcharge on the ground surface in kPa

7.5 Excavation / Shoring

It is understood that the excavation for the proposed structure may extend to depths of 4m or more. According to the Ontario Occupational Health and Safety Act, all excavations deeper than 1.2m should be adequately supported against ground collapse. Moist sand/silty sand/sandy silt soils are Type 3 Soils. Wet sand/silty sand/sandy silt are Type 4 Soils.

If the space will be limited for a safe excavation slope, then we consider that a vertical shoring system would be appropriate for the overall underground parking garage system.

All structural members should be designed in accordance with relevant codes of practice.

Soil parameters in Table 3 can be used in the evaluation of lateral earth pressures and design of the shoring system.



Table 3: Soil parameters

	Fill	Compact Silty Sand	Dense Silty Sand/Sandy Silt
Unit weight, γ , kN/m ³	18	20.0	21.0
Coefficient of earth pressure at rest (K_0)	0.45	0.38	0.36
Coefficient of active earth pressure (K_a)	0.35	0.33	0.28
Coefficient of passive earth pressure (K_p)	2.86	3.00	3.57

Excavations extending into water bearing silty sand/sandy silt should not proceed until dewatering has been carried out to bring them into a moist state. We recommend that a dewatering consultant be engaged/retained to design appropriate system for lowering the water table to the desired/anticipated elevations without migration of fines. The dewatering system should be kept in operation/maintained/monitored until the sub-structure is built up to sufficient height to balance uplift pressure.

The excavation sides should be protected to prevent any erosion/migration/flowing or washing out of soils from surface water ingress or water bearing wet pockets/layers. Provision of filler fabric may be required to prevent any migration of soils into the excavation. Any cavities behind the lagging should be filled up with compacted soils or unshrinkable fill to prevent their progression into surrounding areas.

Extra care will be required to install shoring support system due to relatively high groundwater level for soldier pile installations. Furthermore, occasional obstructions from cobbles/boulders are likely be encountered while auguring shaft holes for soldier pile installation.

Tie-backs should be designed in accordance with Canadian Foundation Engineering Manual, 4th Edition. Anchors installed in the dense grey silt to fine sandy silt can be designed using bond stress of 60kPa. It should be noted that method of grouting influences the bond stress values. Recommended bond stress should be confirmed by load testing to 200% design load for each soil stratum.

Due to potential presence of water bearing sandy layers, tie-back holes should be cased during installation to minimize risk of caving. The shoring contractor must provide adequate measures to prevent any caving/ground water seepage into soldier pile/tieback holes. Temporary safety liners will be required during soldier pile installation.



8. SULPHATE, CHLORIDE AND PH ANALYSES

Three (3) soil samples from boreholes BH1, BH2 & BH5, between depths of 3.05m and 3.51m, were submitted to Fisher Environmental laboratories for sulphate, chloride and pH analyses related to potential impact on buried reinforced concrete. Results of testing are presented in Appendix C and are summarized as follows:

- Sulphate concentration in the soil samples tested varied from less than 32mg/kg to 70mg/kg or 0.0032% to 0.0070%.
- According to CSA-A23. 1-09 Table 3, the above results indicate negligible degree of exposure to sulphate attack (much less than 0.10 to 0.20% for S-3 class exposure).
- pH values varied from 7.83 to 8.54 which are within the acceptable range of 5 - 11 for soils.
- Chloride content was found to vary from less than 15µg/g to 189µg/g indicating negligible impact on reinforced concrete.

9. GENERAL CONSIDERATIONS

This report is limited in scope to those items specifically referenced in the text. No other testing and design calculations have been performed except as specifically reported.

The discussions and recommendations presented in this report are intended for the sole guidance of the client named and the design consultants. It should not be relied upon for any other purposes.

The information on which these recommendations are based is subject to confirmation by engineering personnel at the time of construction.

The fact that localised variations in subsurface conditions may be present between and beyond the boreholes/depths investigated and that those conditions may be significantly different from the general description provided for design purposes should be understood.

Contractors bidding on or undertaking the work should decide on their own investigations, as well as their own interpretations of the factual borehole results. This concern specifically applies to the classification of the subsurface soils and the potential disposal/reuse of these soils on/off Site. Contractors must draw their own conclusions as to how the near surface and subsurface conditions may affect them.



It is recommended that Fisher be contacted to provide assistance in the interpretation of the borehole records by anyone undertaking work on/or below the ground surface at this site prior to this work being carried out.

The client expressly agrees that Fisher's employees and principals shall have no personal liability to the client in respect of a claim, whether in contract, tort and/or any other cause of action in law. Accordingly, the client expressly agrees that it will bring no proceedings and take no action in any court of law against any of Fisher's employees or principals in their personal capacity.

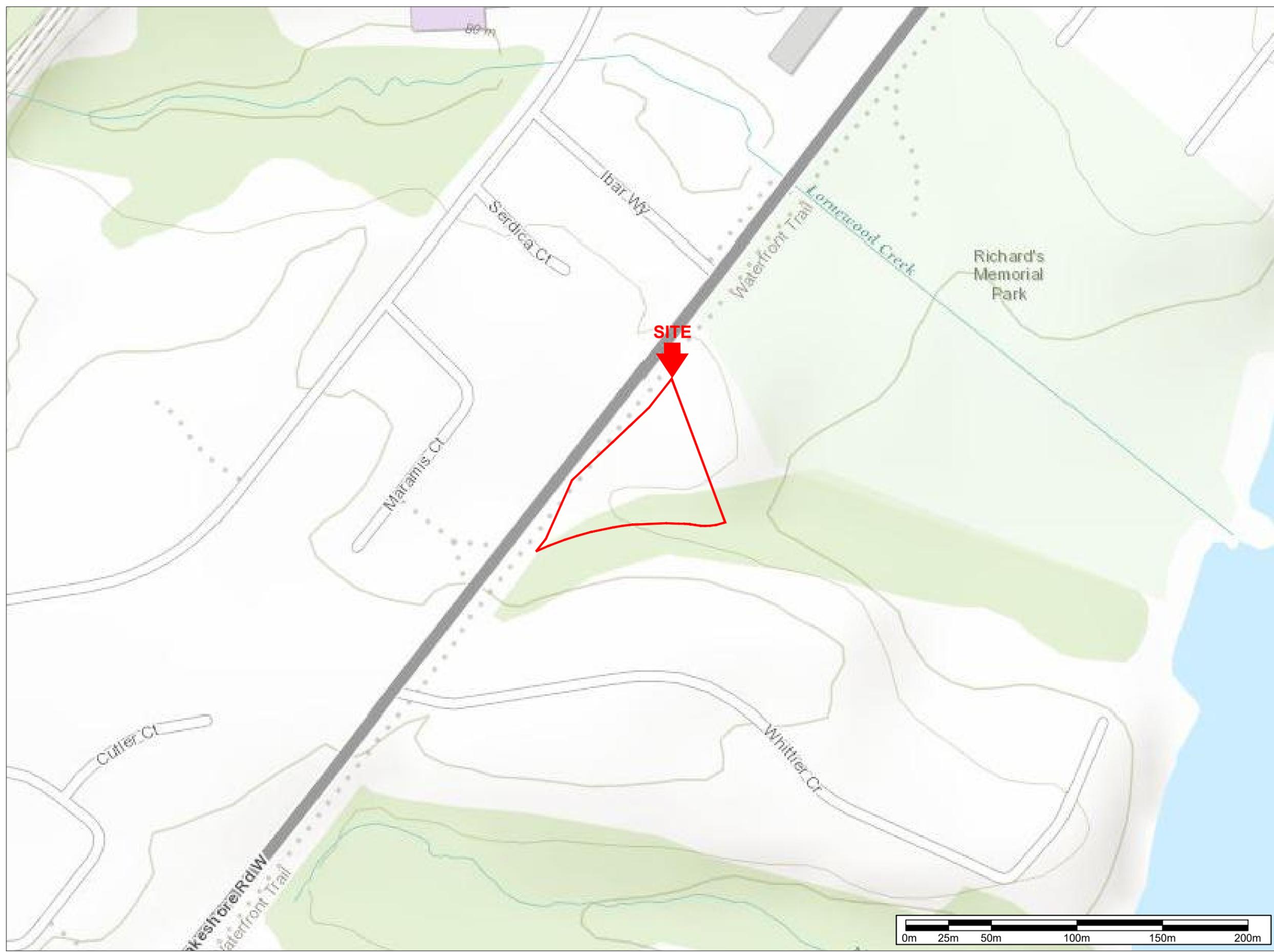
10. CLOSING

We trust that the foregoing information is sufficient for your present needs and will be pleased to review the contents of this report in greater detail should you so require. Should you require our services further in this regard, please do not hesitate to contact our office.

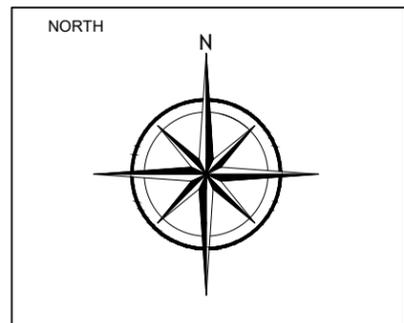


APPENDIX A – SITE & BOREHOLE LOCATION PLANS





400 Esna Park Dr., #15
 Markham, Ontario
 L3R 3K2
 Tel: 905 475-7755



LEGEND

— SITE BOUNDARY

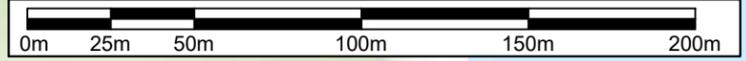
PROJECT NAME AND ADDRESS

**ADDITIONAL
 HYDROGEOLOGICAL
 INVESTIGATION**

900 Lakeshore Road West,
 Mississauga, Ontario

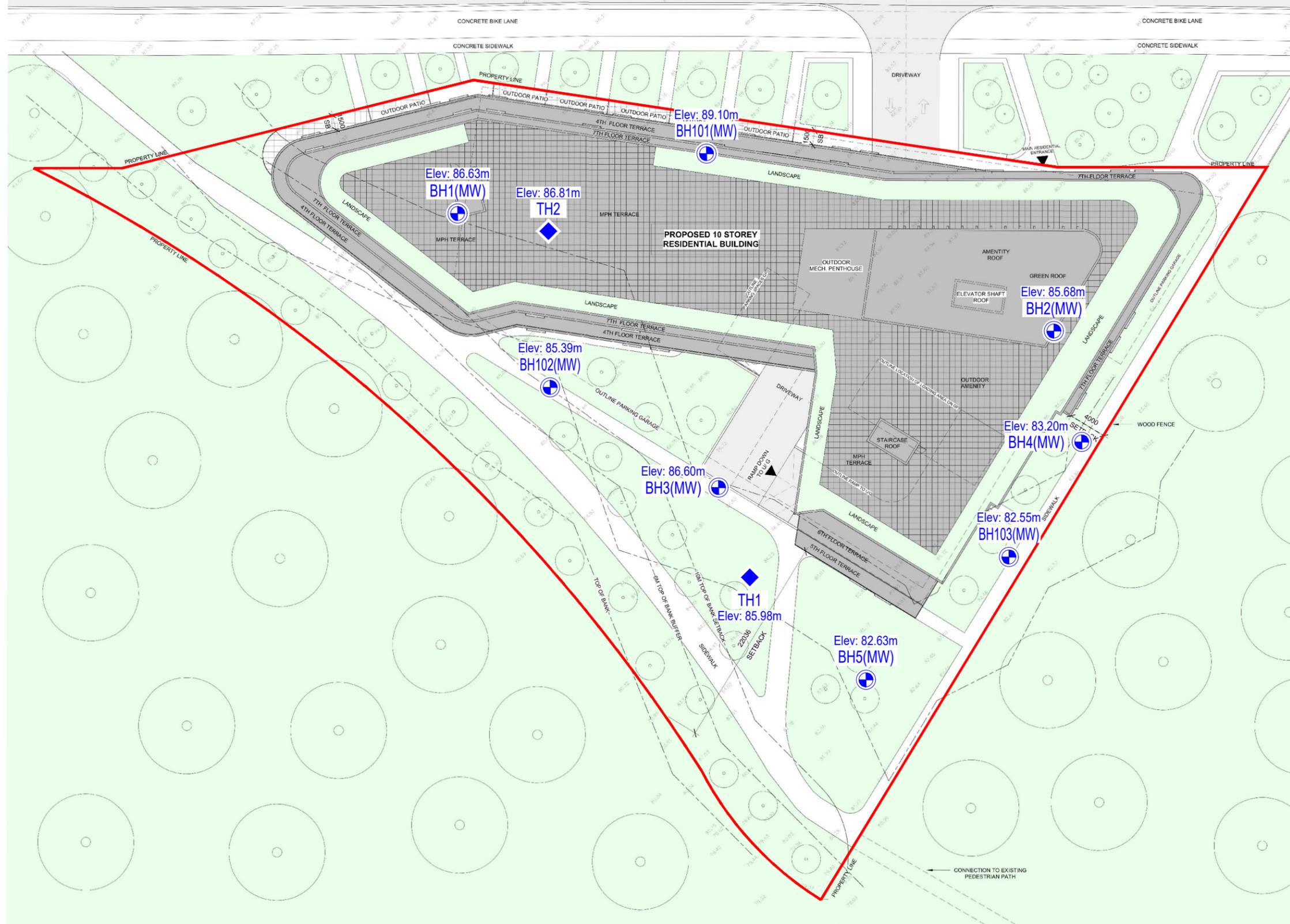
FIGURE A1:
 SITE LOCATION MAP

PROJECT NO. FE 24-14065	SHEET NO. A1
DATE 9 September, 2024	
SCALE AS SHOWN	

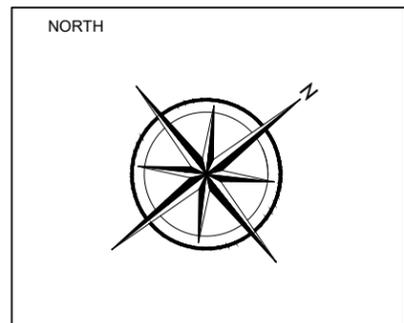


LAKESHORE ROAD WEST

EXISTING ELEVATION POINTS FROM SURVEY TOPOGRAPHY



400 Esna Park Dr., #15
Markham, Ontario
L3R 3K2
Tel: 905 475-7755



LEGEND

- SITE BOUNDARY
- BOREHOLE WITH MONITORING WELL LOCATION
- TEST HOLE LOCATION

PROJECT NAME AND ADDRESS
ADDITIONAL HYDROGEOLOGICAL INVESTIGATION
900 Lakeshore Road West,
Mississauga, Ontario

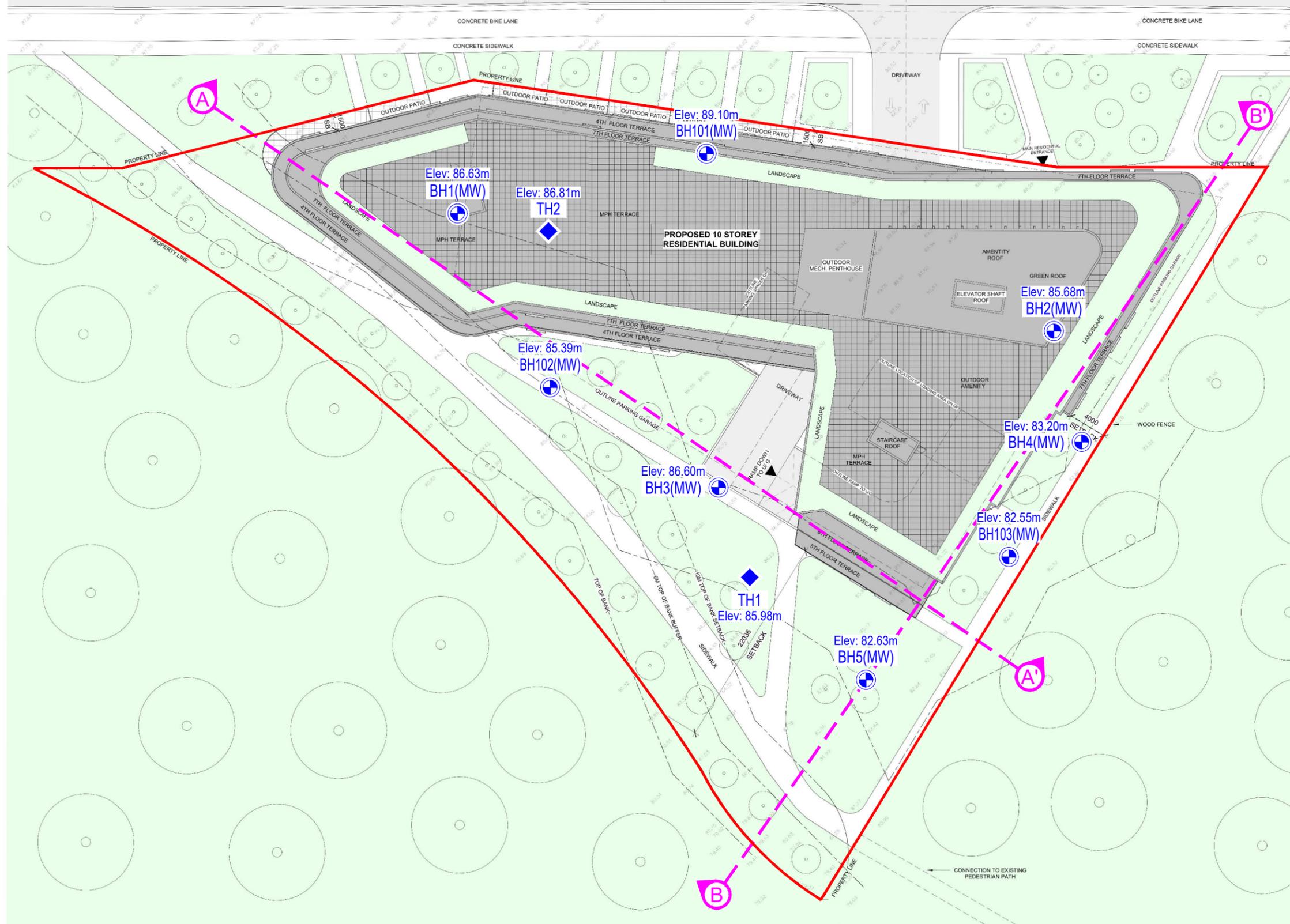
FIGURE A2:
SITE PLAN WITH BOREHOLE LOCATIONS

PROJECT NO. FE 24-14065	A2
DATE 9 September, 2024	
SCALE AS SHOWN	

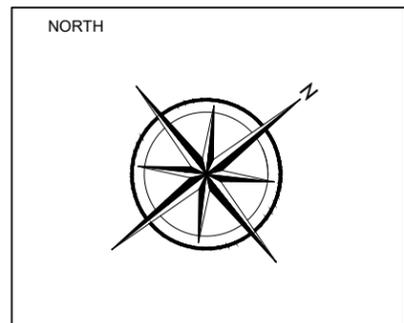


LAKESHORE ROAD WEST

EXISTING ELEVATION POINTS FROM SURVEY TOPOGRAPHY



400 Esna Park Dr., #15
Markham, Ontario
L3R 3K2
Tel: 905 475-7755



LEGEND

- SITE BOUNDARY
- ⊕ BOREHOLE WITH MONITORING WELL LOCATION
- ◆ TEST HOLE LOCATION
- A-A' CROSS SECTION CUT PLANE

PROJECT NAME AND ADDRESS
ADDITIONAL HYDROGEOLOGICAL INVESTIGATION
900 Lakeshore Road West,
Mississauga, Ontario

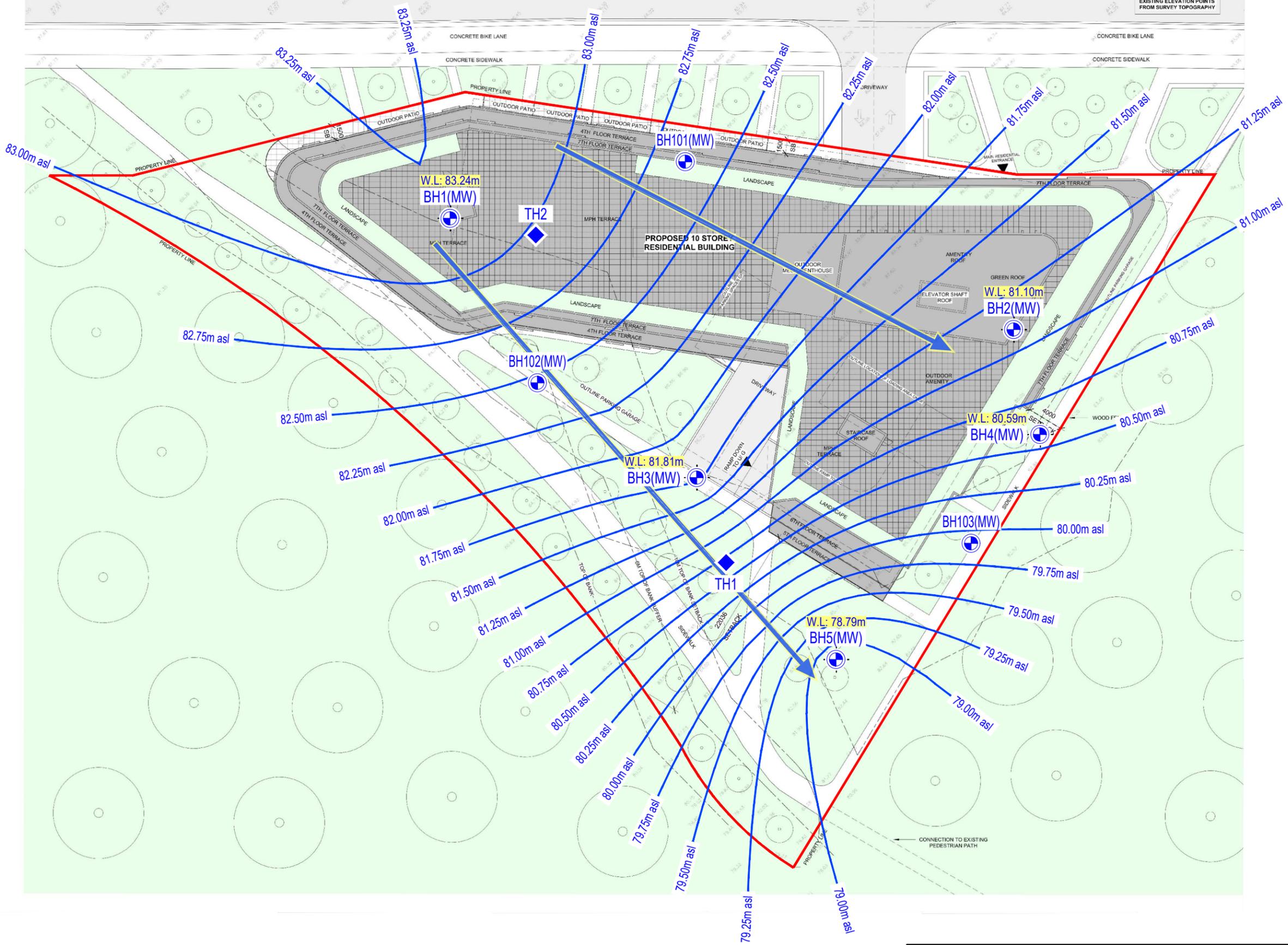
FIGURE A3:
SITE PLAN WITH BOREHOLE LOCATIONS

PROJECT NO. FE 24-14065	A3
DATE 9 September, 2024	
SCALE AS SHOWN	

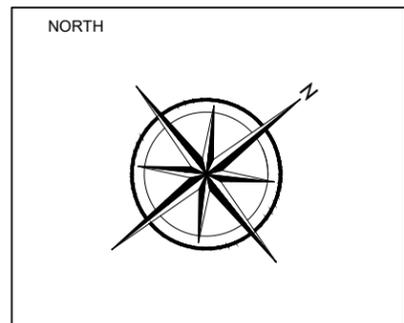


LAKESHORE ROAD WEST

EXISTING ELEVATION POINTS FROM SURVEY TOPOGRAPHY



400 Esna Park Dr., #15
Markham, Ontario
L3R 3K2
Tel: 905 475-7755



LEGEND

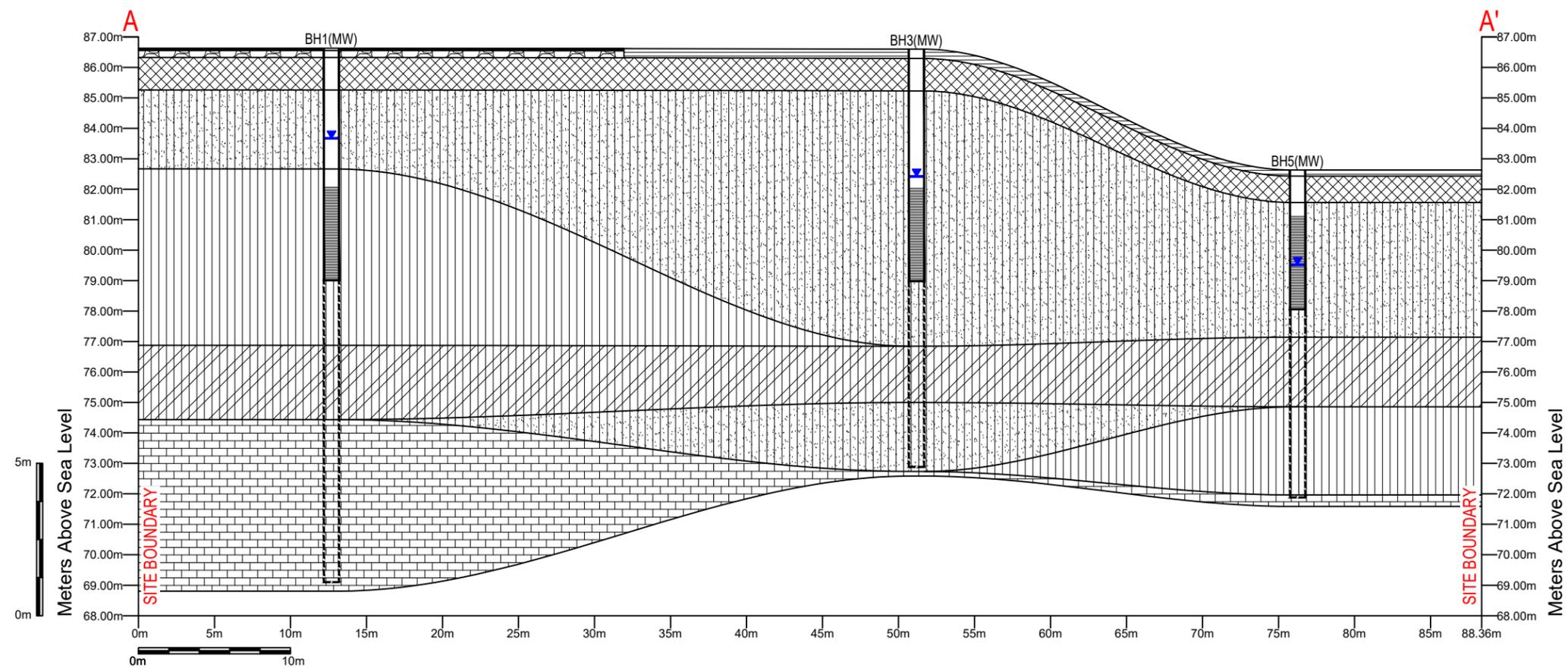
- SITE BOUNDARY
- BOREHOLE WITH MONITORING WELL LOCATION
- TEST HOLE LOCATION
- GROUNDWATER FLOW DIRECTION BASED ON WATER LEVEL MEASURED IN 15 January 2024
- GROUNDWATER ELEVATION CONTOUR BASED ON WATER LEVEL MEASURED IN 15 January 2024
- W.L.: 80.59m GROUNDWATER ELEVATION (15 January 2024)

PROJECT NAME AND ADDRESS
ADDITIONAL HYDROGEOLOGICAL INVESTIGATION
900 Lakeshore Road West,
Mississauga, Ontario

FIGURE A4:
SITE PLAN SHOWING
GROUNDWATER FLOW DIRECTIONS

PROJECT NO. FE 24-14065	SHEET NO. A4
DATE 9 September, 2024	
SCALE AS SHOWN	





400 Esna Park Dr., #15
 Markham, Ontario
 L3R 3K2
 Tel: 905 475-7755

NORTH

LEGEND

- | | | | |
|--|----------|--|----------------------------------|
| | ASPHALT | | SILT |
| | FILL | | CLAY |
| | TOPSOIL | | BEDROCK |
| | GRANULAR | | GROUNDWATER POTENTIOMETRIC LEVEL |
| | SAND | | |

PROJECT NAME AND ADDRESS

**GEOTECHNICAL &
 HYDROGEOLOGICAL
 INVESTIGATIONS**

900 Lakeshore Road West,
 Mississauga, Ontario

PROJECT NO.
 FE-23-13329/30

DATE.
 19 October 2023

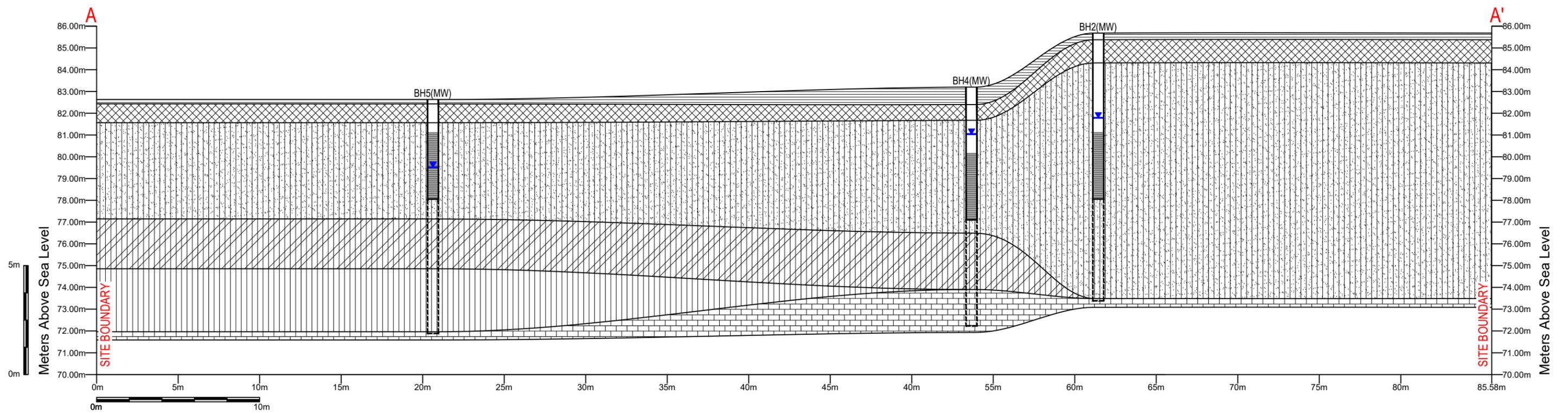
SCALE.
 AS SHOWN

FIGURE A4.1:

CROSS-SECTION A - A'

SHEET NO.

A4.1



400 Esna Park Dr., #15
 Markham, Ontario
 L3R 3K2
 Tel: 905 475-7755

NORTH

LEGEND

- | | |
|----------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
|  FILL |  CLAY |
|  TOPSOIL |  BEDROCK |
|  GRANULAR |  GROUNDWATER POTENTIOMETRIC LEVEL |
|  SAND | |
|  SILT | |

PROJECT NAME AND ADDRESS

**GEOTECHNICAL &
 HYDROGEOLOGICAL
 INVESTIGATIONS**

900 Lakeshore Road West,
 Mississauga, Ontario

PROJECT NO.

FE-23-13329/30

DATE.

19 October 2023

SCALE.

AS SHOWN

FIGURE A4.2:

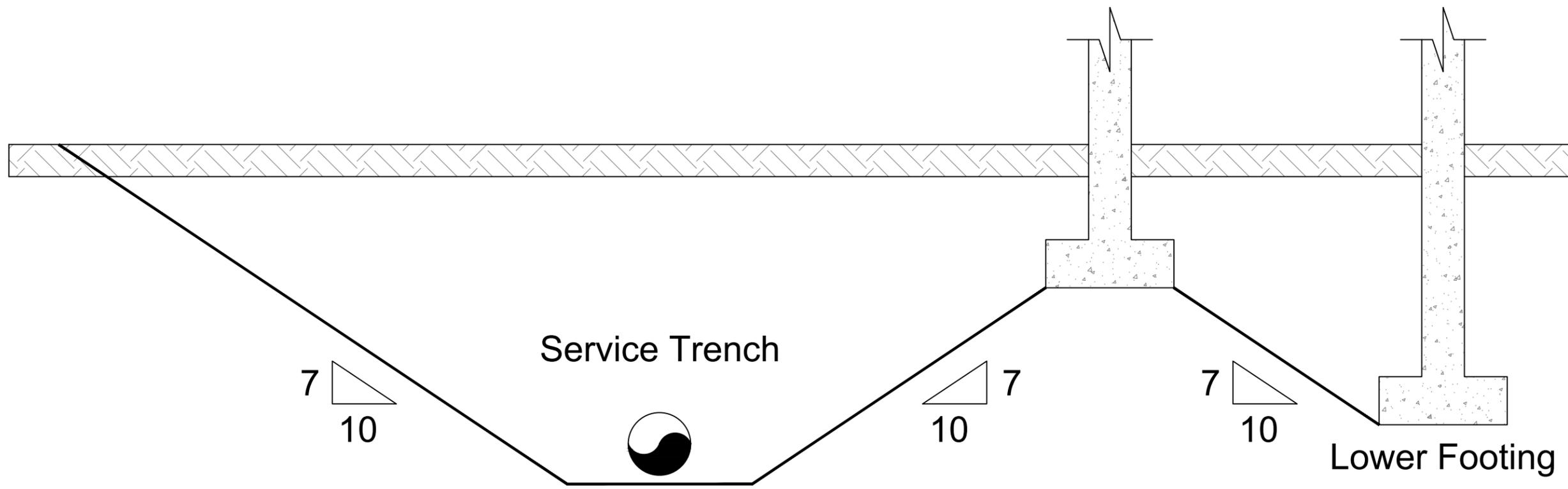
CROSS-SECTION B - B'

SHEET NO.

A4.2

NORTH

LEGEND



Service Trench

Lower Footing

PROJECT NAME AND ADDRESS
**GEOTECHNICAL &
 HYDROGEOLOGICAL
 INVESTIGATIONS**
 900 Lakeshore Road West,
 Mississauga, ON

FIGURE A5:
**FOOTING AT
 DIFFERENT ELEVATIONS**

PROJECT NO. FE 24-14065/14191	SHEET NO. A5
DATE September 2024	
SCALE AS SHOWN	

10 STOREY RESIDENTIAL BUILDING DEVELOPMENT

900 Lake Shore Road West, Mississauga, ON

**900
LAKESHORE**

900 LAKESHORE ROAD WEST
MISSISSAUGA, ON



DRAWING LIST:

Sheet List	
Sheet Number	Sheet Name
A000	COVER PAGE
A001	SITE STATISTICS & CONTEXT
A002	SITE PLAN
A003	SITE PLAN (GF)
A004	3D VIEWS
A102	P3 PLAN
A103	P2 PLAN
A104	P1 PLAN
A105	GROUND FLOOR PLAN
A106	2ND FLOOR PLAN
A107	3RD FLOOR PLAN
A108	4TH FLOOR PLAN
A109	5TH FLOOR PLAN
A110	6TH FLOOR PLAN
A111	7TH FLOOR PLAN
A112	8TH TO 10TH FLOOR PLAN
A113	MECHANICAL PENTHOUSE PLAN
A114	ROOF PLAN
A201	NORTH ELEVATION
A202	SOUTH ELEVATION
A203	EAST ELEVATION
A204	WEST ELEVATION
A301	SECTION AA
A302	SECTION BB
A303	SITE & ROAD SECTION
A901	SUN/SHADOW STUDY JUNE 21ST
A901.2	SUN/SHADOW STUDY JUNE 21ST
A902	SUN/SHADOW STUDY SEPTEMBER 21ST
A902.2	SUN/SHADOW STUDY SEPTEMBER 21ST
A903	SUN/SHADOW STUDY DECEMBER 21ST

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No.	Description	Date
1	Issued for MUDAP	29.01.2024
	Issued for Coordination	24.06.2024
	Issued for Coordination	04.07.2024

CONTEXT KEY PLAN



PROJECT NORTH STAMP

CLIENT



architects +
planners inc.

PROJECT NO: 23016

SCALE:

DATE: 09.01.2024

DRAWN BY: FC

DRAWING TITLE

COVER PAGE

DRAWING NO

A000

CONSULTANTS:

ARCHITECT:
COMPANY: KFA ARCHITECTS AND PLANNERS
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MECHANICAL ENGINEER
COMPANY:
ADDRESS:
POSTAL CODE:
CONTACT NAME:
PHONE #:
EMAIL:

ENVIROMENTAL ENGINEER
COMPANY:
ADDRESS:
POSTAL CODE:
CONTACT NAME:
PHONE #:
EMAIL:

STRUCTURAL ENGINEER
COMPANY:
ADDRESS:
POSTAL CODE:
CONTACT NAME:
PHONE #:
EMAIL:

PLANNER
COMPANY:
ADDRESS:
POSTAL CODE:
CONTACT NAME:
PHONE #:
EMAIL:

CIVIL ENGINEER
COMPANY:
ADDRESS:
POSTAL CODE:
CONTACT NAME:
PHONE #:
EMAIL:

ELECTRICAL ENGINEER
COMPANY:
ADDRESS:
POSTAL CODE:
CONTACT NAME:
PHONE #:
EMAIL:

TRAFFIC CONSULTANT
COMPANY:
ADDRESS:
POSTAL CODE:
CONTACT NAME:
PHONE #:
EMAIL:

NOISE ENGINEER
COMPANY:
ADDRESS:
POSTAL CODE:
CONTACT NAME:
PHONE #:
EMAIL:

CONSULTANT
COMPANY:
ADDRESS:
POSTAL CODE:
CONTACT NAME:
PHONE #:
EMAIL:

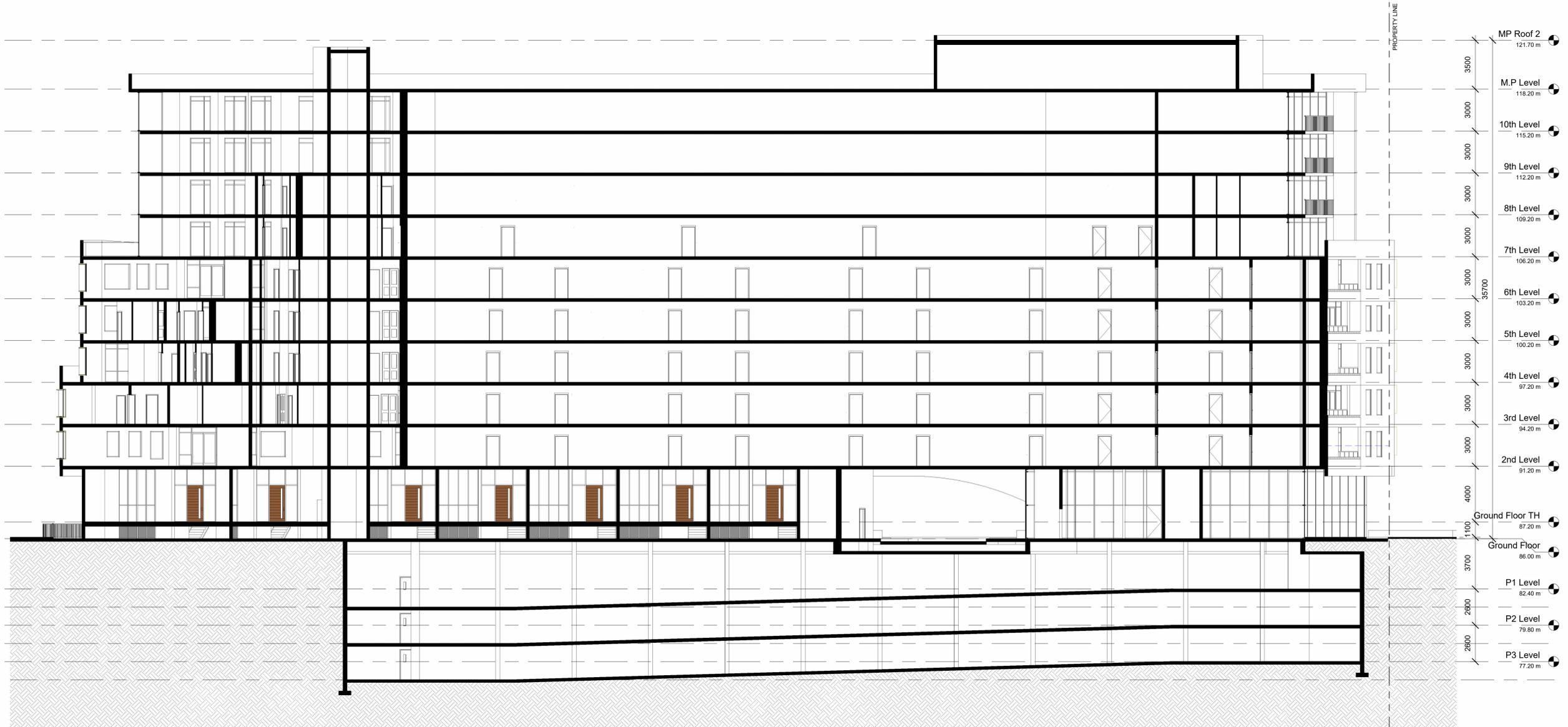
Issued for MUDAP
ISSUED DATE: 29.01.2024

900 LAKESHORE

900 LAKESHORE ROAD WEST
MISSISSAUGA, ON

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No.	Description	Date
1	Issued for MUDAP	29.01.2024
	Issued for Coordination	24.06.2024
	Issued for Coordination	04.07.2024



1 SECTION AA
1 : 150

DRAFT

CONTEXT KEY PLAN



PROJECT NORTH

STAMP

CLIENT



architects +
planners inc.

PROJECT NO: 23016

SCALE: 1 : 150

DATE: 09.01.2024

DRAWN BY: FC

DRAWING TITLE

SECTION AA

DRAWING NO

A301

APPENDIX B – LOGS OF BOREHOLES

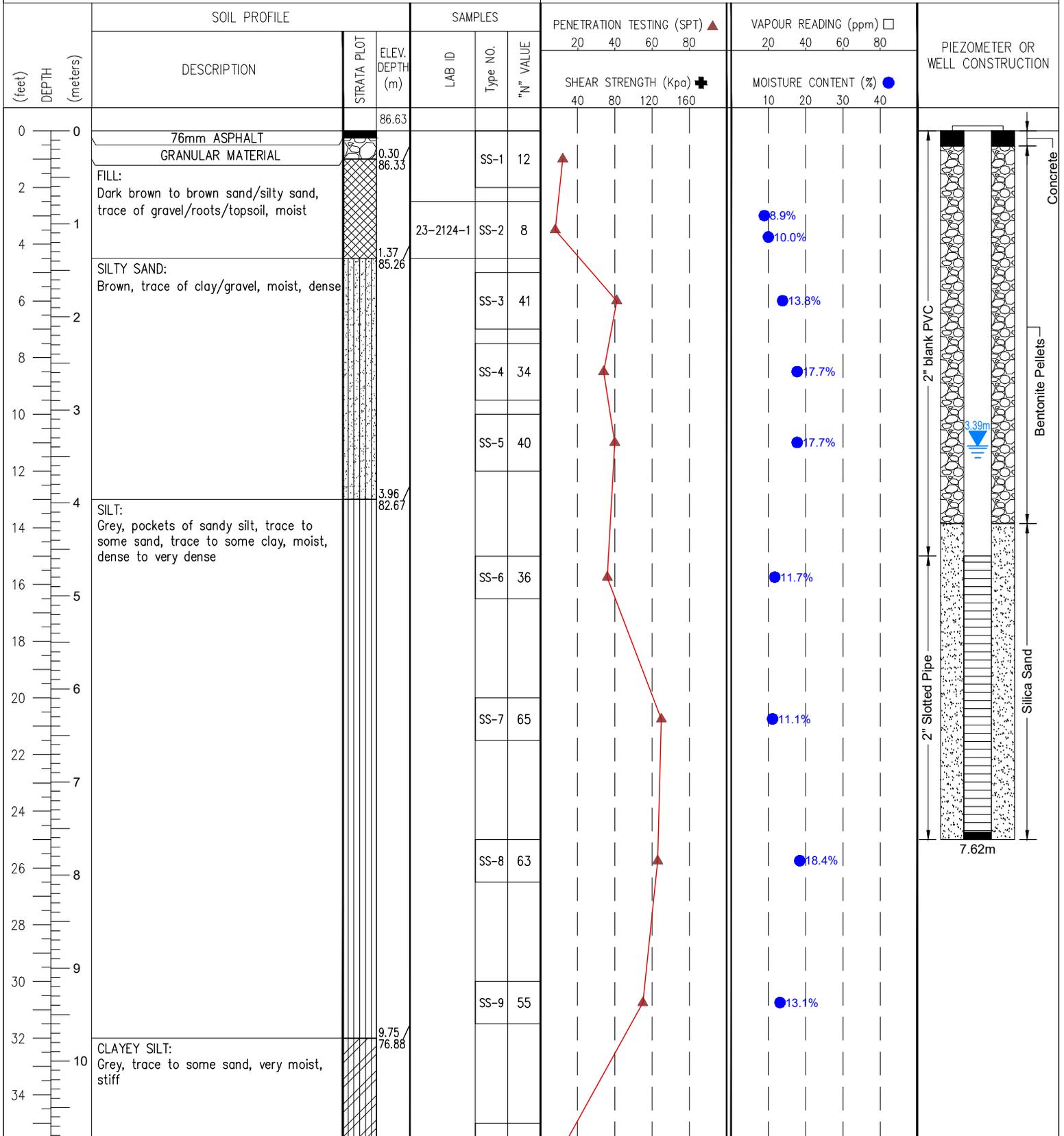


PROJECT NAME: HYDROGEOLOGICAL AND GEOTECHNICAL INVESTIGATIONS

LOCATION: 900 Lakeshore Road W., Mississauga ON

DRILLING METHOD: D-50 Solid Stem Augers

DRILLING DATE: 7 November, 2023



Groundwater Depth (m): on completion: 9.14m; 6 December 2023: 2.96m/ On 15 January 2024: 3.39m

DRAWN: A.M

LOGGED: K.W.

CHECKED: C.W.



LOG OF BOREHOLE

NO. BH1(MW) SHEET. 2 of 2

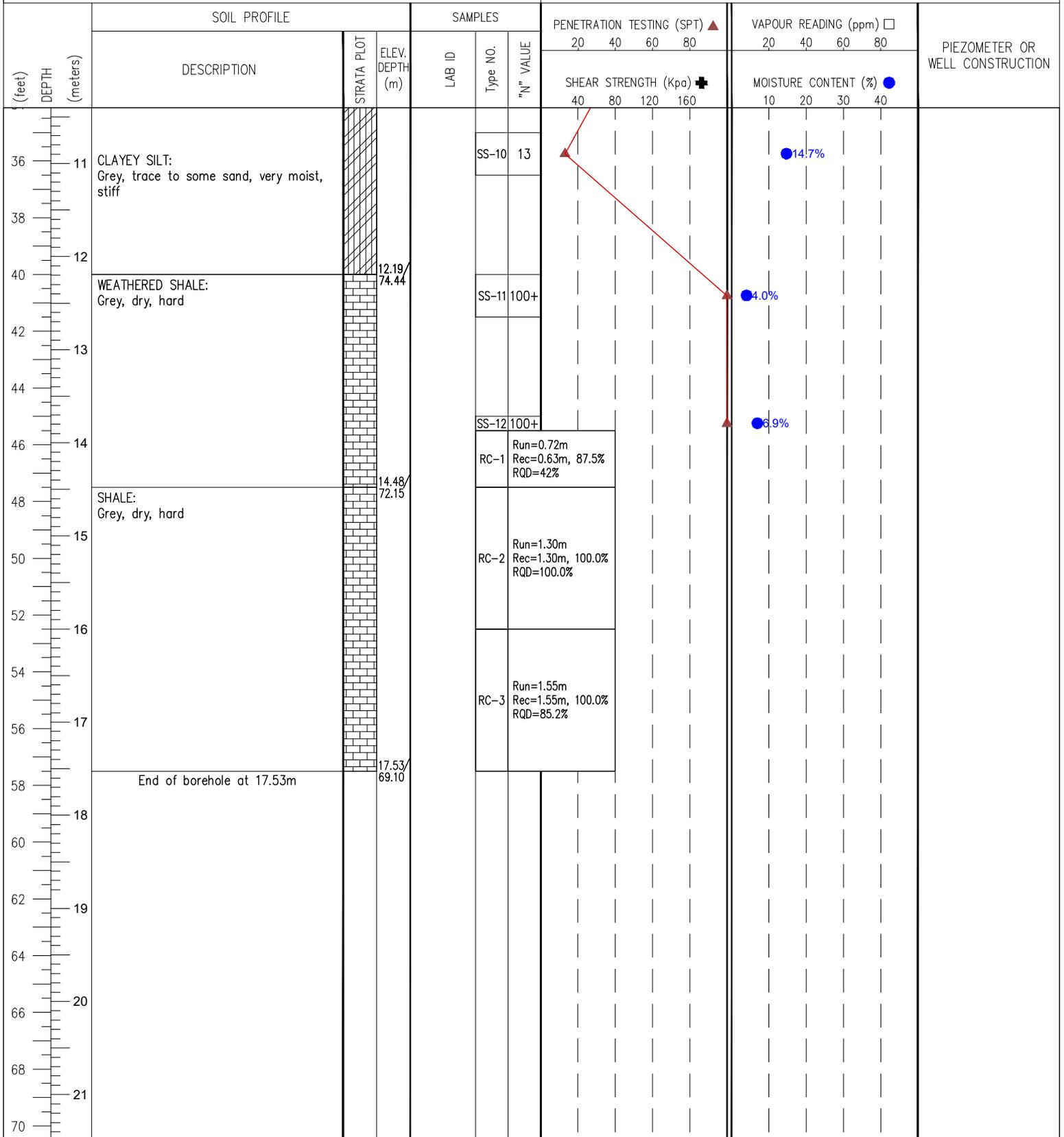
PROJECT NO.: FE-P# 23-13329/30

PROJECT NAME: HYDROGEOLOGICAL AND GEOTECHNICAL INVESTIGATIONS

LOCATION: 900 Lakeshore Road W., Mississauga ON

DRILLING METHOD: D-50 Solid Stem Augers

DRILLING DATE: 7 November, 2023



Groundwater Depth (m): on completion: 9.14m; 6 December 2023: 2.96m/ On 15 January 2024: 3.39m

DRAWN: A.M

LOGGED: K.W.

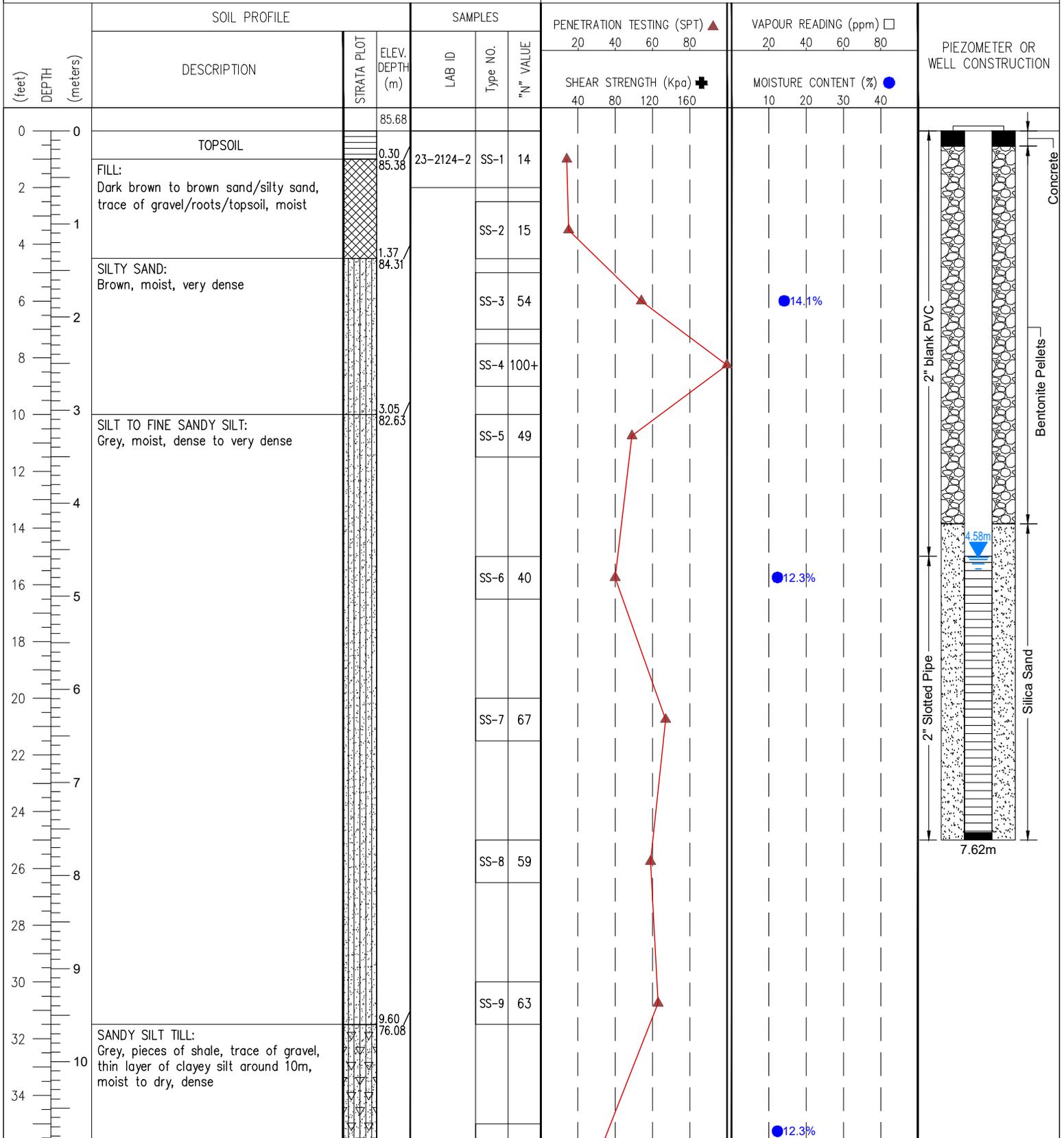
CHECKED: C.W.

PROJECT NAME: HYDROGEOLOGICAL AND GEOTECHNICAL INVESTIGATIONS

LOCATION: 900 Lakeshore Road W., Mississauga ON

DRILLING METHOD: D-50 Solid Stem Augers

DRILLING DATE: 7 November, 2023



Groundwater Depth (m): on completion: Dry, 6 December 2023: 3.89m/ On 15 January 2024: 4.58m

DRAWN: A.M

LOGGED: K.W.

CHECKED: C.W.



LOG OF BOREHOLE

NO. BH2(MW) SHEET. 2 of 2

PROJECT NO.: FE-P# 23-13329/30

PROJECT NAME: HYDROGEOLOGICAL AND GEOTECHNICAL INVESTIGATIONS

LOCATION: 900 Lakeshore Road W., Mississauga ON

DRILLING METHOD: D-50 Solid Stem Augers

DRILLING DATE: 7 November, 2023

DEPTH (feet) DEPTH (meters)	SOIL PROFILE		SAMPLES			PENETRATION TESTING (SPT) ▲				VAPOUR READING (ppm) □				PIEZOMETER OR WELL CONSTRUCTION	
	DESCRIPTION	STRATA PLOT	LAB ID	Type NO.	"N" VALUE	SHEAR STRENGTH (Kpa) ✚				MOISTURE CONTENT (%) ●					
						20	40	60	80	20	40	60	80		10
36 11	SANDY SILT TILL: Grey, pieces of shale, trace of gravel, moist to dry, dense			SS-10	33										
40 12	WEATHERED: Grey, dry, hard End of borehole at 12.29m			SS-11	100+										
42 13															
44 14															
46 15															
48 16															
50 17															
52 18															
54 19															
56 20															
58 21															
60															
62															
64															
66															
68															
70															

Groundwater Depth (m): on completion: Dry, 6 December 2023: 3.89m/ On 15 January 2024: 4.58m

DRAWN: A.M

LOGGED: K.W.

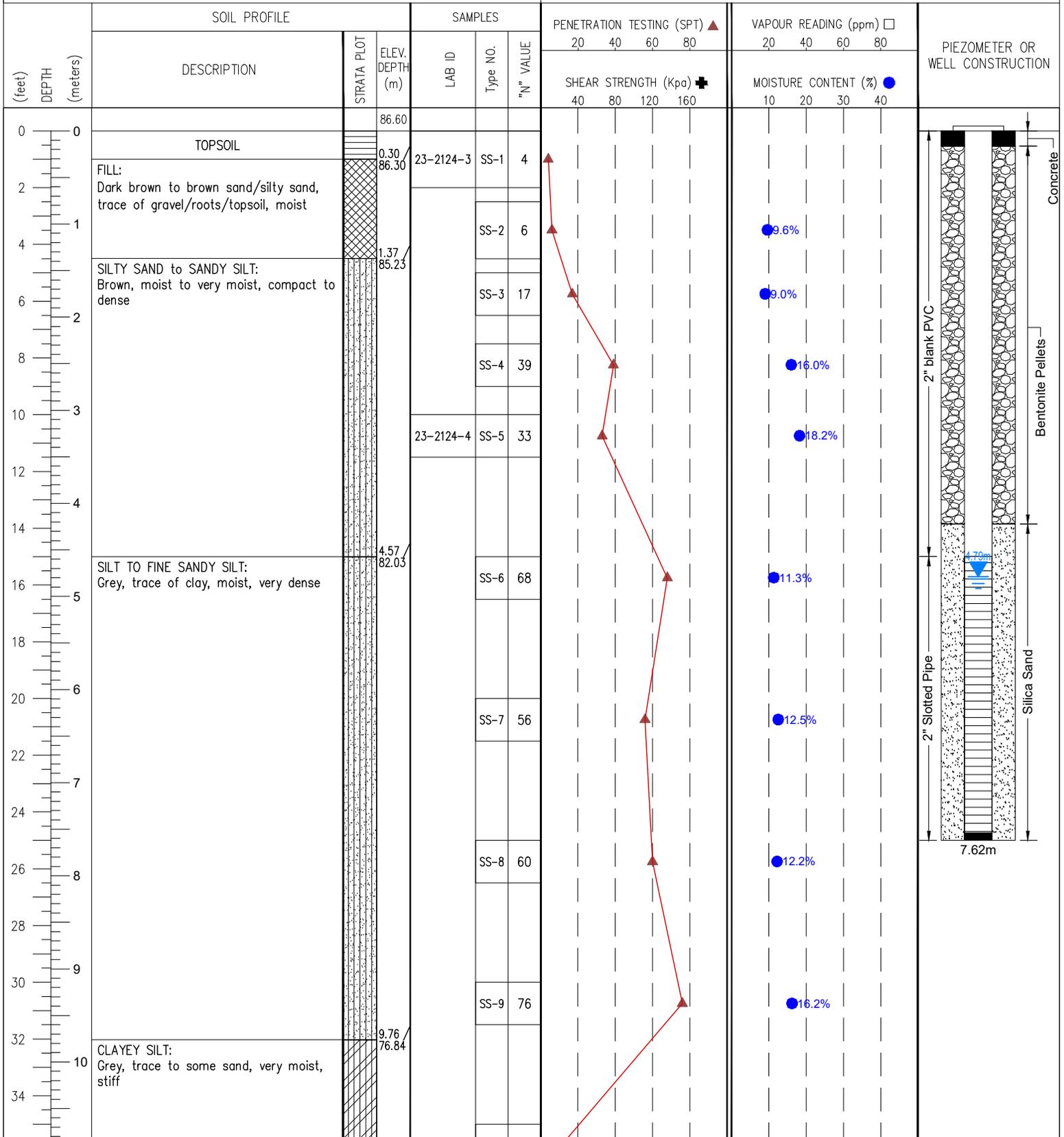
CHECKED: C.W.

PROJECT NAME: HYDROGEOLOGICAL AND GEOTECHNICAL INVESTIGATIONS

LOCATION: 900 Lakeshore Road W., Mississauga ON

DRILLING METHOD: D-50 Solid Stem Augers

DRILLING DATE: 8 November, 2023



Groundwater Depth (m): on completion: 10.67m; 6 December 2023: 4.18m/ On 15 January 2024: 4.79m

DRAWN: A.M

LOGGED: K.W.

CHECKED: C.W.



LOG OF BOREHOLE

NO. BH3(MW) SHEET. 2 of 2

PROJECT NO.: FE-P# 23-13329/30

PROJECT NAME: HYDROGEOLOGICAL AND GEOTECHNICAL INVESTIGATIONS

LOCATION: 900 Lakeshore Road W., Mississauga ON

DRILLING METHOD: D-50 Solid Stem Augers

DRILLING DATE: 8 November, 2023

DEPTH (feet) DEPTH (meters)	SOIL PROFILE		SAMPLES			PENETRATION TESTING (SPT) ▲		VAPOUR READING (ppm) □		PIEZOMETER OR WELL CONSTRUCTION
	DESCRIPTION	STRAITA PLOT	LAB ID	Type NO.	"N" VALUE	20 40 60 80		20 40 60 80		
						SHEAR STRENGTH (Kpa) +		MOISTURE CONTENT (%) ●		
36 11	CLAYEY SILT: Grey, trace to some sand, very moist, stiff			SS-10	11	▲		●	11.5%	
38 12	SANDY SILT TILL: Grey, trace to some gravel, moist, dense					▲				
40 12				SS-11	38	▲		●	3.6%	
42 13										
44 13	Refusal to spoon @13.72m Possibly due to bedrock									
46 14	End of borehole at 13.72m									
48 14										
50 15										
52 16										
54 16										
56 17										
58 17										
60 18										
62 18										
64 19										
66 19										
68 20										
70 20										

Groundwater Depth (m): on completion: 10.67m; 6 December 2023: 4.18m/ On 15 January 2024: 4.79m

DRAWN: A.M

LOGGED: K.W.

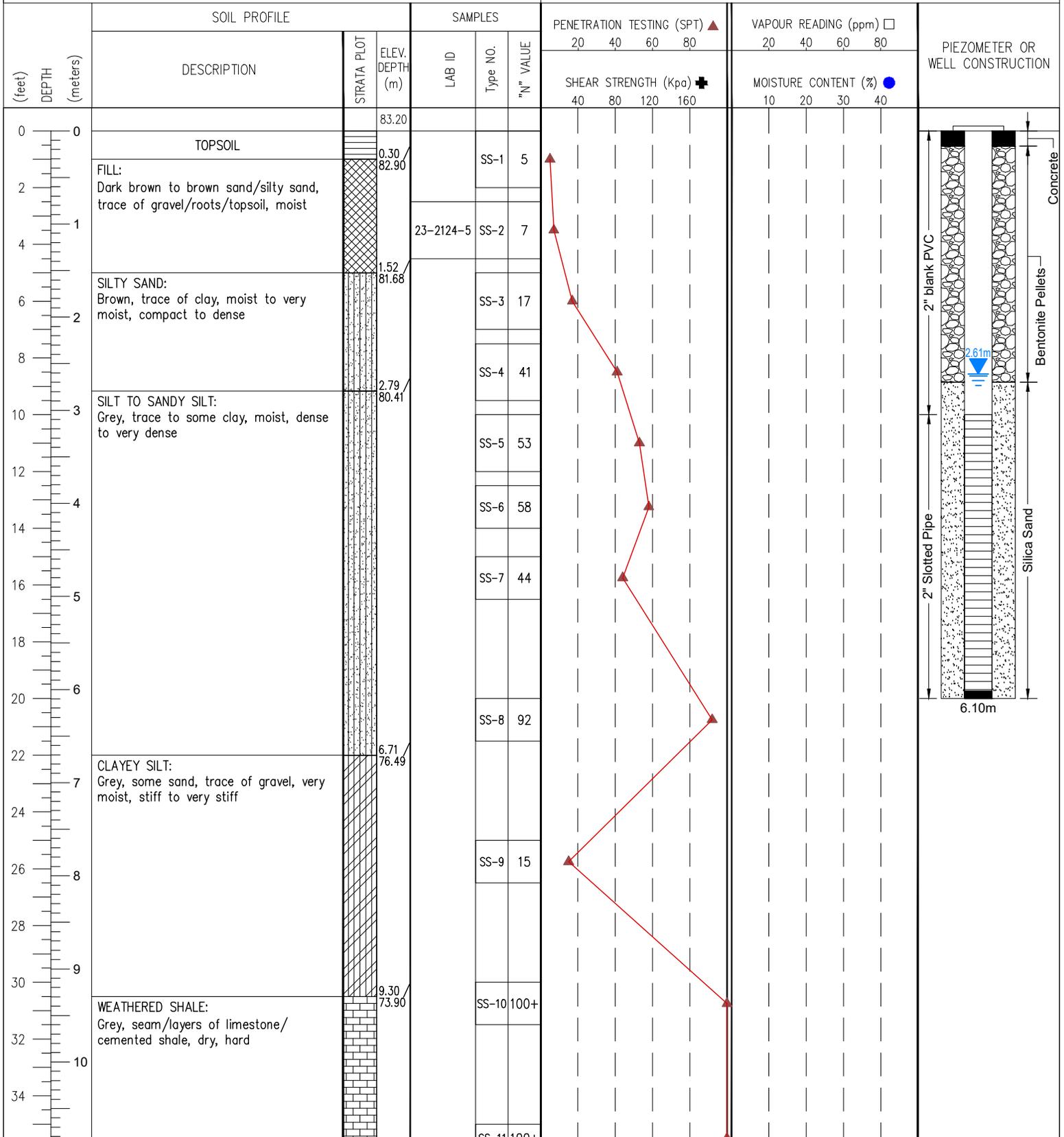
CHECKED: C.W.

PROJECT NAME: HYDROGEOLOGICAL AND GEOTECHNICAL INVESTIGATIONS

LOCATION: 900 Lakeshore Road W., Mississauga ON

DRILLING METHOD: D-50 Solid Stem Augers

DRILLING DATE: 6 November, 2023



Groundwater Depth (m): on completion: Dry, 6 December 2023: 2.16m / On 15 January 2024: 2.61m

DRAWN: A.M

LOGGED: K.W.

CHECKED: C.W.



LOG OF BOREHOLE

NO. BH4(MW) SHEET. 2 of 2

PROJECT NO.: FE-P# 23-13329/30

PROJECT NAME: HYDROGEOLOGICAL AND GEOTECHNICAL INVESTIGATIONS

LOCATION: 900 Lakeshore Road W., Mississauga ON

DRILLING METHOD: D-50 Solid Stem Augers

DRILLING DATE: 6 November, 2023

DEPTH (feet) DEPTH (meters)	SOIL PROFILE		SAMPLES			PENETRATION TESTING (SPT) ▲				VAPOUR READING (ppm) □				PIEZOMETER OR WELL CONSTRUCTION
	DESCRIPTION	STRATA PLOT	LAB ID	Type NO.	"N" VALUE	20 40 60 80				20 40 60 80				
						SHEAR STRENGTH (Kpa) ✚				MOISTURE CONTENT (%) ●				
		ELEV. DEPTH (m)				40	80	120	160	10	20	30	40	
36	WEATHERED SHALE: Grey, seam/layers of limestone/ cemented shale, dry, hard			SS-11	100+									
11	End of borehole at 10.97m	10.97/ 72.23												
38														
40														
42														
44														
46														
48														
50														
52														
54														
56														
58														
60														
62														
64														
66														
68														
70														

Groundwater Depth (m): on completion: Dry, 6 December 2023: 2.16m/ On 15 January 2024: 2.61m

DRAWN: A.M

LOGGED: K.W.

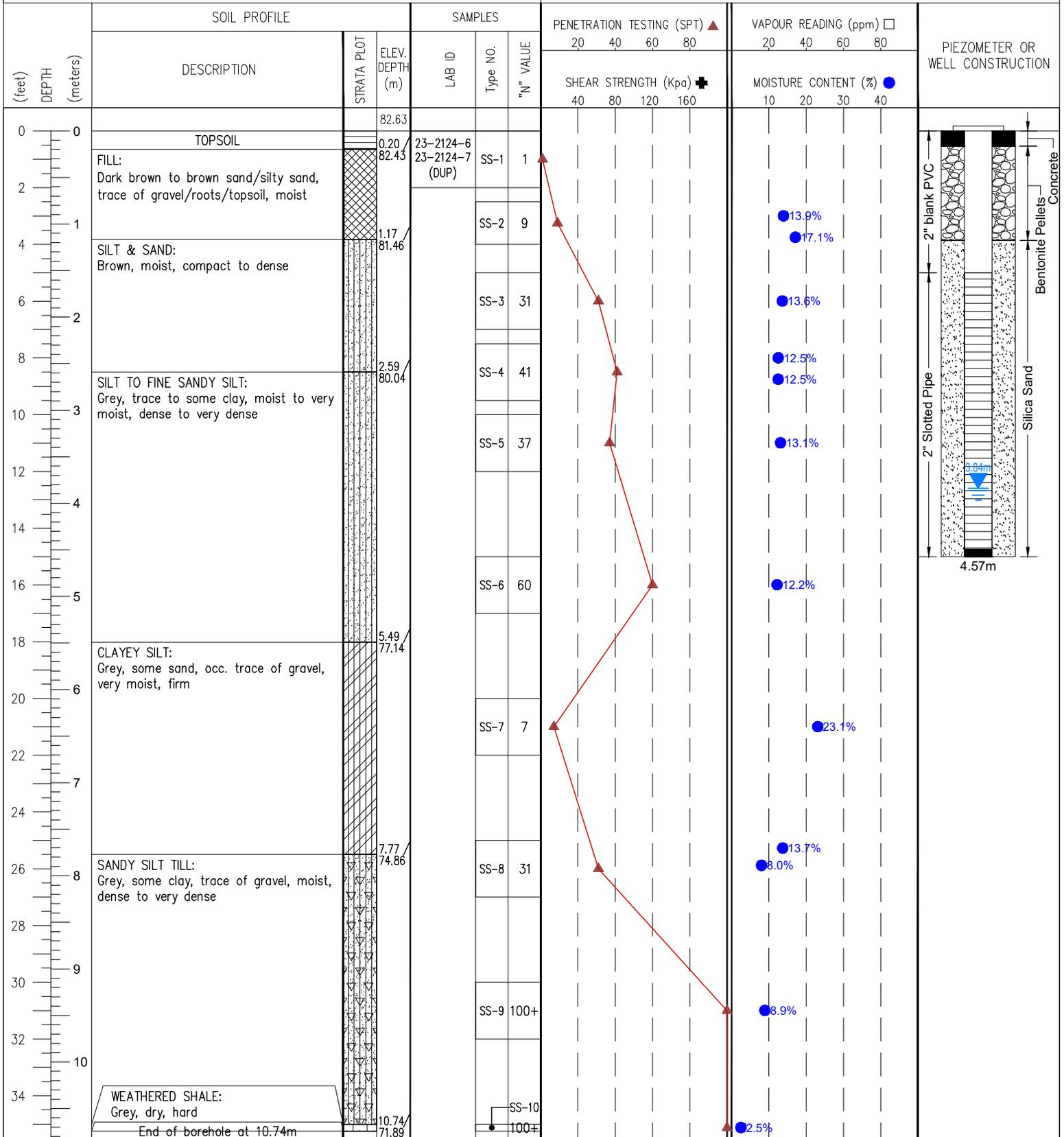
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PROJECT NAME: HYDROGEOLOGICAL AND GEOTECHNICAL INVESTIGATIONS

LOCATION: 900 Lakeshore Road W., Mississauga ON

DRILLING METHOD: D-50 Solid Stem Augers

DRILLING DATE: 6 November, 2023



Groundwater Depth (m): on completion: 10.51m; 6 December 2023: 3.11m / On 15 January 2024: 3.84m

DRAWN: A.M

LOGGED: K.W.

CHECKED: C.W.



LOG OF BOREHOLE

NO. TH1 SHEET. 1 of 1

PROJECT NO.: FE-P# 23-13329/30

PROJECT NAME: HYDROGEOLOGICAL AND GEOTECHNICAL INVESTIGATIONS

LOCATION: 900 Lakeshore Road W., Mississauga ON

DRILLING METHOD: D-50 Solid Stem Augers

DRILLING DATE: 7 November, 2023

DEPTH (feet) DEPTH (meters)	SOIL PROFILE		SAMPLES			PENETRATION TESTING (SPT) ▲				VAPOUR READING (ppm) □				PIEZOMETER OR WELL CONSTRUCTION	
	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	LAB ID	Type NO.	"N" VALUE	SHEAR STRENGTH (Kpa) ✚				MOISTURE CONTENT (%) ●				
							20	40	60	80	20	40	60		80
0	TOPSOIL: Dark brown sand and grass, trace rootlets		85.98												
0.30	FILL: Brown sand		85.68												
1.52	SAND: Brown, dry, dense		84.46		SS-1	43						8.9%			
1.98	End of borehole at 1.98m		84.00												

Groundwater Depth (m): on completion: N/A

DRAWN: A.M

LOGGED: K.W.

CHECKED: C.W.



LOG OF BOREHOLE

NO. TH2 SHEET. 1 of 1

PROJECT NO.: FE-P# 23-13329/30

PROJECT NAME: HYDROGEOLOGICAL AND GEOTECHNICAL INVESTIGATIONS

LOCATION: 900 Lakeshore Road W., Mississauga ON

DRILLING METHOD: D-50 Solid Stem Augers

DRILLING DATE: 7 November, 2023

DEPTH (feet) DEPTH (meters)	SOIL PROFILE		SAMPLES			PENETRATION TESTING (SPT) ▲				VAPOUR READING (ppm) □				PIEZOMETER OR WELL CONSTRUCTION	
	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	LAB ID	Type NO.	"N" VALUE	SHEAR STRENGTH (Kpa) ✚				MOISTURE CONTENT (%) ●				
							20	40	60	80	20	40	60		80
0	TOPSOIL: Dark brown		86.81												
0.15	FILL: Brown to grey sandy silt		86.66												
1.52	CLAYEY SILT TILL: Grey, moist, loose, some sand, trace gravel		85.29		SS-1	8	▲					● 14	6%		
1.98	End of borehole at 1.98m		84.83												

Groundwater Depth (m): on completion: N/A

DRAWN: A.M

LOGGED: K.W.

CHECKED: C.W.

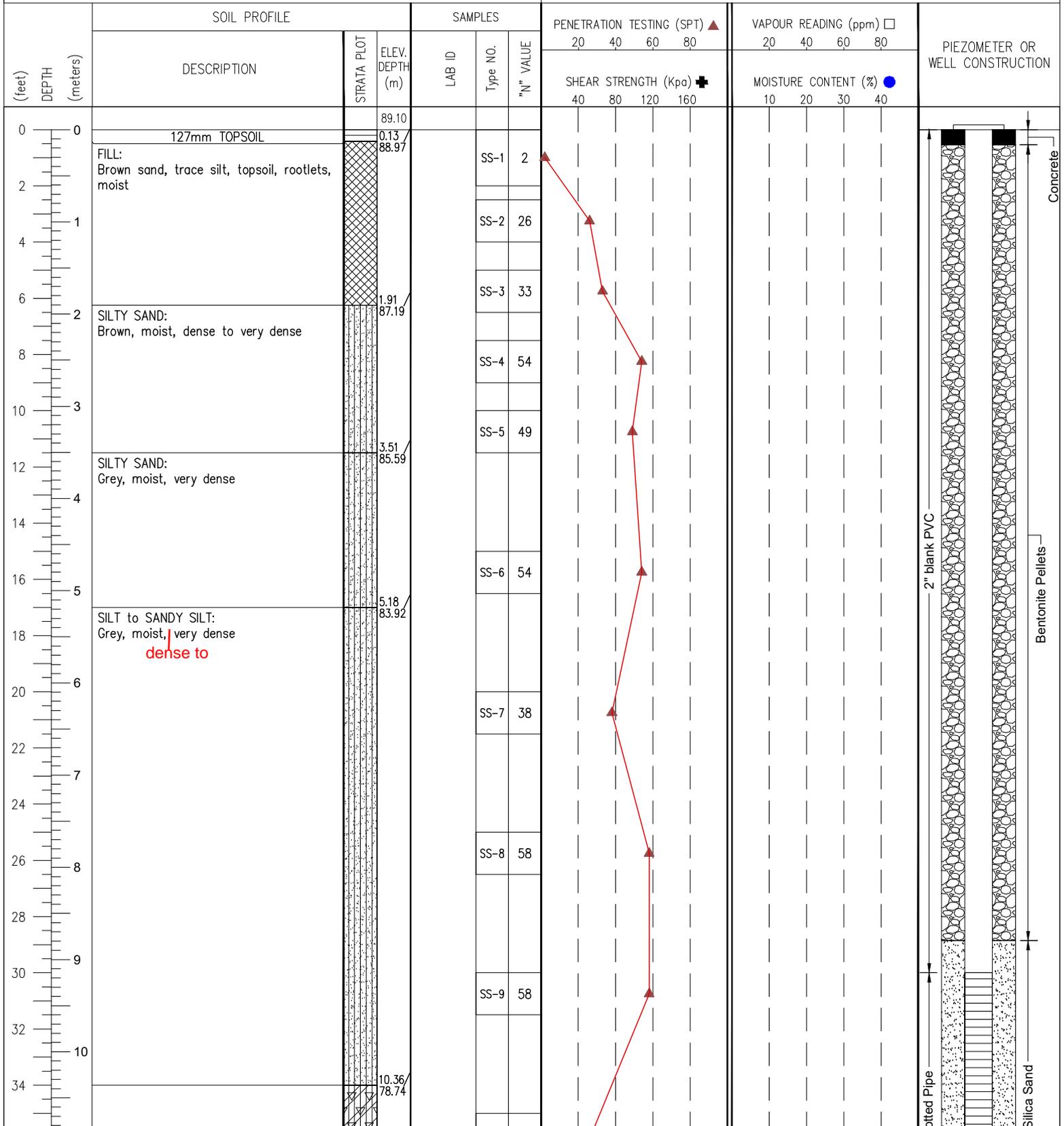
Geotechnical &

 PROJECT NAME: HYDROGEOLOGICAL INVESTIGATION **S**

LOCATION: 900 Lakeshore Road W., Mississauga ON

DRILLING METHOD: CME-55 Track Solid Stem

DRILLING DATE: 3 September, 2024



Groundwater Depth (m): on completion: Dry

DRAWN: A.M

LOGGED: D.G.

CHECKED: C.W.



LOG OF BOREHOLE

NO. BH101(MW) SHEET. 2 of 2

PROJECT NO.: FE- 24-14065

PROJECT NAME: HYDROGEOLOGICAL INVESTIGATION

LOCATION: 900 Lakeshore Road W., Mississauga ON

DRILLING METHOD: CME-55 Track Solid Stem

DRILLING DATE: 3 September, 2024

DEPTH (feet) DEPTH (meters)	SOIL PROFILE			SAMPLES			PENETRATION TESTING (SPT) ▲				VAPOUR READING (ppm) □				PIEZOMETER OR WELL CONSTRUCTION
	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	LAB ID	Type NO.	"N" VALUE	SHEAR STRENGTH (Kpa) +		MOISTURE CONTENT (%) ●		VAPOUR READING (ppm)		PIEZOMETER OR WELL CONSTRUCTION		
							40	80	10	20	30	40	20	40	
36-38	11 CLAYEY SILT TILL: Grey, trace sand, trace gravel, very moist, very stiff		78.74		SS-10	27									 2" Slotted P Silica S 12.19m
40-42	12 WEATHERED LIMESTONE and SHALE: Grey, dry, moist, hard . Limestone seams.		12.04/ 77.06		SS-11	100+									
46	14 End of borehole at 13.82m		13.82/ 75.28		SS-12	100±									

Groundwater Depth (m): on completion: Dry

DRAWN: A.M

LOGGED: D.G.

CHECKED: C.W.



LOG OF BOREHOLE

NO. BH101(MW) SHEET. 1 of 2

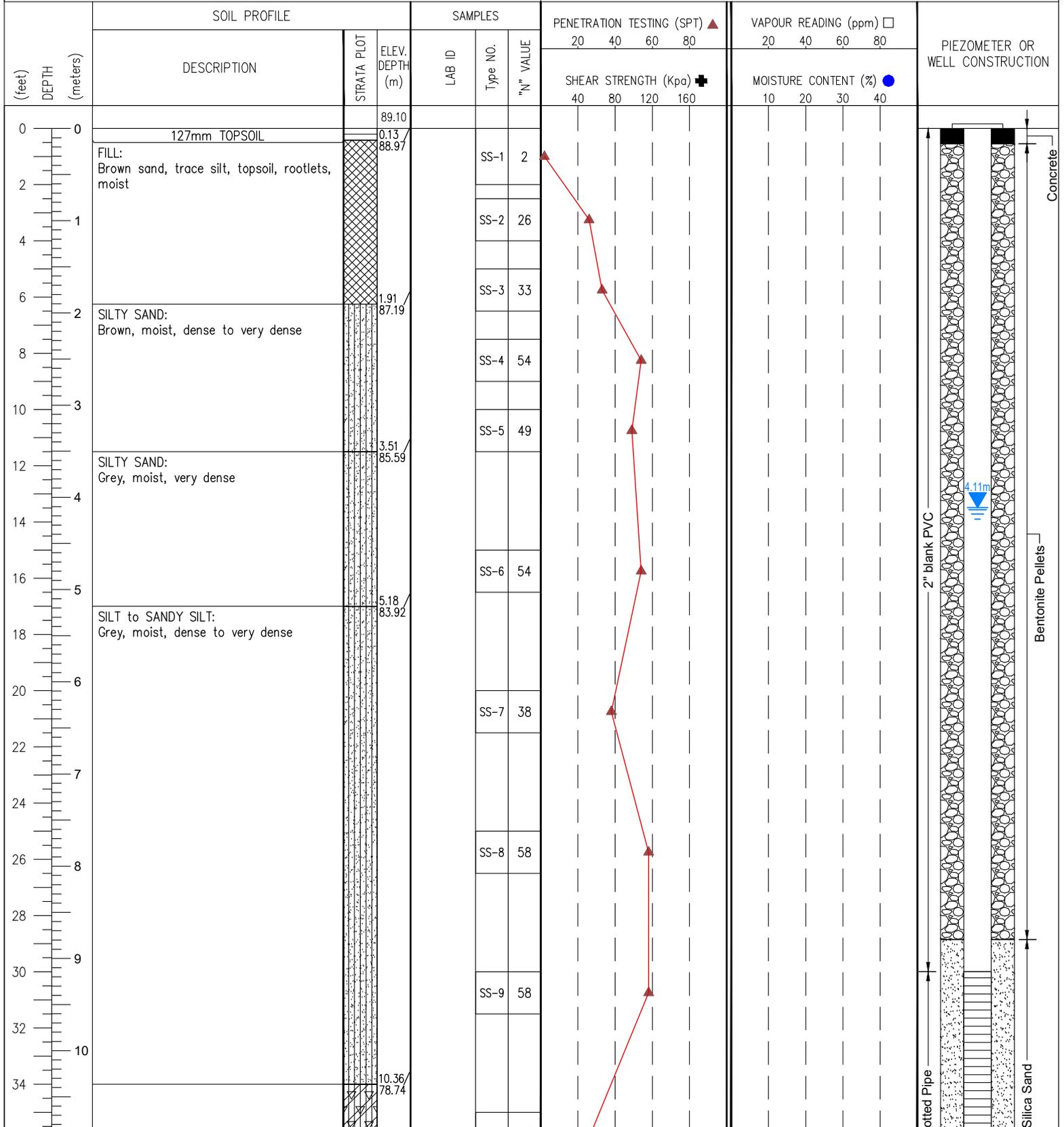
PROJECT NO.: FE- 24-14065/191

PROJECT NAME: GEOTECHNICAL & HYDROGEOLOGICAL INVESTIGATIONS

LOCATION: 900 Lakeshore Road W., Mississauga ON

DRILLING METHOD: CME-55 Track Solid Stem

DRILLING DATE: 3 September, 2024



Groundwater Depth (m): on completion: Dry, on 9 September 2024: 4.11m

DRAWN: A.M

LOGGED: D.G.

CHECKED: C.W.



LOG OF BOREHOLE

NO. BH101(MW) SHEET. 2 of 2

PROJECT NO.: FE- 24-14065/191

PROJECT NAME: GEOTECHNICAL & HYDROGEOLOGICAL INVESTIGATIONS

LOCATION: 900 Lakeshore Road W., Mississauga ON

DRILLING METHOD: CME-55 Track Solid Stem

DRILLING DATE: 3 September, 2024

DEPTH (feet) DEPTH (meters)	SOIL PROFILE		SAMPLES			PENETRATION TESTING (SPT) ▲		VAPOUR READING (ppm) □		PIEZOMETER OR WELL CONSTRUCTION	
	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	LAB ID	Type NO.	"N" VALUE	SHEAR STRENGTH (Kpa) +		MOISTURE CONTENT (%) ●		
							20	40	60		80
36 - 11	CLAYEY SILT TILL: Grey, trace sand, trace gravel, very moist, very stiff		78.74		SS-10	27					<p>2" Slotted P Silica S 12.19m</p>
40 - 12	WEATHERED SHALE: Grey, limestone seams, dry, moist, hard		12.04/ 77.06		SS-11	100+					
46 - 14	End of borehole at 13.82m		13.82/ 75.28		SS-12	100+					

Groundwater Depth (m): on completion: Dry; on 9 September 2024: 4.11m

DRAWN: A.M

LOGGED: D.G.

CHECKED: C.W.



LOG OF BOREHOLE

NO. BH102(MW) SHEET. 1 of 2

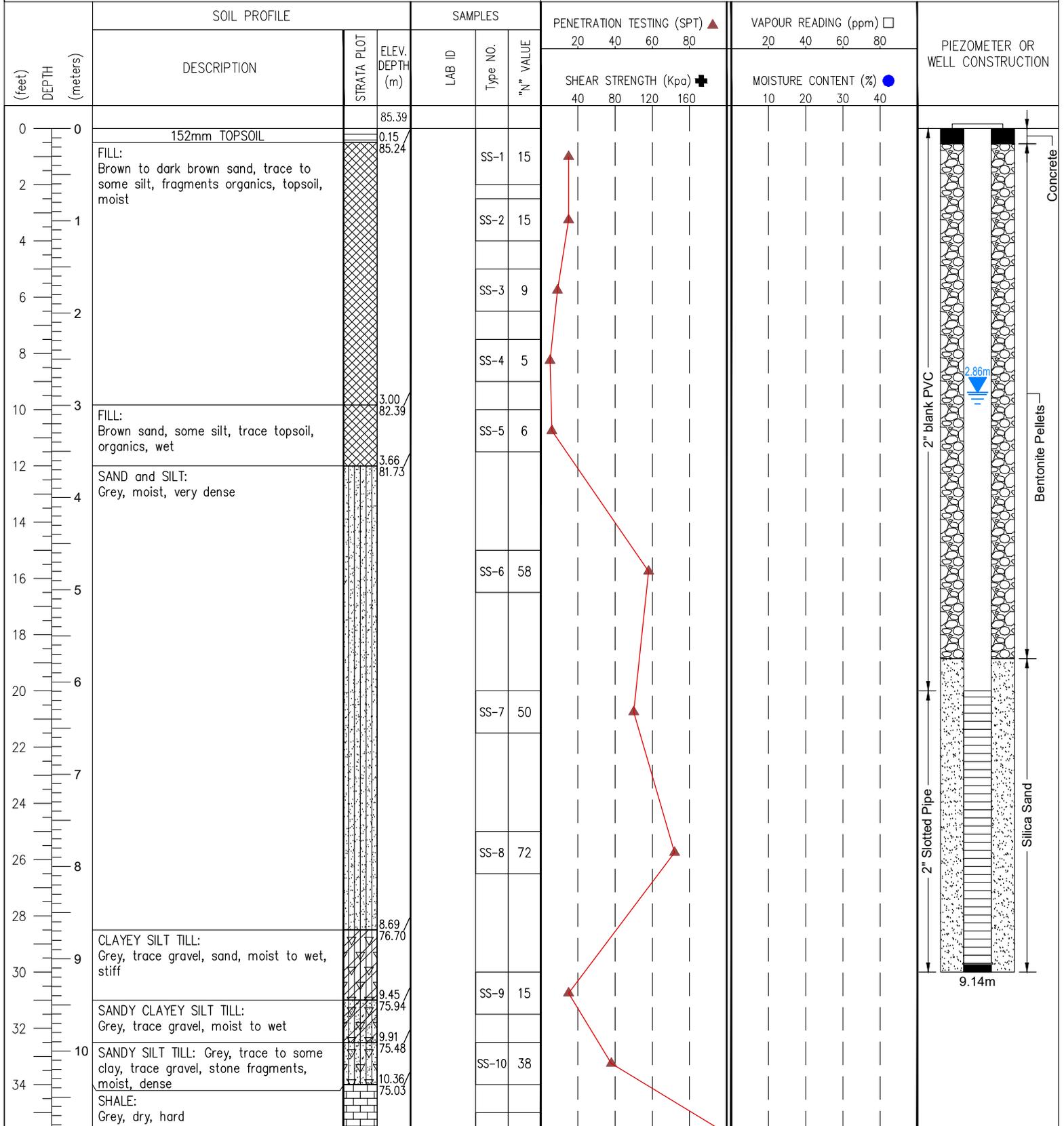
PROJECT NO.: FE- 24-14065/191

PROJECT NAME: GEOTECHNICAL & HYDROGEOLOGICAL INVESTIGATIONS

LOCATION: 900 Lakeshore Road W., Mississauga ON

DRILLING METHOD: CME-55 Track Solid Stem

DRILLING DATE: 3 September, 2024



Groundwater Depth (m): on completion: Dry, on 9 September 2024: 2.86m

DRAWN: A.M

LOGGED: D.G.

CHECKED: C.W.



LOG OF BOREHOLE

NO. BH102(MW) SHEET. 1 of 2

PROJECT NO.: FE- 24-14065/191

PROJECT NAME: GEOTECHNICAL & HYDROGEOLOGICAL INVESTIGATIONS

LOCATION: 900 Lakeshore Road W., Mississauga ON

DRILLING METHOD: CME-55 Track Solid Stem

DRILLING DATE: 3 September, 2024

DEPTH (feet) DEPTH (meters)	SOIL PROFILE		SAMPLES			PENETRATION TESTING (SPT) ▲				VAPOUR READING (ppm) □				PIEZOMETER OR WELL CONSTRUCTION
	DESCRIPTION	STRATA PLOT	LAB ID	Type NO.	"N" VALUE	SHEAR STRENGTH (Kpa) +				MOISTURE CONTENT (%) ●				
						20	40	60	80	20	40	60	80	
36 - 11	SHALE: Grey, dry, hard				SS-11 100+									
38 - 12														
40 - 12	End of borehole at 12.19m													
42 - 13														
44 - 14														
46 - 14														
48 - 15														
50 - 15														
52 - 16														
54 - 16														
56 - 17														
58 - 17														
60 - 18														
62 - 19														
64 - 19														
66 - 20														
68 - 20														
70 - 21														

Groundwater Depth (m): on completion: Dry, on 9 September 2024: 2.86m

DRAWN: A.M

LOGGED: D.G.

CHECKED: C.W.



LOG OF BOREHOLE

NO. BH103(MW) SHEET. 1 of 2

PROJECT NO.: FE- 24-14065/191

PROJECT NAME: GEOTECHNICAL & HYDROGEOLOGICAL INVESTIGATIONS

LOCATION: 900 Lakeshore Road W., Mississauga ON

DRILLING METHOD: CME-55 Track Solid Stem

DRILLING DATE: 3 September, 2024

DEPTH (feet) DEPTH (meters)	SOIL PROFILE		SAMPLES			PENETRATION TESTING (SPT) ▲		VAPOUR READING (ppm) □		PIEZOMETER OR WELL CONSTRUCTION
	DESCRIPTION	STRATA PLOT	LAB ID	Type NO.	"N" VALUE	SHEAR STRENGTH (Kpa) +		MOISTURE CONTENT (%) ●		
						20	40	60	80	
0	101mm TOPSOIL									
0	FILL: Brown sand, trace silt, topsoil	82.55 0.10 / 82.45		SS-1	2					
2				SS-2	4					
6	SILT: Brown, trace to some sand, moist, dense	1.67 80.88		SS-3	37					
8	SILT: Grey, trace to some sand, moist to wet, dense to very dense	2.44 80.11		SS-4	44					
12	SANDY SILT: Grey, wet, very dense	3.66 78.89		SS-5	57					
16				SS-6	100+					
18	SILTY SAND: Grey, wet, very dense	5.33 77.22		SS-7	61					
24	CLAYEY SILT: Grey, trace sand, gravel, wet, hard	7.01 75.54								
26	SANDY SILT TILL: Grey, trace clay, gravel, wet, very dense	7.72 74.83		SS-8	65					
30	SILTY SAND: Grey, trace gravel, wet, very dense	8.84 73.71		SS-9	100+					
34		10.52 72.03								

Groundwater Depth (m): on completion: Dry, on 9 September 2024: 2.43m

DRAWN: A.M

LOGGED: D.G.

CHECKED: C.W.



LOG OF BOREHOLE

NO. BH103(MW) SHEET. 2 of 2

PROJECT NO.: FE- 24-14065/191

PROJECT NAME: GEOTECHNICAL & HYDROGEOLOGICAL INVESTIGATIONS

LOCATION: 900 Lakeshore Road W., Mississauga ON

DRILLING METHOD: CME-55 Track Solid Stem

DRILLING DATE: 3 September, 2024

DEPTH (feet) DEPTH (meters)	SOIL PROFILE		SAMPLES			PENETRATION TESTING (SPT) ▲				VAPOUR READING (ppm) □				PIEZOMETER OR WELL CONSTRUCTION
	DESCRIPTION	STRATA PLOT	LAB ID	Type NO.	"N" VALUE	SHEAR STRENGTH (Kpa) +				MOISTURE CONTENT (%) ●				
						20	40	60	80	20	40	60	80	
36	SHALE: Grey, dry, hard			SS-10	100+									
38														
40				SS-11	100+									
42														
44				RC-1	Run=1.52m Rec=1.52m, 100% RQD=97%									
46				RC-2	Run=0.76m Rec=0.68m, 90% RQD=91%									
48				RC-3	Run=1.75m Rec=1.75m, 100% RQD=92%									
50														
52														
54														
56														
58	End of borehole at 17.45m													
60														
62														
64														
66														
68														
70														

Groundwater Depth (m): on completion: Dry, on 9 September 2024: 2.43m

DRAWN: A.M

LOGGED: D.G.

CHECKED: C.W.

APPENDIX C – LABORATORY TEST RESULTS





Project Name: Geotechnical Investigation

Client: 1000570027 Ontario Inc.

Project ID: 23-13330

Location: 900 Lakeshore Road West,
Mississauga, Ontario

F.E. Lab #: 23-971

Date Sampled: 7-Nov-2023

Date Received: 10-Nov-2023

Date Reported: 29-Nov-2023

Certificate of Analysis

Analyses	Matrix	Quantity	Testing Date	Method Reference
Moisture Content	Soil	40	14-Nov-23	ASTM D2216
Grain Size (Sieve Analysis)	Soil	7	21-Nov-23	LS-602
Grain Size (Hydrometer)	Soil	7	27-Nov-23	LS-702
Atterberg test	Soil	0	N.A.	LS-703/704

Authorized by:

Behnam Sayad-Pour

Behnam Sayad Pour Zanjani
Geo-Lab Supervisor

400 Esna Park Drive, Unit 15, Markham, ON L3R 3K2
Tel:(905) 475-7755 www.fishereng.com

Certificate of Analysis

Analysis Requested: Moisture Content	Sample Description: 40 Soil Sample(s)
---------------------------------------------	----------------------------------------------

Sample Info	BH1 SS2 A	BH1 SS2 B	BH1 SS3	BH1 SS4	BH1 SS5	BH1 SS6
Sample Depth (m)	0.76-1.07	1.07-1.22	1.53-1.98	2.29-2.75	3.05-3.51	4.58-5.03
Moisture Content (%)	8.9	10.0	13.8	17.7	17.7	11.7

Sample Info	BH1 SS7	BH1 SS8	BH1 SS9	BH1 SS10	BH1 SS11	BH1 SS12
Sample Depth (m)	6.1-6.56	7.63-8.08	9.15-9.61	10.68-11.13	12.2-12.35	13.73-13.82
Moisture Content (%)	11.1	18.4	13.1	14.7	4.0	6.9

Sample Info	BH2 SS3	BH2 SS6	BH2 SS10 A	BH2 SS10 B	BH3 SS2	BH3 SS3
Sample Depth (m)	1.53-1.98	4.58-5.03	10.68-10.82	10.82-11.13	0.76-1.22	1.53-1.98
Moisture Content (%)	14.1	12.3	12.3	8.5	9.6	9.0

Sample Info	BH3 SS4	BH3 SS5	BH3 SS6	BH3 SS7	BH3 SS8	BH3 SS9
Sample Depth (m)	2.29-2.75	3.05-3.51	4.58-5.03	6.1-6.56	7.63-8.08	9.15-9.61
Moisture Content (%)	16.0	18.2	11.3	12.5	12.2	16.2

Sample Info	BH3 SS10	BH3 SS11	BH5 SS2 A	BH5 SS2 B	BH5 SS3	BH5 SS4 A
Sample Depth (m)	10.68-11.13	12.2-12.66	0.76-1.07	1.07-1.22	1.53-1.98	2.29-2.59
Moisture Content (%)	11.5	8.6	13.9	17.1	13.6	12.5

Sample Info	BH5 SS4 B	BH5 SS5	BH5 SS6	BH5 SS7	BH5 SS8 A	BH5 SS8 B
Sample Depth (m)	2.59-2.75	3.05-3.51	4.58-5.03	6.1-6.56	7.63-7.78	7.78-8.08
Moisture Content (%)	12.5	13.1	12.2	23.1	13.7	8.0

Sample Info	BH5 SS9	BH5 SS10	TH1	TH2		
Sample Depth (m)	9.15-9.46	10.68-11.13	1.53-1.98	1.53-1.98		
Moisture Content (%)	8.9	2.5	8.9	14.6		

Certificate of Analysis

Analysis Requested:	Grain Size (Sieve Analysis)	Sample Quantity:	7	Soil Sample(s)
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Sample Info	23-972 <i>BH1 SS3</i>	23-973 <i>BH1 SS6</i>	23-975 <i>BH2 SS3</i>	23-976 <i>BH2 SS6</i>	23-978 <i>BH2 SS10 B</i>	23-979 <i>BH5 SS3</i>
Sample Depth (m)	<i>1.53-1.98</i>	<i>4.58-5.03</i>	<i>1.53-1.98</i>	<i>4.58-5.03</i>	<i>10.82-11.13</i>	<i>1.53-1.98</i>
Grain Size (%)						
>19mm	0.0	0.0	0.0	0.0	0.0	0.0
9.5mm-19mm	0.0	0.0	0.0	0.0	3.0	0.0
4.75mm-9.5mm	0.0	0.0	0.0	0.0	4.8	0.0
1.18mm-4.75mm	0.0	0.1	0.0	0.2	10.5	0.3
300um-1.18mm	0.2	0.2	0.0	0.1	11.5	0.3
75um-300um	55.0	11.4	31.8	6.5	12.0	9.2
<75um	44.8	88.4	68.2	93.2	58.2	90.3
Clay and Silt	44.8	88.4	68.2	93.2	58.2	90.3
Sand	55.2	11.6	31.8	6.8	34.0	9.7
Gravel	0.0	0.0	0.0	0.0	7.8	0.0

Sample Info	23-981 <i>BH5 SS10</i>					
Sample Depth (m)	<i>10.68-11.13</i>					
Grain Size (%)						
>19mm	0.0					
9.5mm-19mm	6.7					
4.75mm-9.5mm	20.1					
1.18mm-4.75mm	24.7					
300um-1.18mm	14.2					
75um-300um	7.1					
<75um	27.2					
Clay and Silt	27.2					
Sand	46.0					
Gravel	26.8					

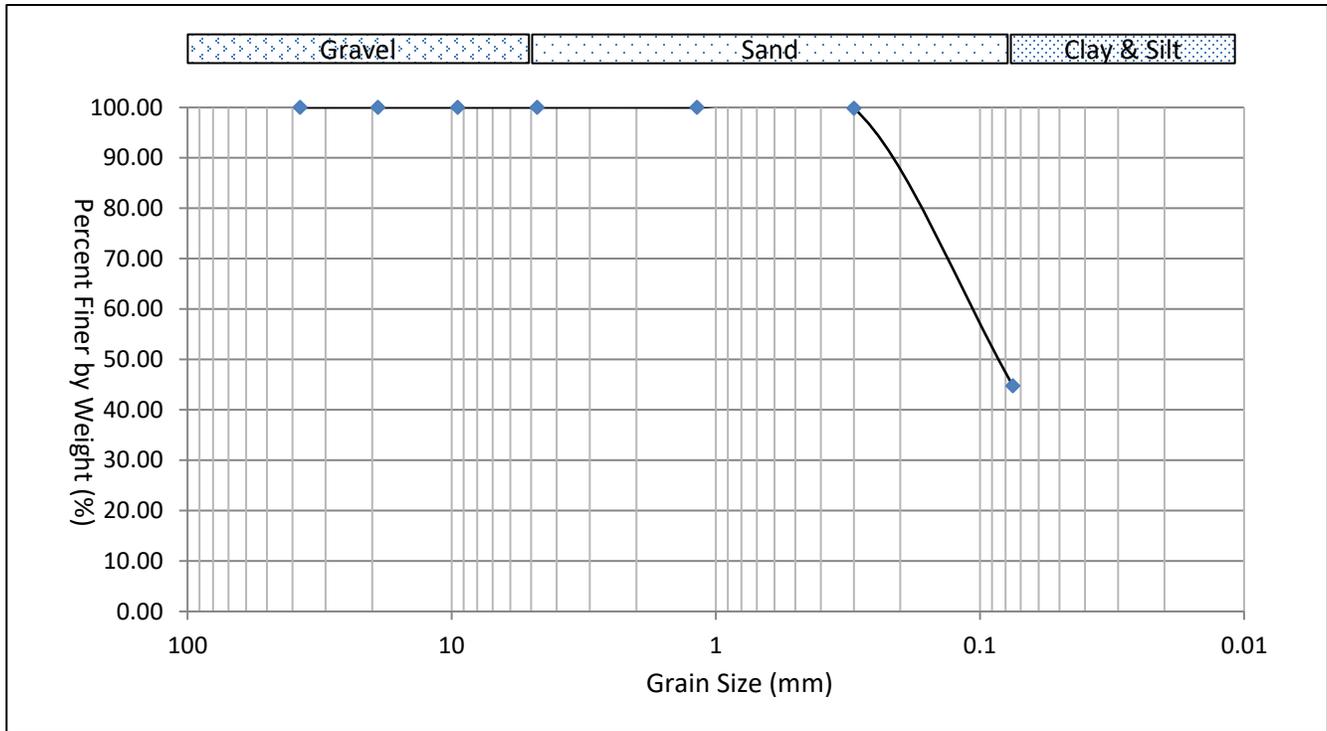
Grain Size Distribution

Sample ID: 23-972 BH1 SS3 (1.53-1.98m)

Gravel: 0%

Sand: 55.2%

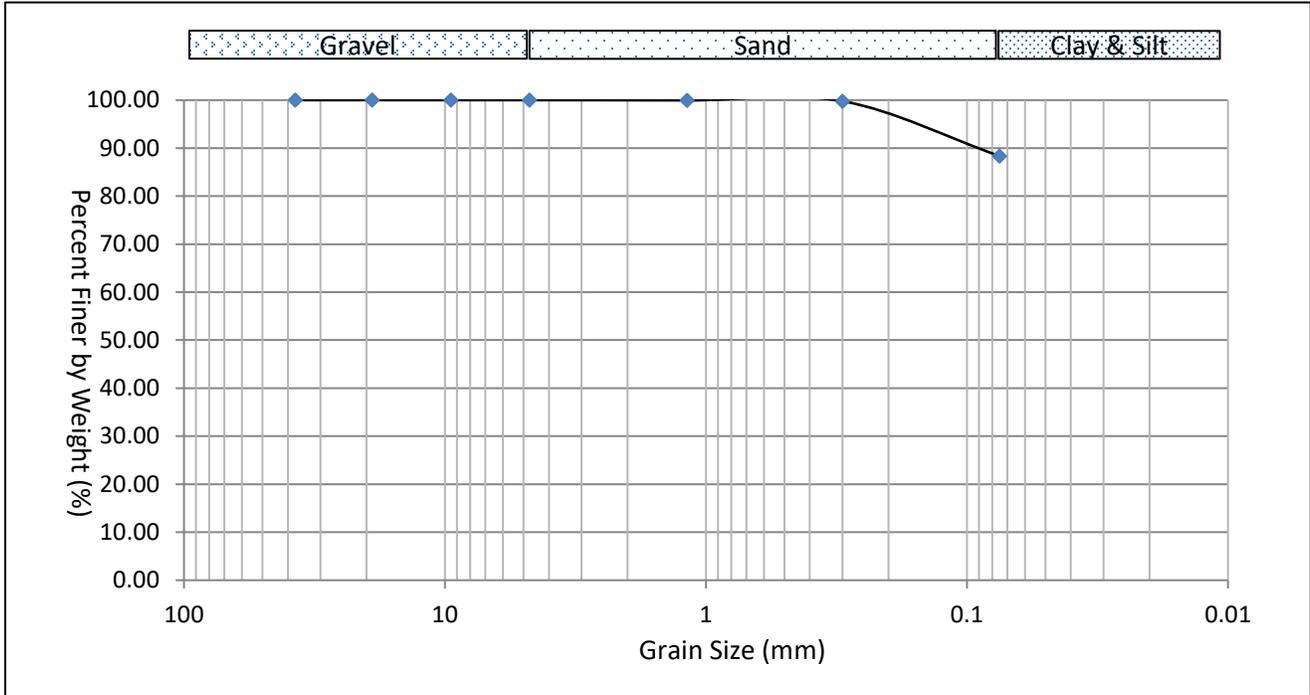
Clay and Silt: 44.8%



Grain Size Distribution

Sample ID: 23-973 BH1 SS6 (4.58-5.03m)

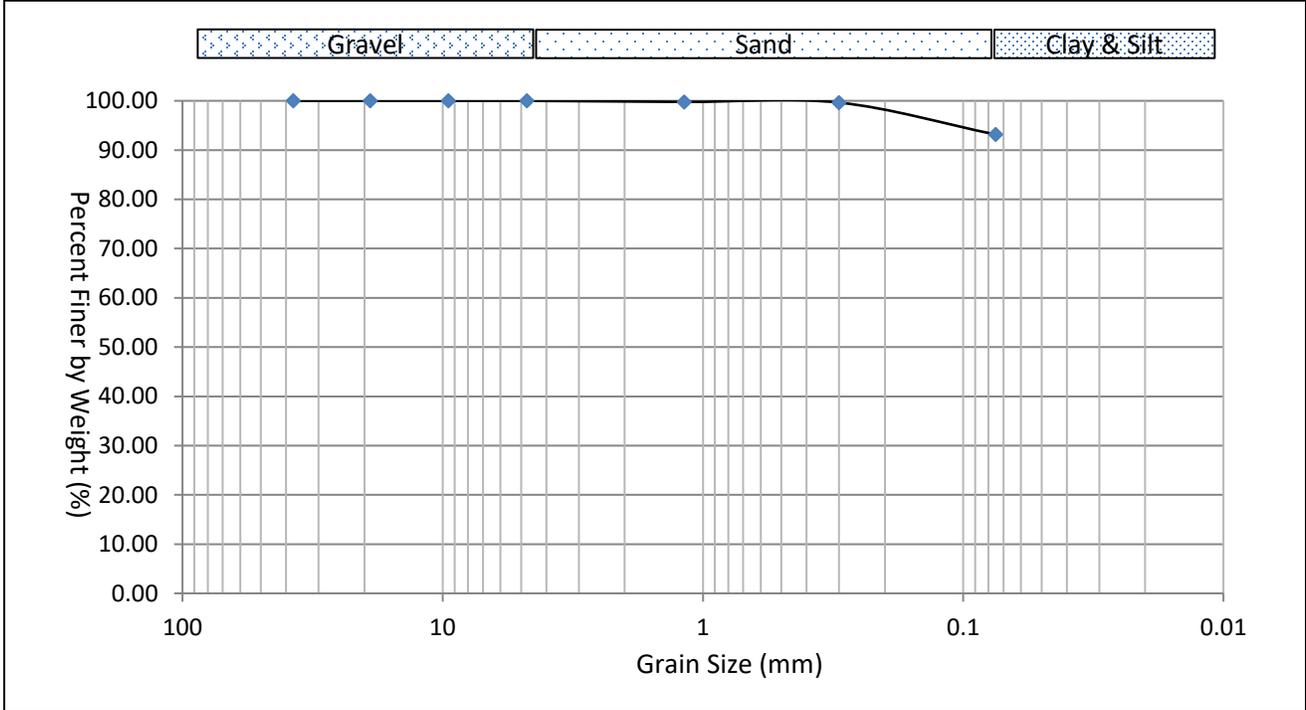
Gravel: 0% Sand: 11.6% Clay and Silt: 88.4%



Grain Size Distribution

Sample ID: 23-976 BH2 SS6 (4.58-5.03m)

Gravel: 0% Sand: 6.8% Clay and Silt: 93.2%



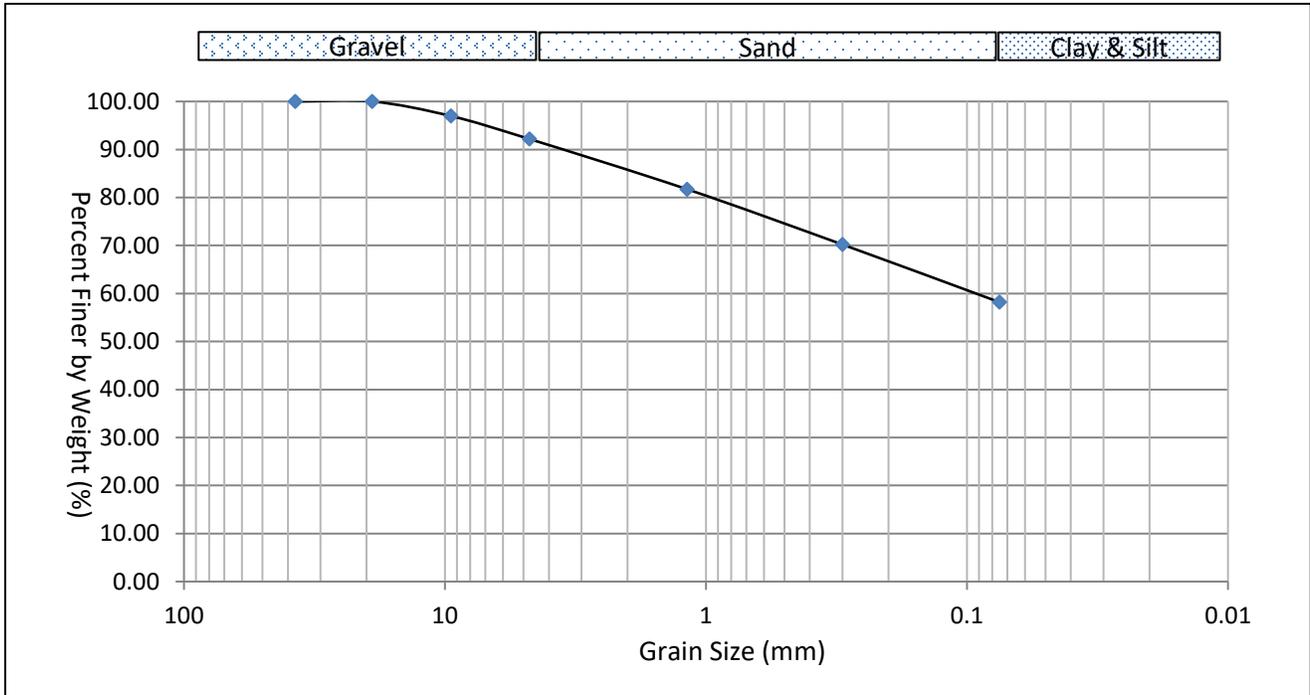
Grain Size Distribution

Sample ID: 23-978 BH2 SS10 B (10.82-11.13m)

Gravel: 7.8%

Sand: 34%

Clay and Silt: 58.2%



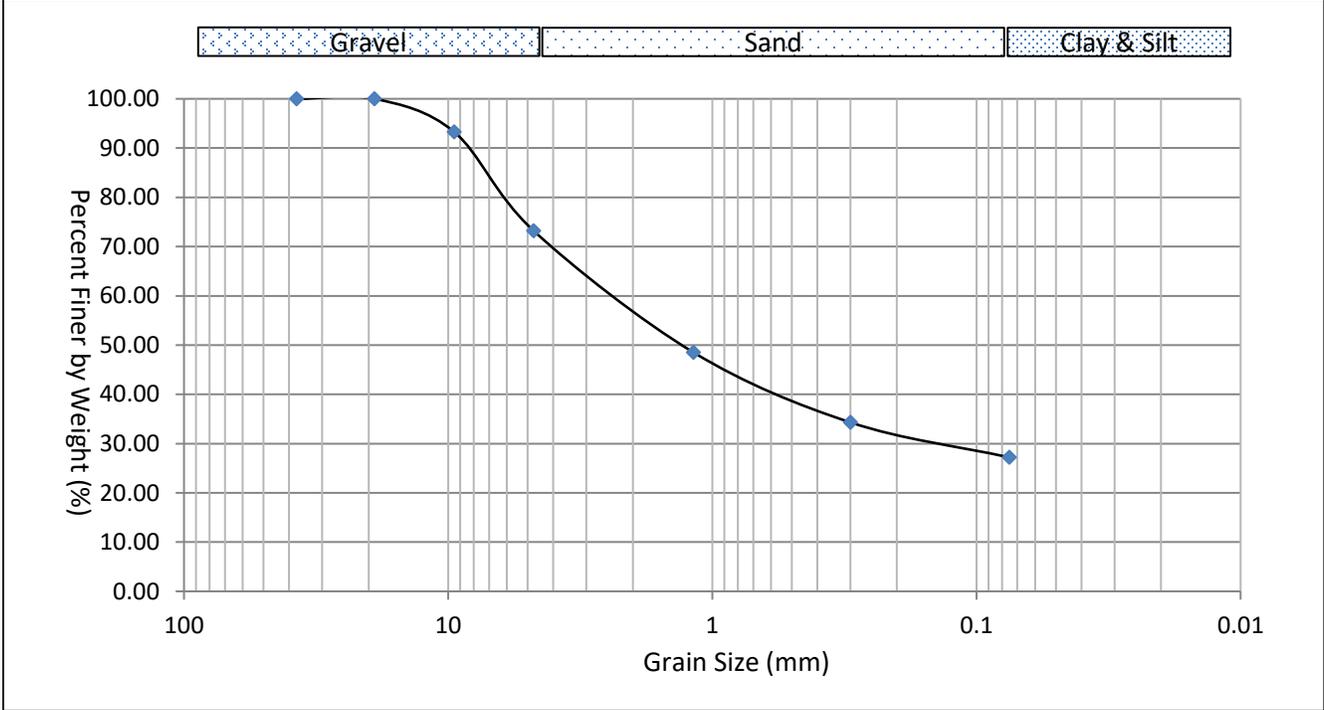
Grain Size Distribution

Sample ID: 23-981 BH5 SS10 (10.68-11.13m)

Gravel: 26.8%

Sand: 46%

Clay and Silt 27.2%



Certificate of Analysis

Analysis Requested:	Grain Size (Hydrometer)
Sample Description:	7 Soil Sample(s)

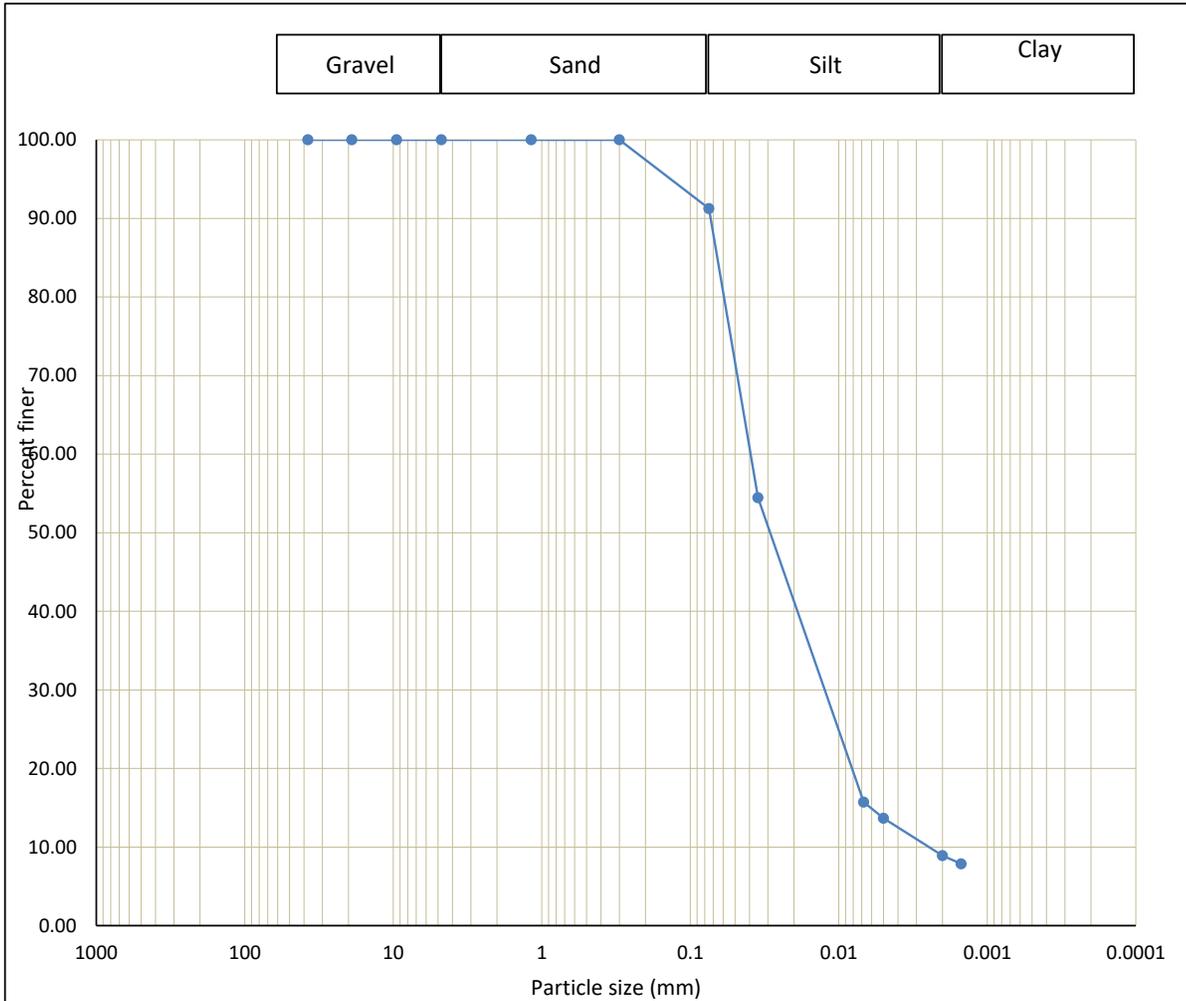
Sample Info	23-1053 <i>BH1 SS9</i>	23-974 <i>BH1 SS10</i>	23-977 <i>BH2 SS10 A</i>	23-1055 <i>BH3 SS10</i>	23-980 <i>BH5 SS6</i>	23-982 <i>TH1</i>
Sample Depth (m)	<i>9.15-9.61</i>	<i>10.68-11.13</i>	<i>10.68-10.82</i>	<i>10.68-11.13</i>	<i>4.58-5.03</i>	<i>1.53-1.98</i>
Grain Size (%)						
>19mm	0.0	0.0	0.0	0.0	0.0	0.0
9.5mm-19mm	0.0	3.8	1.8	2.3	0.0	0.5
4.75mm-9.5mm	0.0	6.8	2.6	1.3	0.0	1.4
1.18mm-4.75mm	0.0	8.0	11.0	1.8	0.2	0.8
300um-1.18mm	0.0	8.8	14.1	1.9	0.2	0.9
75um-300um	8.8	7.9	11.7	2.1	3.8	53.9
5um-75um	77.6	36.3	27.5	52.7	79.3	34.5
2um-5um	4.8	9.9	11.0	14.3	5.9	2.0
<2um	8.9	18.7	20.3	23.6	10.7	5.8
Clay	8.9	18.7	20.3	23.6	10.7	5.8
Silt	82.3	46.2	38.5	67.0	85.2	36.5
Sand	8.8	24.6	36.8	5.9	4.1	55.7
Gravel	0.0	10.6	4.4	3.6	0.0	1.9

Sample Info	23-983 <i>TH2</i>					
Sample Depth (m)	<i>1.53-1.98</i>					
Grain Size (%)						
>19mm	0.0					
9.5mm-19mm	13.1					
4.75mm-9.5mm	5.5					
1.18mm-4.75mm	6.7					
300um-1.18mm	7.8					
75um-300um	12.2					
5um-75um	25.7					
2um-5um	6.3					
<2um	22.7					
Clay	22.7					
Silt	31.9					
Sand	26.7					
Gravel	18.6					

Grain Size Distribution

Sample ID: 23-1053 BH1 SS9 (9.15-9.61m)

Gravel: 0% Sand: 8.8% Silt: 82.3% Clay: 8.9%

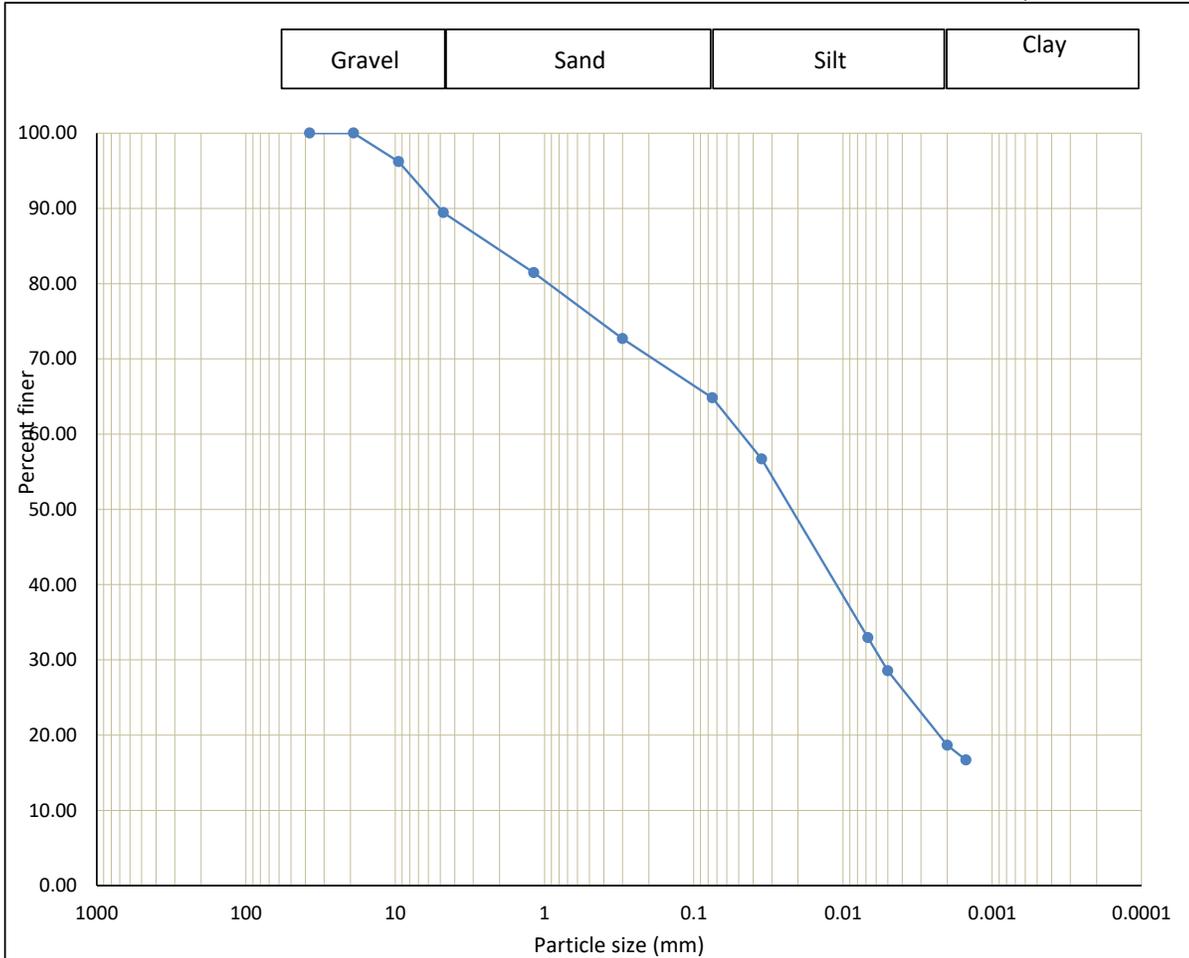


Sample ID: 23-1053 BH1 SS9 (9.15-9.61m)		
<i>Diameter</i>	<i>Weight (%)</i>	<i>Grain Size</i>
>4.75mm	0.0	Gravel
1.18mm-4.75mm	0.0	Coarse Sand
300um-1.18mm	0.0	Medium Sand
75um-300um	8.8	Fine Sand
5um-75um	77.6	Silt
2um-5um	4.8	
<2um	8.9	Clay

Grain Size Distribution

Sample ID: 23-974 BH1 SS10 (10.68-11.13m)

Gravel: 10.6% Sand: 24.6% Silt: 46.2% Clay: 18.7%

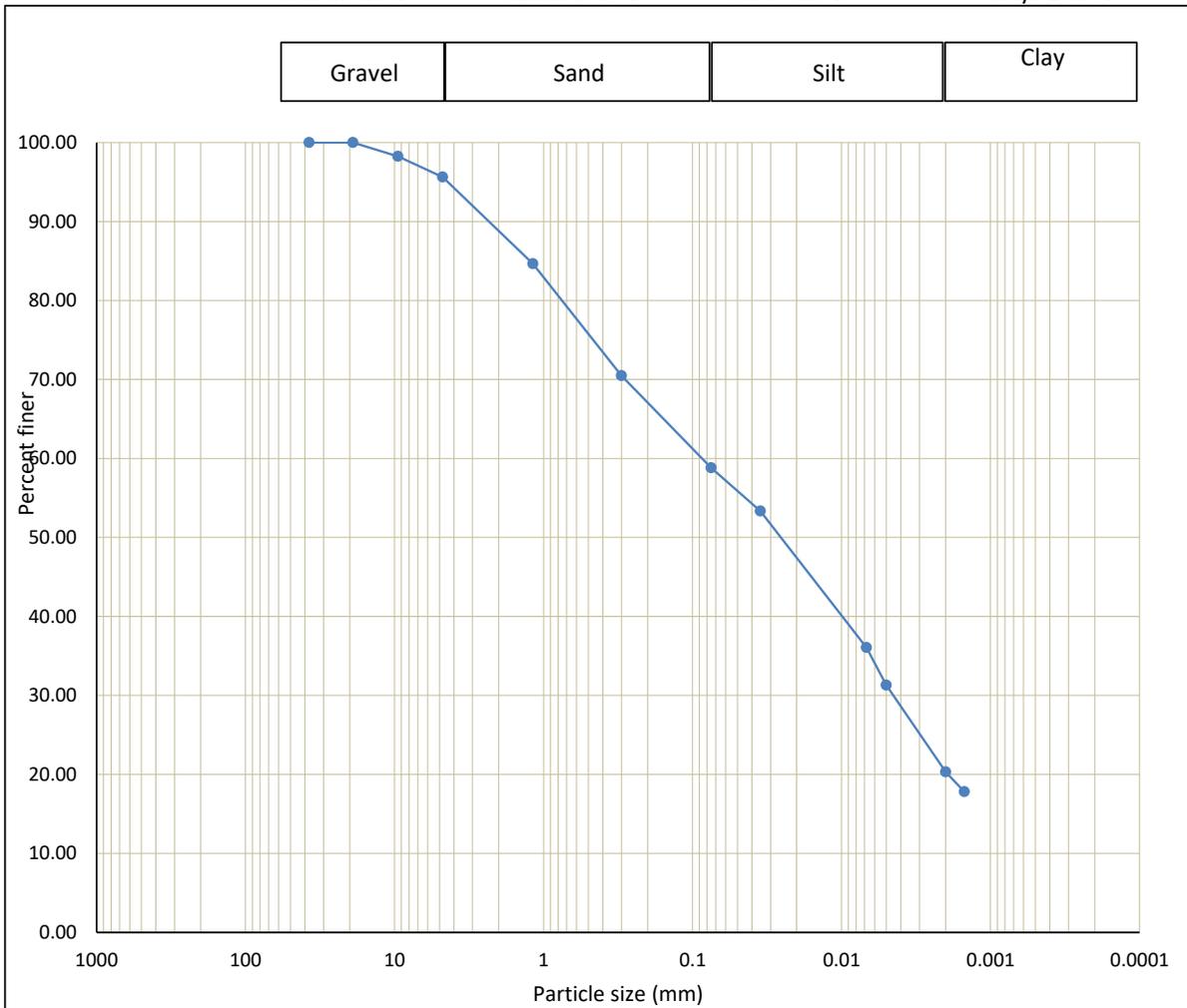


Sample ID: 23-974 BH1 SS10 (10.68-11.13m)		
<i>Diameter</i>	<i>Weight (%)</i>	<i>Grain Size</i>
>4.75mm	10.6	Gravel
1.18mm-4.75mm	8.0	Coarse Sand
300um-1.18mm	8.8	Medium Sand
75um-300um	7.9	Fine Sand
5um-75um	36.3	Silt
2um-5um	9.9	
<2um	18.7	Clay

Grain Size Distribution

Sample ID: 23-977 BH2 SS10 A (10.68-10.82m)

Gravel: 4.4% Sand: 36.8% Silt: 38.5% Clay: 20.3%

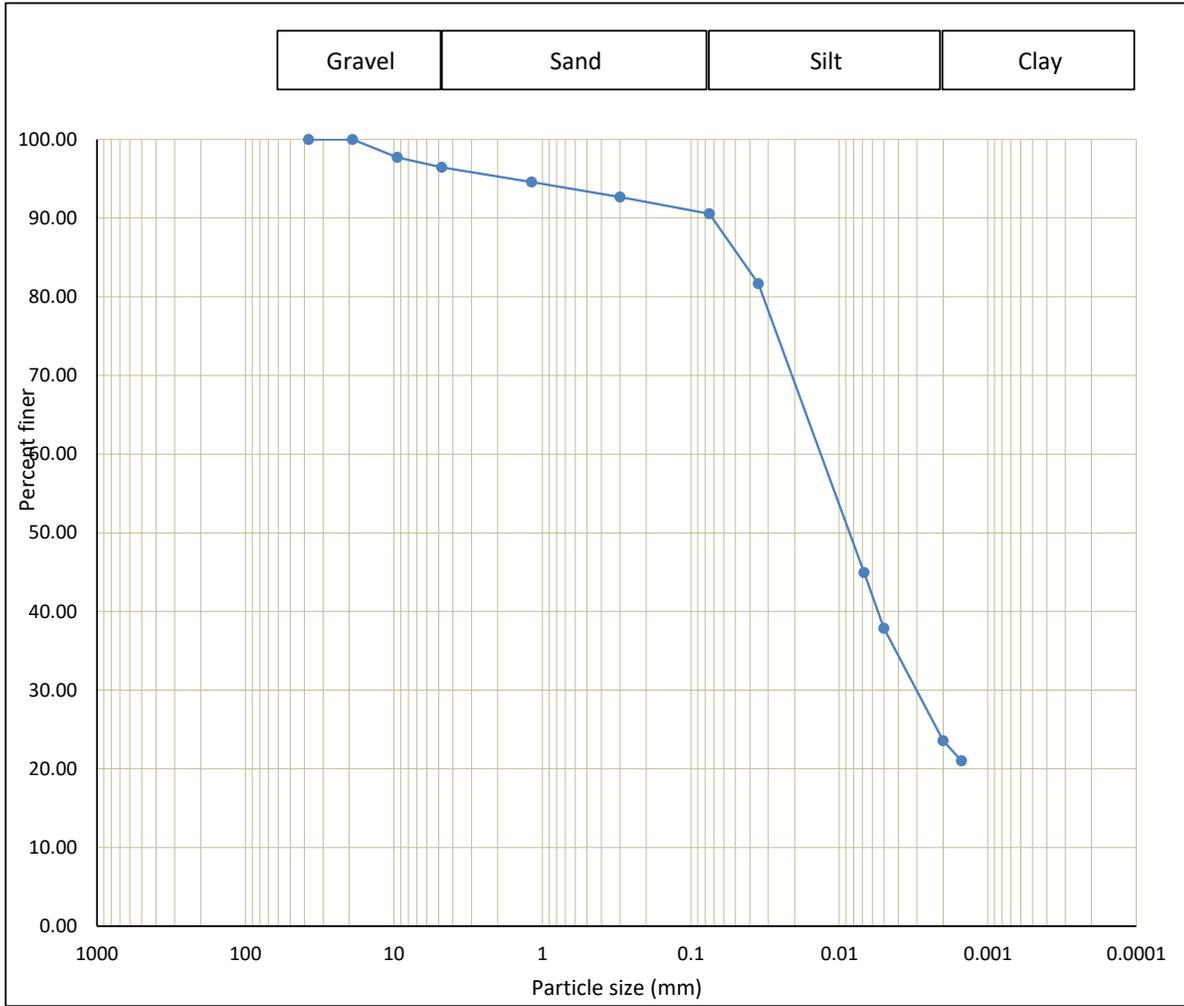


Sample ID: 23-977 BH2 SS10 A (10.68-10.82m)		
<i>Diameter</i>	<i>Weight (%)</i>	<i>Grain Size</i>
>4.75mm	4.4	Gravel
1.18mm-4.75mm	11.0	Coarse Sand
300um-1.18mm	14.1	Medium Sand
75um-300um	11.7	Fine Sand
5um-75um	27.5	Silt
2um-5um	11.0	
<2um	20.3	Clay

Grain Size Distribution

Sample ID: 23-1055 BH3 SS10 (10.68-11.13m)

Gravel: 3.6% Sand: 5.9% Silt: 67% Clay: 23.6%

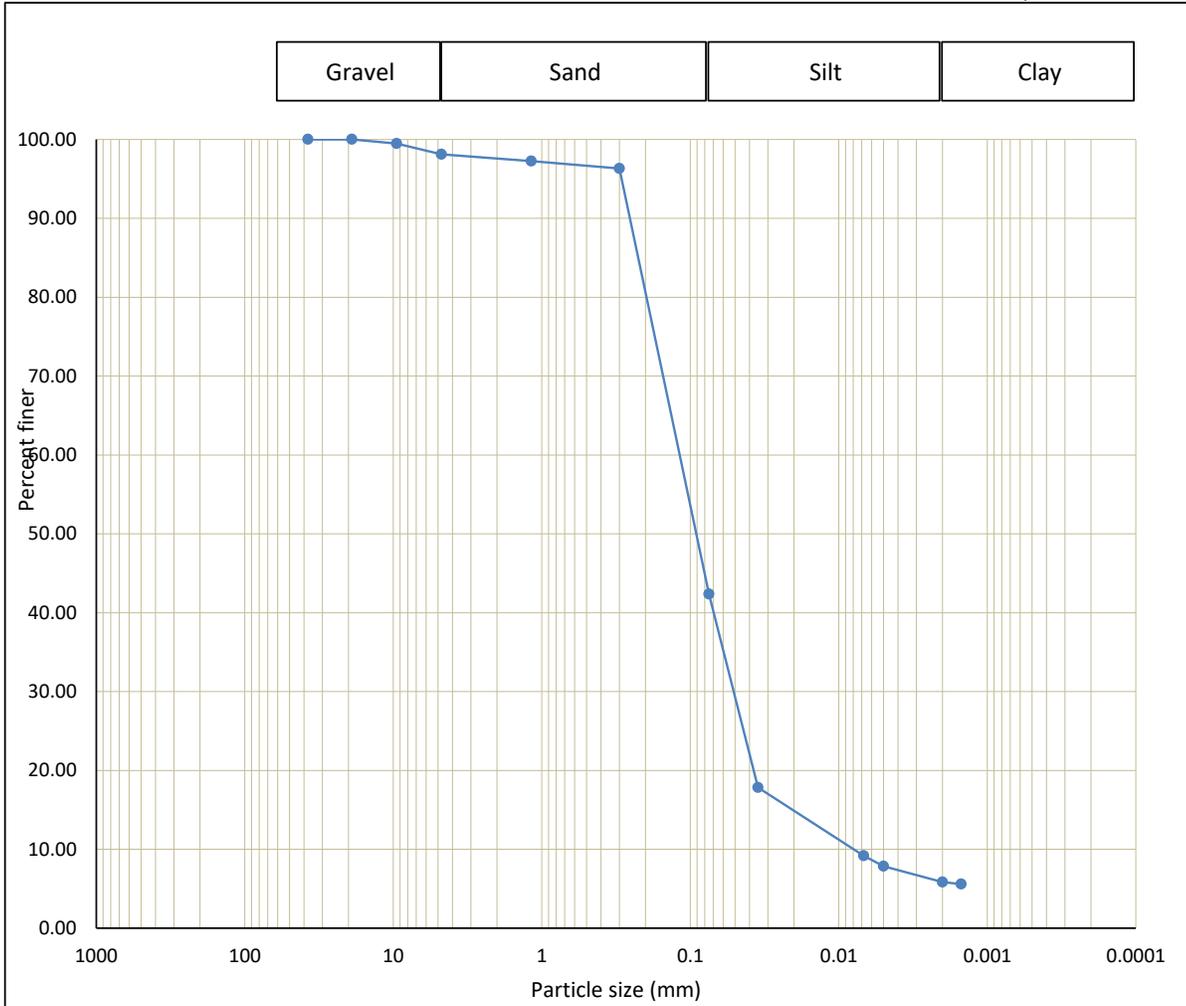


Sample ID: 23-1055 BH3 SS10 (10.68-11.13m)		
<i>Diameter</i>	<i>Weight (%)</i>	<i>Grain Size</i>
>4.75mm	3.6	Gravel
1.18mm-4.75mm	1.8	Coarse Sand
300um-1.18mm	1.9	Medium Sand
75um-300um	2.1	Fine Sand
5um-75um	52.7	Silt
2um-5um	14.3	
<2um	23.6	Clay

Grain Size Distribution

Sample ID: 23-982 TH1 (1.53-1.98m)

Gravel: 1.9% Sand: 55.7% Silt: 36.5% Clay: 5.8%

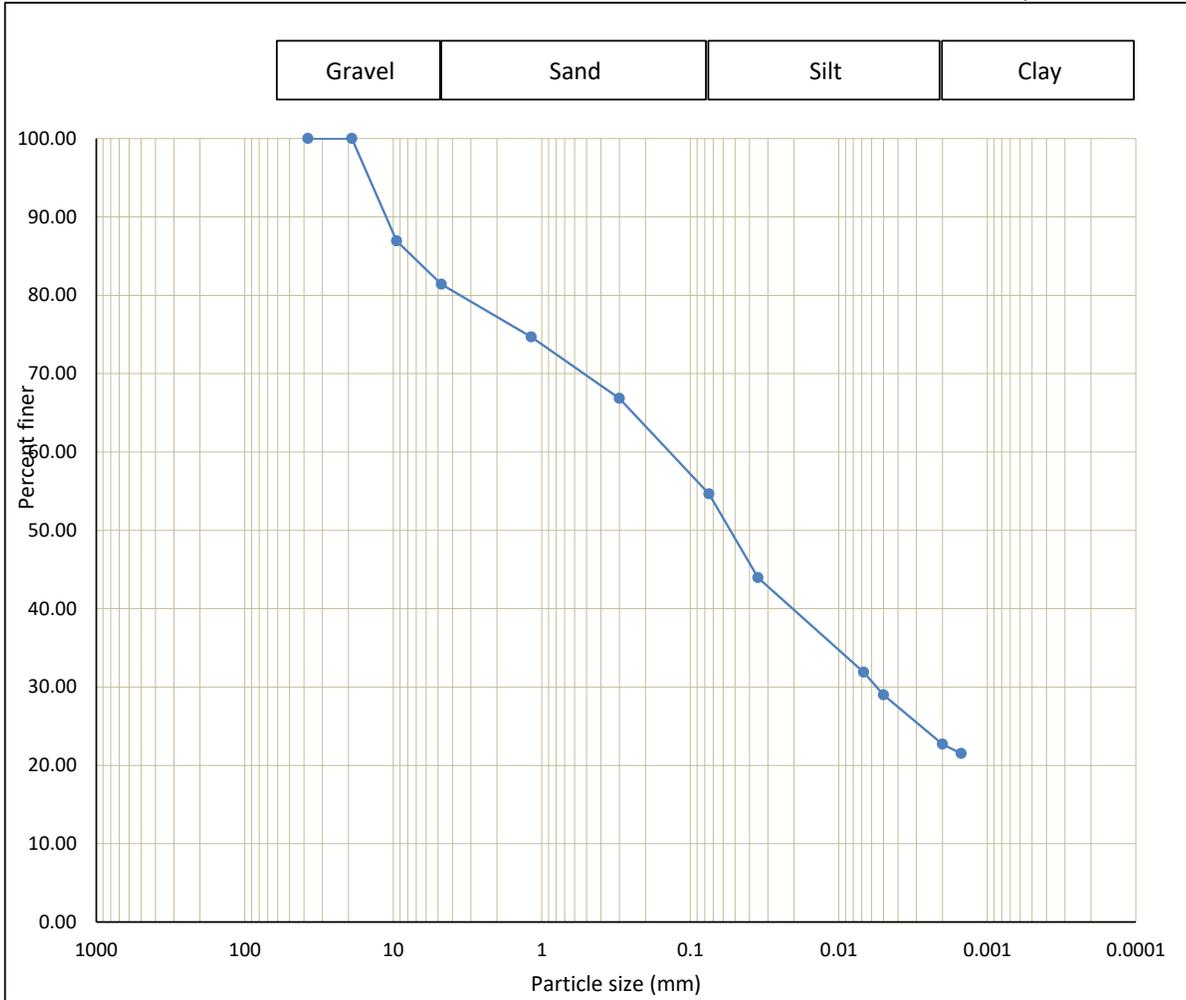


Sample ID: 23-982 TH1 (1.53-1.98m)		
<i>Diameter</i>	<i>Weight (%)</i>	<i>Grain Size</i>
>4.75mm	1.9	Gravel
1.18mm-4.75mm	0.8	Coarse Sand
300um-1.18mm	0.9	Medium Sand
75um-300um	53.9	Fine Sand
5um-75um	34.5	Silt
2um-5um	2.0	
<2um	5.8	Clay

Grain Size Distribution

Sample ID: 23-983 TH2 (1.53-1.98m)

Gravel: 18.6% Sand: 26.7% Silt: 31.9% Clay: 22.7%



Sample ID: 23-983 TH2 (1.53-1.98m)		
<i>Diameter</i>	<i>Weight (%)</i>	<i>Grain Size</i>
>4.75mm	18.6	Gravel
1.18mm-4.75mm	6.7	Coarse Sand
300um-1.18mm	7.8	Medium Sand
75um-300um	12.2	Fine Sand
5um-75um	25.7	Silt
2um-5um	6.3	
<2um	22.7	Clay



Project Name: Hydrogeological Investigation

F.E. Lab #: 24-598

Client: 1000570027 Ontario Inc.

Date Sampled: 3-Sep-2024

Project ID: 24-14065

Date Received: 5-Sep-2024

Location: 900 Lakeshore Road,
Mississauga, Ontario

Date Reported: 23-Sep-2024

Certificate of Analysis

Analyses	Matrix	Quantity	Testing Date	Method Reference
Moisture Content	Soil	20	05-Sep-24	ASTM D2216
Grain Size (Sieve Analysis)	Soil	0	N.A.	LS-602
Grain Size (Hydrometer)	Soil	10	09-Sep-24	LS-702
Compressive test on rock core	Soil	1	16-Sep-24	ASTM D7012

Authorized by:

Behnam Sayad Pour Zanjani
Geo-Lab Supervisor

400 Esna Park Drive, Unit 15, Markham, ON L3R 3K2
Tel:(905) 475-7755 www.fishereng.com

Certificate of Analysis

Analysis Requested: Moisture Content	Sample Description: 20 Soil Sample(s)
---------------------------------------------	----------------------------------------------

Sample Info	BH101 SS2	BH101 SS3	BH101 SS4	BH101 SS5	BH101 SS6	BH101 SS7
Sample Depth (m)	0.76-1.22	1.53-1.98	2.29-2.75	3.05-3.51	4.58-5.03	6.1-6.56
Moisture Content (%)	11.6	12.5	11.0	21.0	12.7	13.4

Sample Info	BH101 SS8	BH101 SS9 A	BH101 SS9 B	BH101 SS10	BH101 SS11	BH103 SS2
Sample Depth (m)	7.63-8.08	9.15-9.46	9.46-9.61	9.91-10.37	10.68-11.13	0.76-1.22
Moisture Content (%)	13.7	16.2	12.6	7.4	7.8	12.0

Sample Info	BH103 SS3	BH103 SS4	BH103 SS5	BH103 SS6	BH103 SS7	BH103 SS8
Sample Depth (m)	1.53-1.98	2.29-2.75	3.05-3.51	4.58-5.03	6.1-6.56	7.63-8.08
Moisture Content (%)	10.4	11.9	12.8	11.3	13.3	21.2

Sample Info	BH103 SS9	BH103 SS10				
Sample Depth (m)	9.15-9.61	10.68-11.13				
Moisture Content (%)	12.8	6.4				

Certificate of Analysis

Analysis Requested:	Grain Size (Hydrometer)
Sample Description:	10 Soil Sample(s)

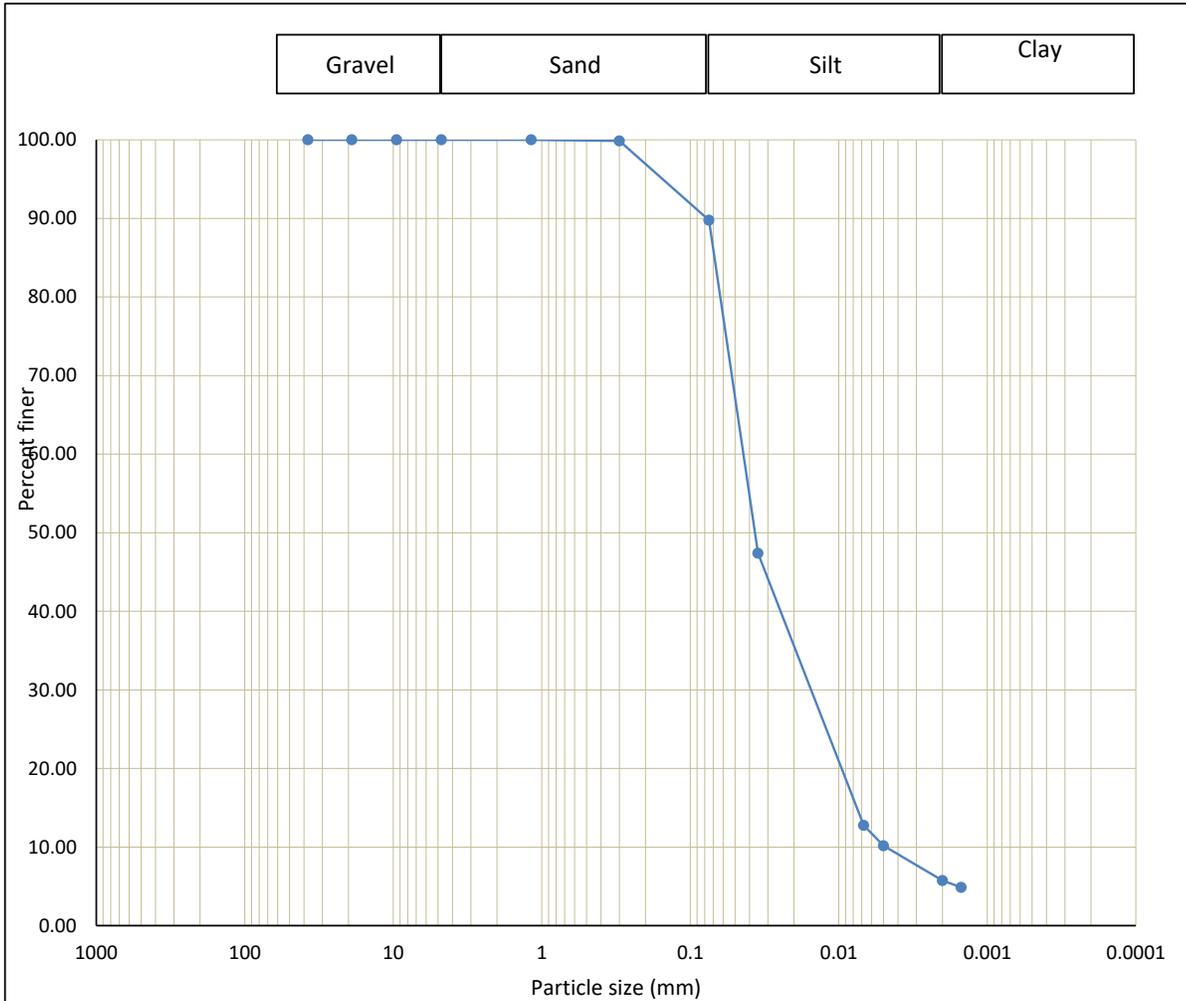
Sample Info	24-599 <i>BH101 SS6</i>	24-600 <i>BH101 SS8</i>	24-601 <i>BH101 SS9 A</i>	24-602 <i>BH101 SS9 B</i>	24-603 <i>BH101 SS10</i>	24-604 <i>BH101 SS11</i>
Sample Depth (m)	<i>4.58-5.03</i>	<i>7.63-8.08</i>	<i>9.15-9.46</i>	<i>9.46-9.61</i>	<i>9.91-10.37</i>	<i>10.68-11.13</i>
Grain Size (%)						
>19mm	0.0	0.0	0.0	0.0	0.0	0.0
9.5mm-19mm	0.0	0.0	0.0	2.6	11.6	3.5
4.75mm-9.5mm	0.0	0.0	4.4	5.4	4.9	6.5
1.18mm-4.75mm	0.0	0.0	10.3	12.3	9.8	11.7
300um-1.18mm	0.1	0.1	9.7	13.5	10.3	11.0
75um-300um	10.1	10.0	8.8	10.7	10.7	11.3
5um-75um	79.6	82.3	35.3	29.2	27.3	31.7
2um-5um	4.4	3.1	10.8	10.8	9.7	9.7
<2um	5.7	4.5	20.7	15.5	15.8	14.6
Clay	5.7	4.5	20.7	15.5	15.8	14.6
Silt	84.0	85.4	46.1	40.0	37.0	41.4
Sand	10.2	10.1	28.8	36.5	30.8	34.0
Gravel	0.0	0.0	4.4	8.0	16.4	9.9

Sample Info	24-605 <i>BH103 SS6</i>	24-606 <i>BH103 SS8</i>	24-607 <i>BH103 SS9</i>	24-608 <i>BH103 SS10</i>		
Sample Depth (m)	<i>4.58-5.03</i>	<i>7.63-8.08</i>	<i>9.15-9.61</i>	<i>10.68-11.13</i>		
Grain Size (%)						
>19mm	0.0	0.0	8.6	0.0		
9.5mm-19mm	0.0	0.0	0.7	2.7		
4.75mm-9.5mm	0.0	1.6	8.4	5.1		
1.18mm-4.75mm	0.0	2.9	6.8	15.7		
300um-1.18mm	0.1	3.5	5.8	15.6		
75um-300um	6.0	4.7	4.2	3.7		
5um-75um	82.6	79.6	28.8	32.4		
2um-5um	4.7	3.0	11.3	8.0		
<2um	6.6	4.7	25.3	16.7		
Clay	6.6	4.7	25.3	16.7		
Silt	87.3	82.6	40.1	40.4		
Sand	6.1	11.1	16.8	35.1		
Gravel	0.0	1.6	17.7	7.8		

Grain Size Distribution

Sample ID: 24-599 BH101 SS6 (4.58-5.03m)

Gravel: 0% Sand: 10.2% Silt: 84% Clay: 5.7%

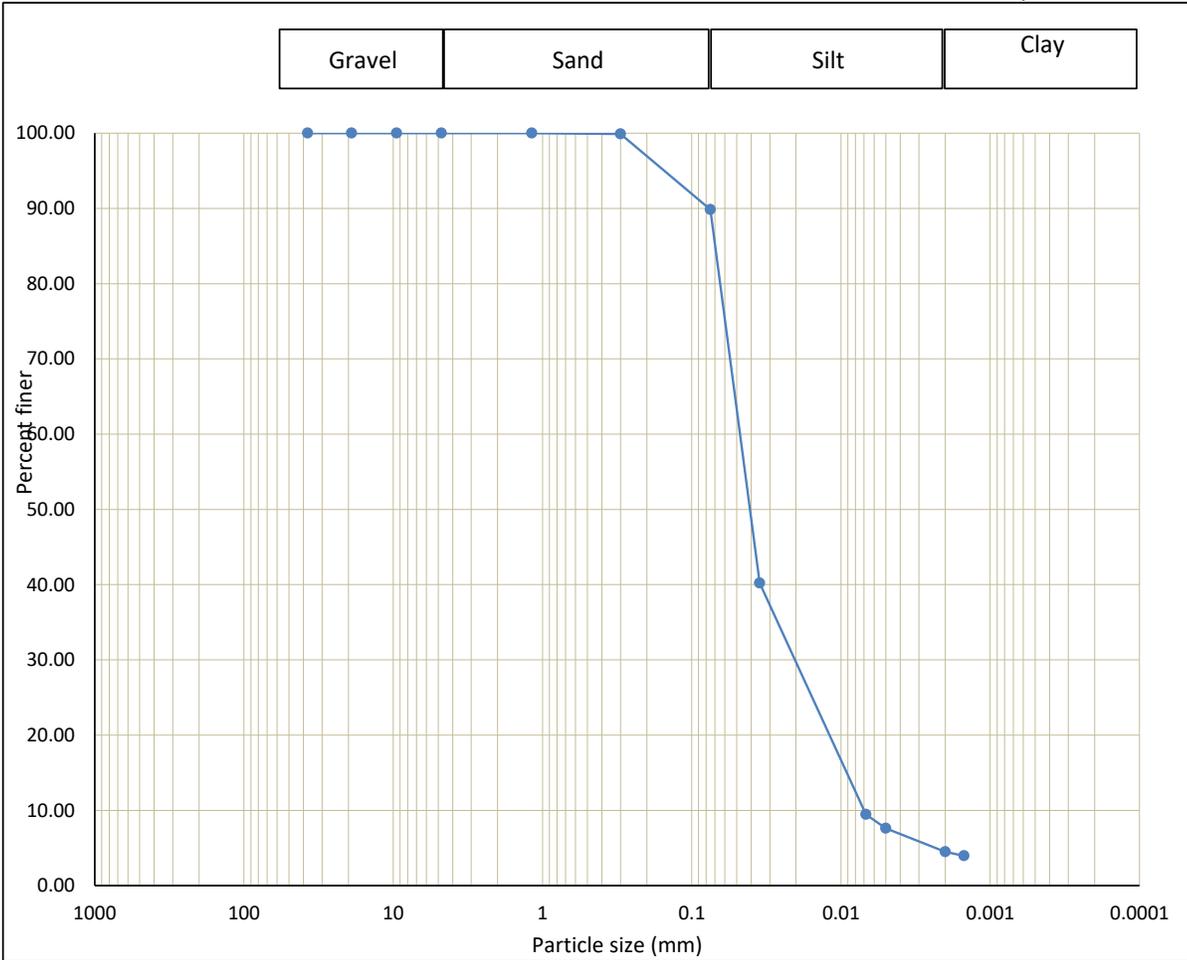


Sample ID: 24-599 BH101 SS6 (4.58-5.03m)		
<i>Diameter</i>	<i>Weight (%)</i>	<i>Grain Size</i>
>4.75mm	0.0	Gravel
1.18mm-4.75mm	0.0	Coarse Sand
300um-1.18mm	0.1	Medium Sand
75um-300um	10.1	Fine Sand
5um-75um	79.6	Silt
2um-5um	4.4	
<2um	5.7	Clay

Grain Size Distribution

Sample ID: 24-600 BH101 SS8 (7.63-8.08m)

Gravel: 0% Sand: 10.1% Silt: 85.4% Clay: 4.5%

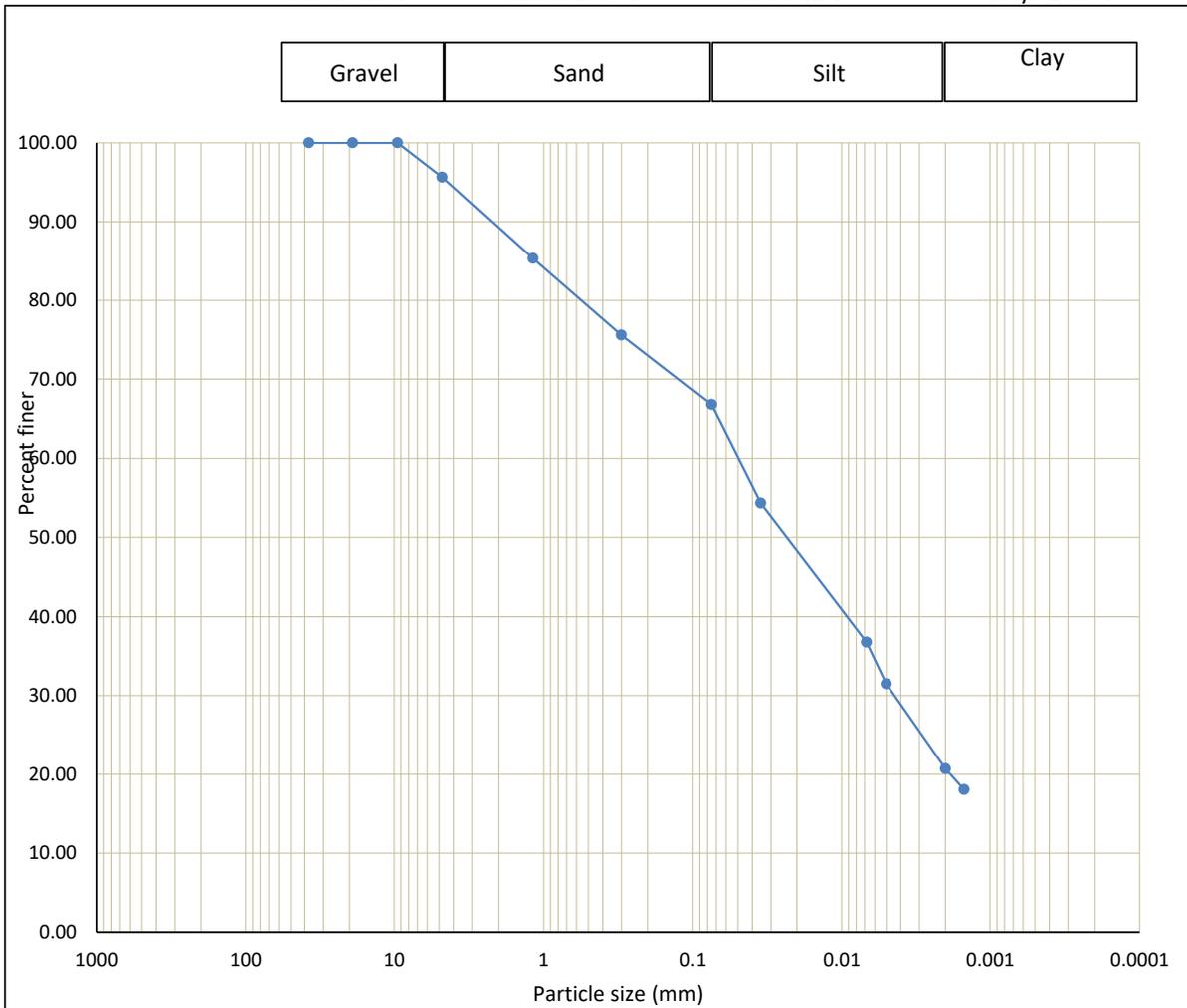


Sample ID: 24-600 BH101 SS8 (7.63-8.08m)		
<i>Diameter</i>	<i>Weight (%)</i>	<i>Grain Size</i>
>4.75mm	0.0	Gravel
1.18mm-4.75mm	0.0	Coarse Sand
300um-1.18mm	0.1	Medium Sand
75um-300um	10.0	Fine Sand
5um-75um	82.3	Silt
2um-5um	3.1	
<2um	4.5	Clay

Grain Size Distribution

Sample ID: 24-601 BH101 SS9 A (9.15-9.46m)

Gravel: 4.4% Sand: 28.8% Silt: 46.1% Clay: 20.7%

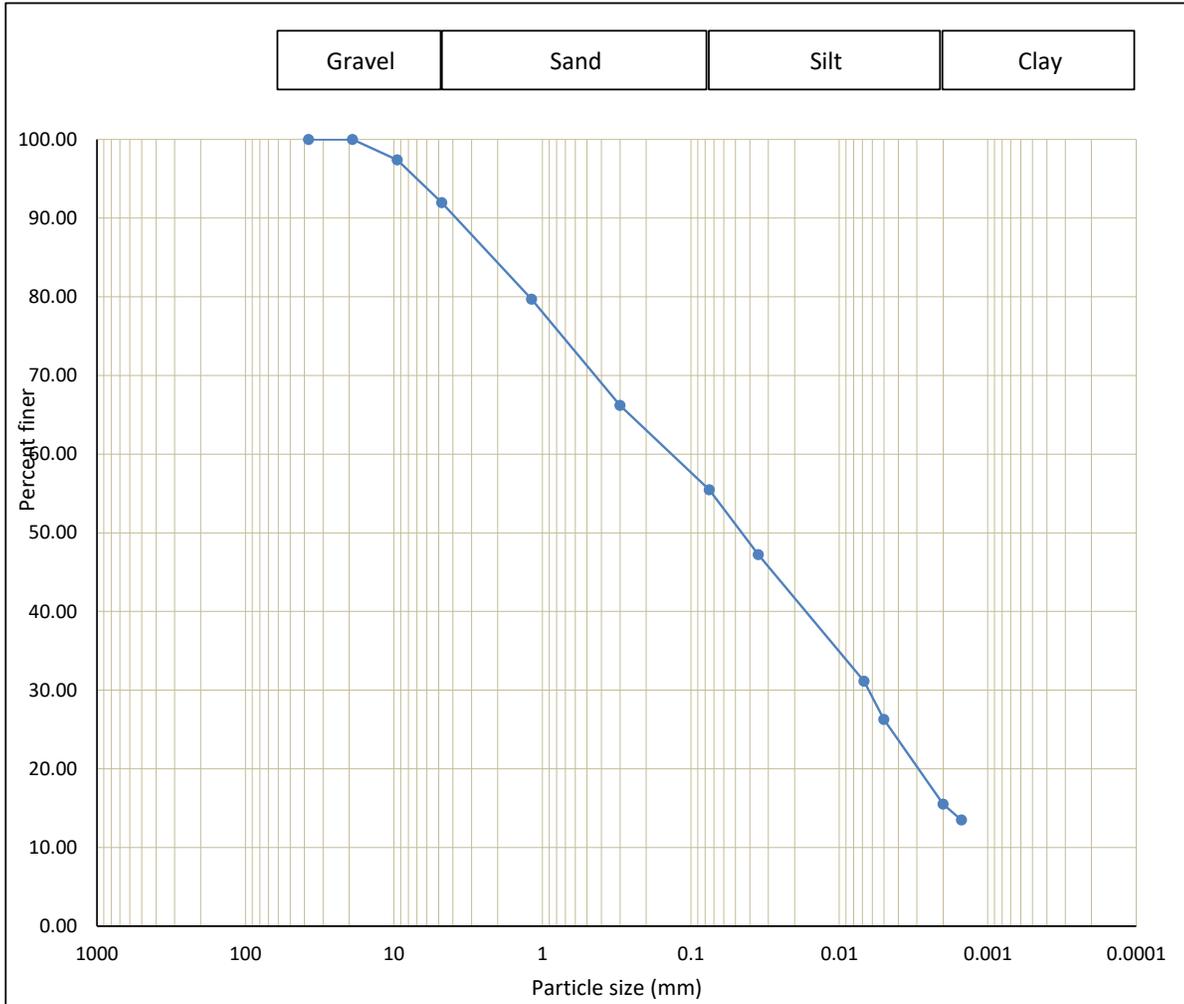


Sample ID: 24-601 BH101 SS9 A (9.15-9.46m)		
<i>Diameter</i>	<i>Weight (%)</i>	<i>Grain Size</i>
>4.75mm	4.4	Gravel
1.18mm-4.75mm	10.3	Coarse Sand
300um-1.18mm	9.7	Medium Sand
75um-300um	8.8	Fine Sand
5um-75um	35.3	Silt
2um-5um	10.8	
<2um	20.7	Clay

Grain Size Distribution

Sample ID: 24-602 BH101 SS9 B (9.46-9.61m)

Gravel: 8% Sand: 36.5% Silt: 40% Clay: 15.5%

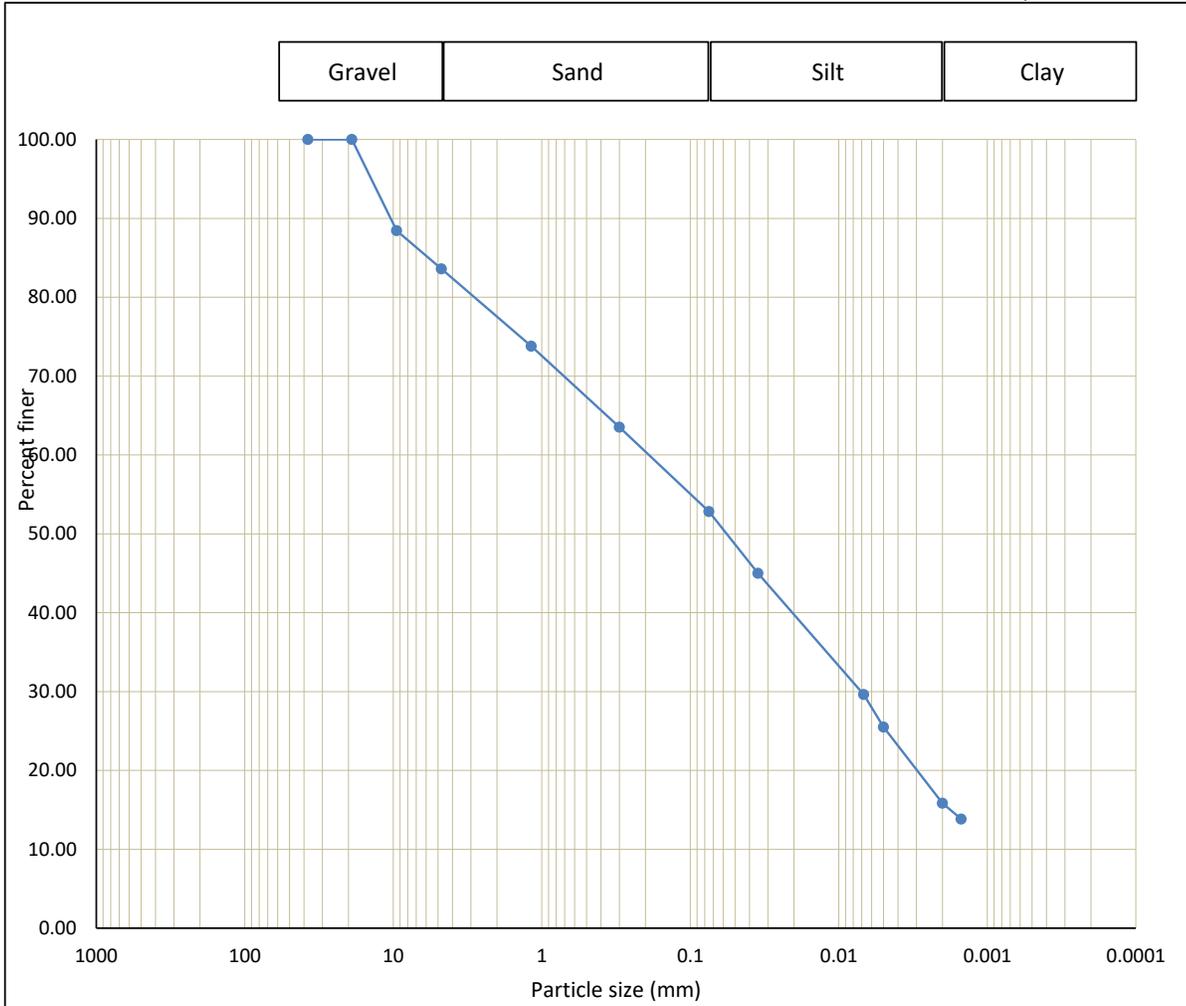


Sample ID: 24-602 BH101 SS9 B (9.46-9.61m)		
<i>Diameter</i>	<i>Weight (%)</i>	<i>Grain Size</i>
>4.75mm	8.0	Gravel
1.18mm-4.75mm	12.3	Coarse Sand
300um-1.18mm	13.5	Medium Sand
75um-300um	10.7	Fine Sand
5um-75um	29.2	Silt
2um-5um	10.8	
<2um	15.5	Clay

Grain Size Distribution

Sample ID: 24-603 BH101 SS10 (9.91-10.37m)

Gravel: 16.4% Sand: 30.8% Silt: 37% Clay: 15.8%

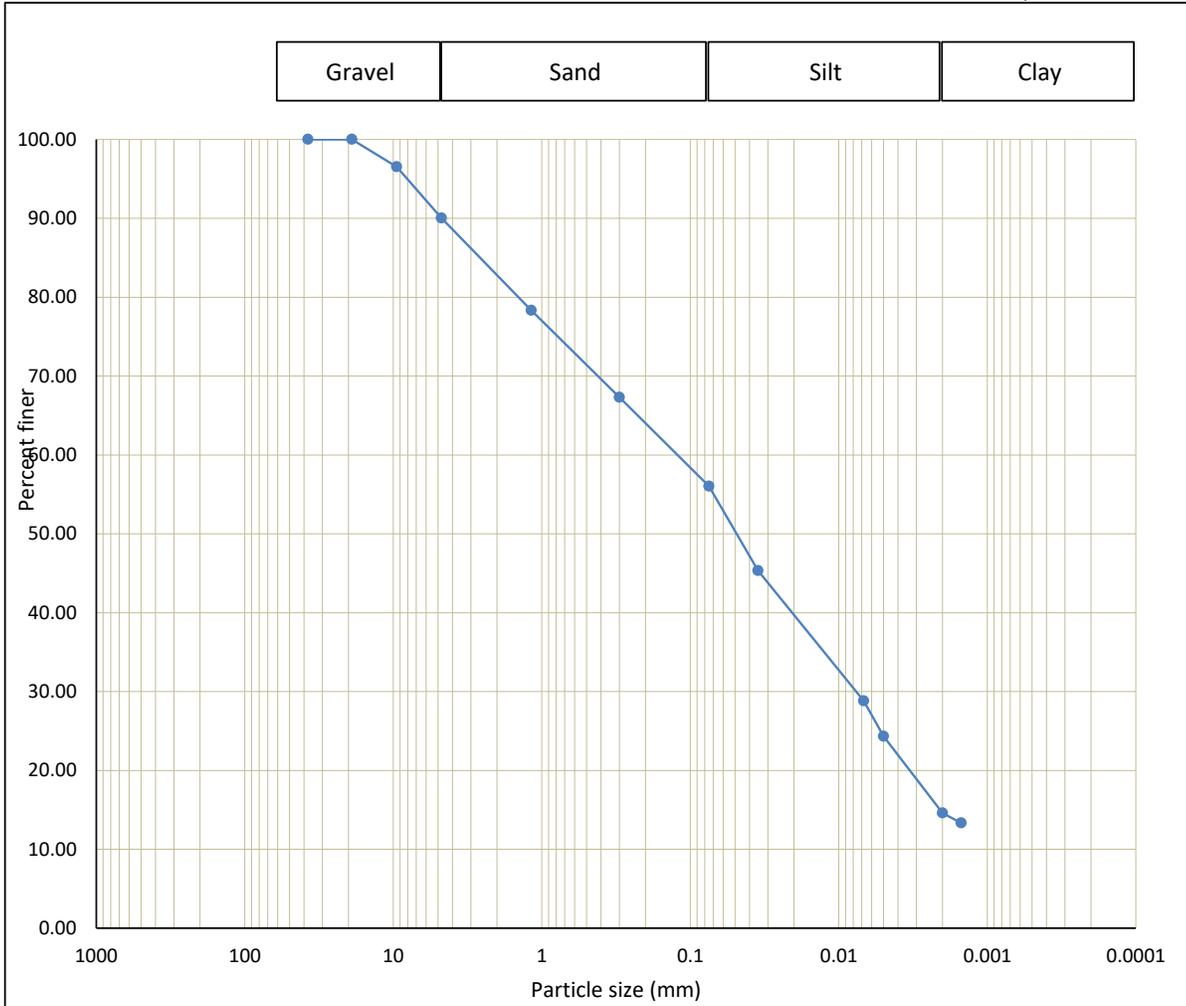


Sample ID: 24-603 BH101 SS10 (9.91-10.37m)		
<i>Diameter</i>	<i>Weight (%)</i>	<i>Grain Size</i>
>4.75mm	16.4	Gravel
1.18mm-4.75mm	9.8	Coarse Sand
300um-1.18mm	10.3	Medium Sand
75um-300um	10.7	Fine Sand
5um-75um	27.3	Silt
2um-5um	9.7	
<2um	15.8	Clay

Grain Size Distribution

Sample ID: 24-604 BH101 SS11 (10.68-11.13m)

Gravel: 9.9% Sand: 34% Silt: 41.4% Clay: 14.6%

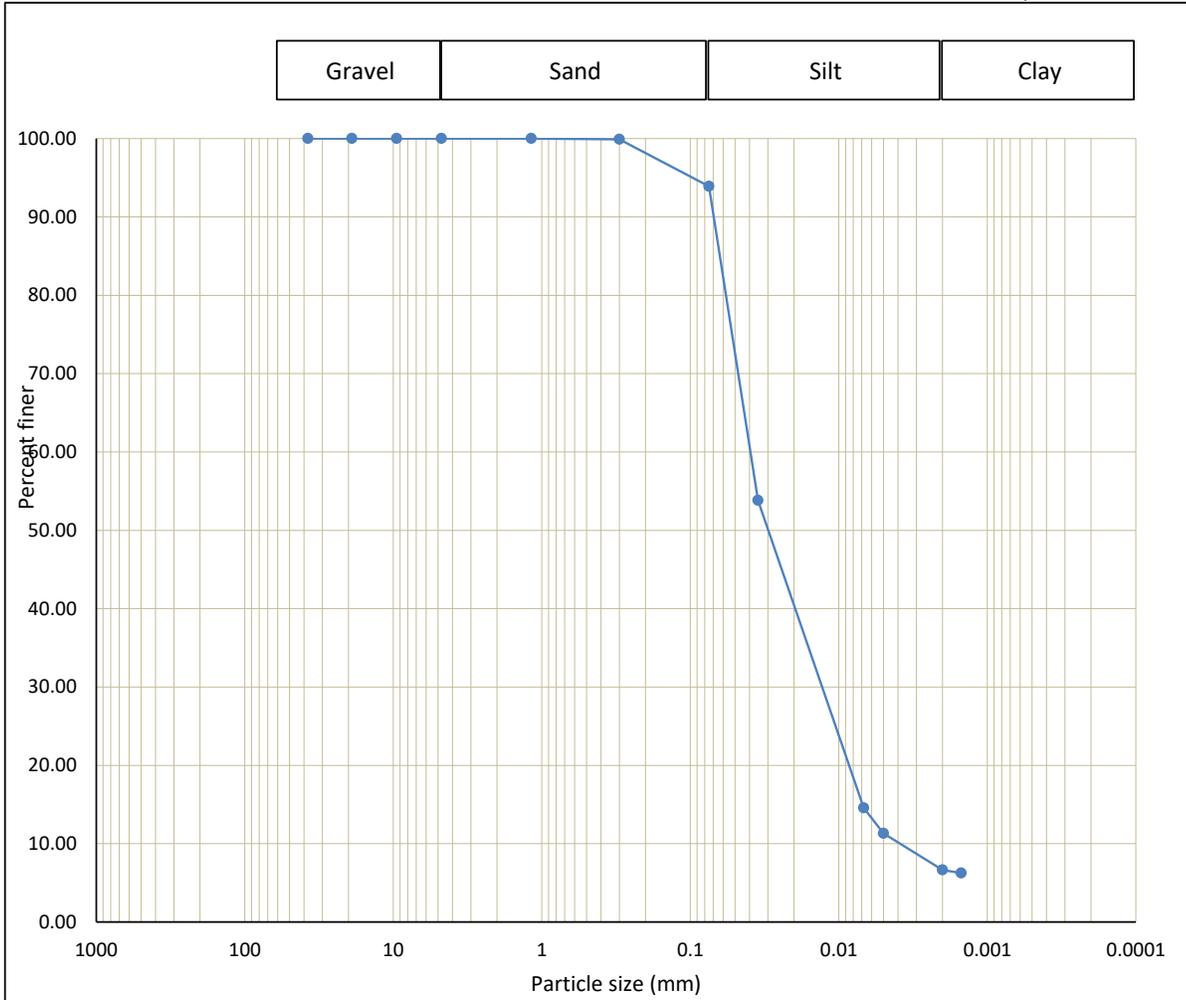


Sample ID: 24-604 BH101 SS11 (10.68-11.13m)		
<i>Diameter</i>	<i>Weight (%)</i>	<i>Grain Size</i>
>4.75mm	9.9	Gravel
1.18mm-4.75mm	11.7	Coarse Sand
300um-1.18mm	11.0	Medium Sand
75um-300um	11.3	Fine Sand
5um-75um	31.7	Silt
2um-5um	9.7	
<2um	14.6	Clay

Grain Size Distribution

Sample ID: 24-605 BH103 SS6 (4.58-5.03m)

Gravel: 0% Sand: 6.1% Silt: 87.3% Clay: 6.6%

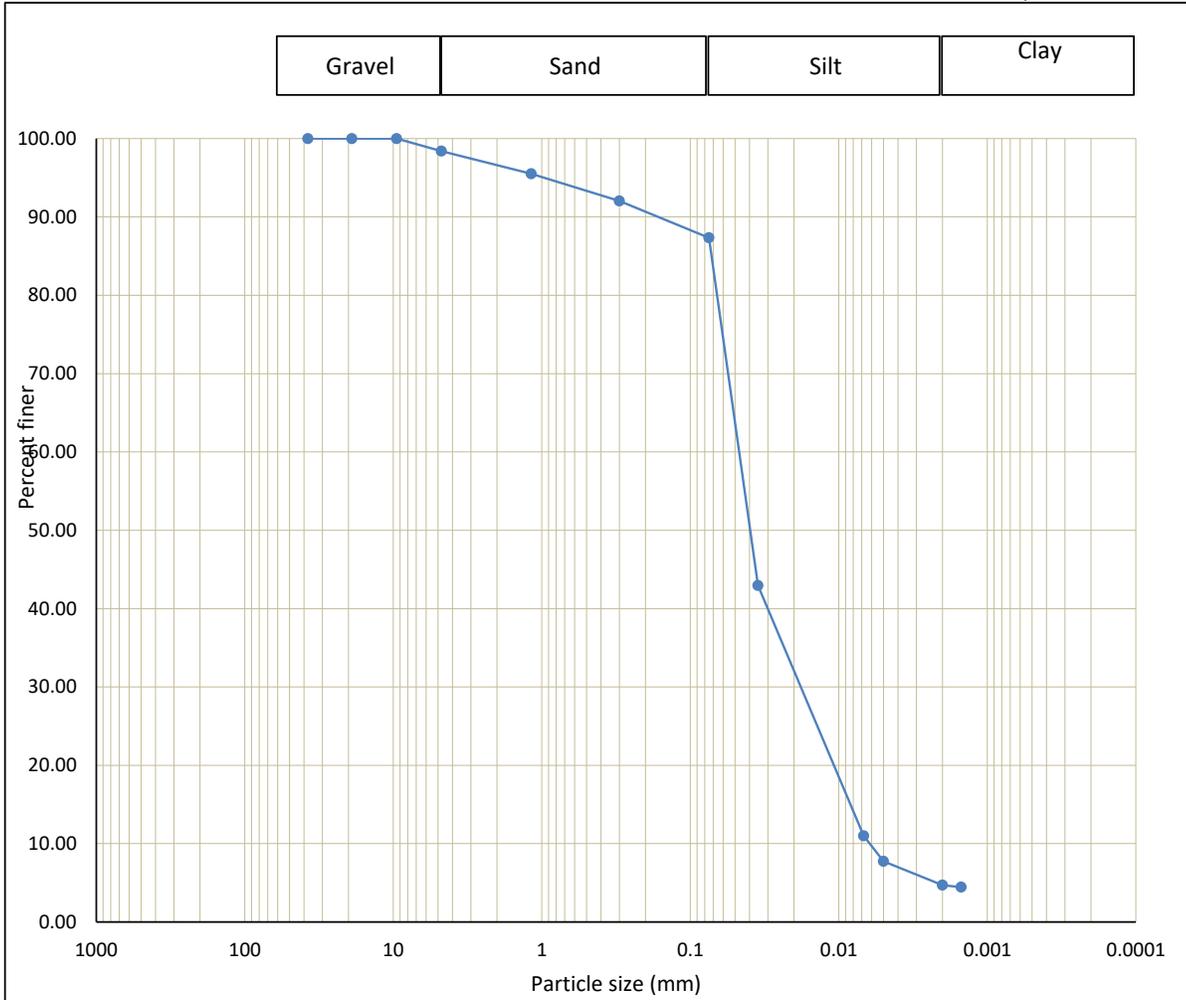


Sample ID: 24-605 BH103 SS6 (4.58-5.03m)		
<i>Diameter</i>	<i>Weight (%)</i>	<i>Grain Size</i>
>4.75mm	0.0	Gravel
1.18mm-4.75mm	0.0	Coarse Sand
300um-1.18mm	0.1	Medium Sand
75um-300um	6.0	Fine Sand
5um-75um	82.6	Silt
2um-5um	4.7	
<2um	6.6	Clay

Grain Size Distribution

Sample ID: 24-606 BH103 SS8 (7.63-8.08m)

Gravel: 1.6% Sand: 11.1% Silt: 82.6% Clay: 4.7%

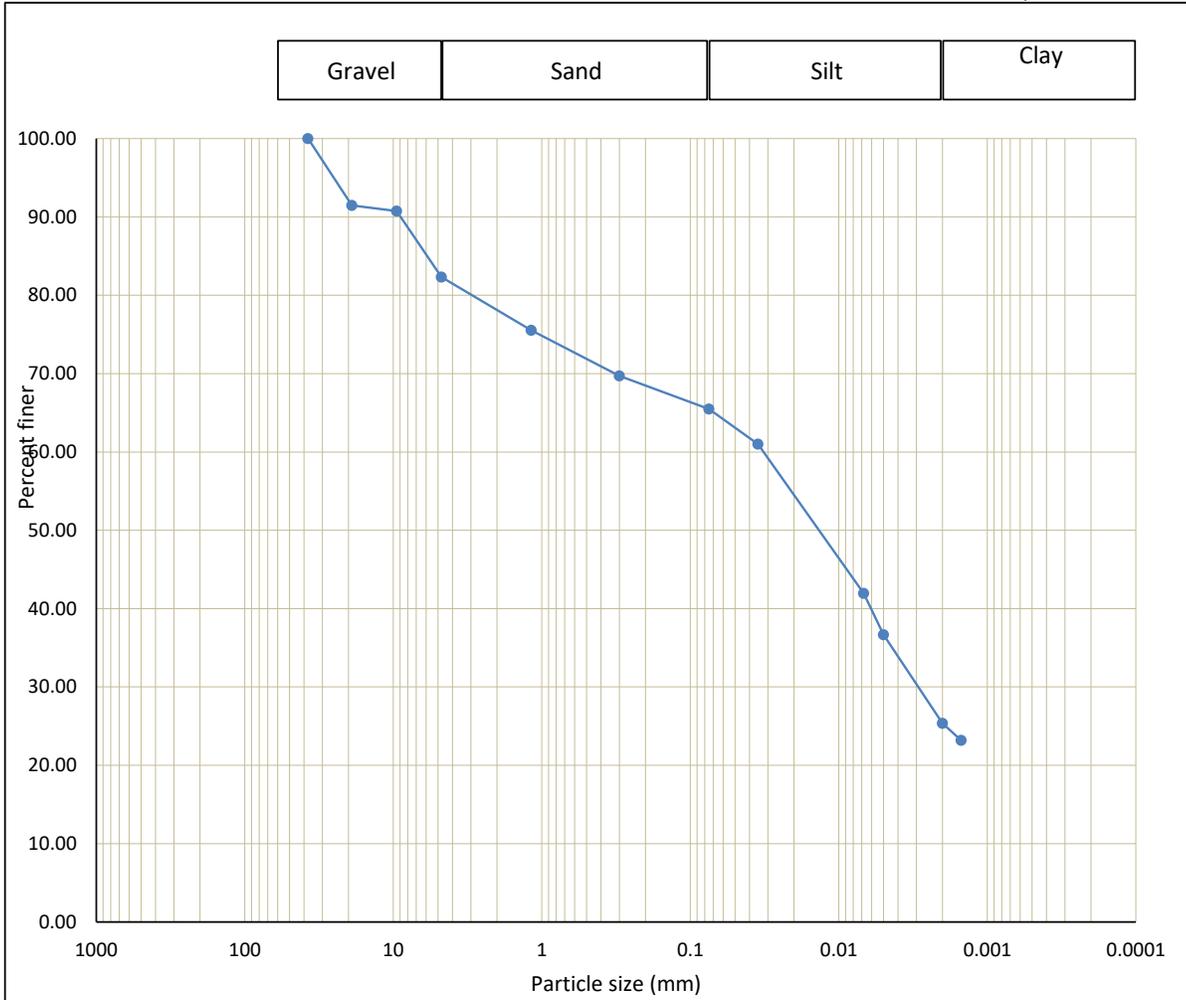


Sample ID: 24-606 BH103 SS8 (7.63-8.08m)		
<i>Diameter</i>	<i>Weight (%)</i>	<i>Grain Size</i>
>4.75mm	1.6	Gravel
1.18mm-4.75mm	2.9	Coarse Sand
300um-1.18mm	3.5	Medium Sand
75um-300um	4.7	Fine Sand
5um-75um	79.6	Silt
2um-5um	3.0	
<2um	4.7	Clay

Grain Size Distribution

Sample ID: 24-607 BH103 SS9 (9.15-9.61m)

Gravel: 17.7% Sand: 16.8% Silt: 40.1% Clay: 25.3%

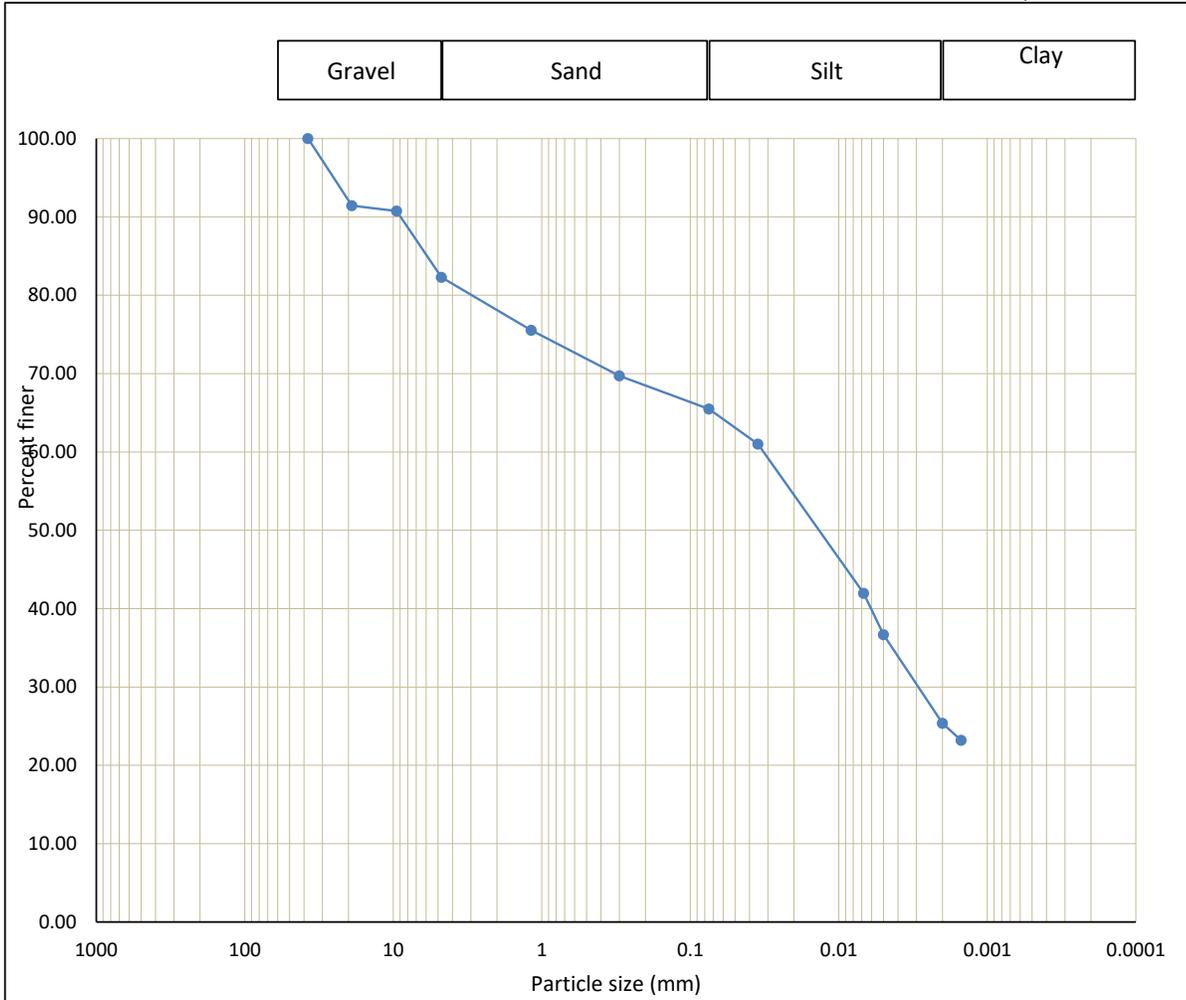


Sample ID: 24-607 BH103 SS9 (9.15-9.61m)		
<i>Diameter</i>	<i>Weight (%)</i>	<i>Grain Size</i>
>4.75mm	17.7	Gravel
1.18mm-4.75mm	6.8	Coarse Sand
300um-1.18mm	5.8	Medium Sand
75um-300um	4.2	Fine Sand
5um-75um	28.8	Silt
2um-5um	11.3	
<2um	25.3	Clay

Grain Size Distribution

Sample ID: 24-608 BH103 SS10 (10.68-11.13m)

Gravel: 7.8% Sand: 35.1% Silt: 40.4% Clay: 16.7%



Sample ID: 24-608 BH103 SS10 (10.68-11.13m)		
<i>Diameter</i>	<i>Weight (%)</i>	<i>Grain Size</i>
>4.75mm	7.8	Gravel
1.18mm-4.75mm	15.7	Coarse Sand
300um-1.18mm	15.6	Medium Sand
75um-300um	3.7	Fine Sand
5um-75um	32.4	Silt
2um-5um	8.0	
<2um	16.7	Clay

LAB JOB No: **24-598**
Standard Laboratory Request Form: Chain of Custody

 Page 1 of 1
CLIENT INFORMATION

 Name:
 Contact:
 Address: **900 Lakeshore Road
Mississauga**
 Email:
 Fax: Fax results
 Phone: Email results

PROJECT INFORMATION

 Project Name: **Hydrogeological Investigation**
 Project ID: **24-14065**
 Sampled By: **David**
BILLING INFORMATION

 Purchase Order No:
 Verbal Authorization:
 Credit Card Type (e.g. MC/Visa/AMEX...):
 Credit Card #:
 Expiry Date:

TURNAROUND TIME (TAT): Check ONE if all samples are the same/for see below.

STD - Standard (5-7 bus. days)	<input checked="" type="checkbox"/>	Standard Charge	
3D - Three-Day (72 hrs.)	<input type="checkbox"/>	+25%	SURCHARGES MAY APPLY Custom quotations (if applicable) will be reflected on final billing. CALL for Emergencies, Bulk Quotes, or other Questions.

 Reg. Business Hrs.
 9am to 5pm
 Samples received
 after 2pm
 are considered
 next day orders.

LAB SAMPLE ID	CLIENT'S SAMPLE ID AND DESCRIPTION	SAMPLING DATE/TIME	SAMPLE MATRIX	CONTAINER NO. and TYPE	TAT (Above)	ANALYSIS REQUESTED (Check or Specify)						NOTES	
						Moisture Content	Sieve Analysis	Hydrometer	Atterberg Limits	Proctor	Compressive Test		
	BH 102 & BH 103 (2.5-4') (5-6.5') (7.5-9.5') (10-11.5') (15-16.5') (20-21.5') (25-26.5')	Sep 3	Soil	Bag	STD	<input checked="" type="checkbox"/>							
		↓							<input checked="" type="checkbox"/>				
									<input checked="" type="checkbox"/>				
									<input checked="" type="checkbox"/>				
									<input checked="" type="checkbox"/>				
	Rock Core					<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>		

Relinquished by:

 Name: (print)
 Signature: **Clive**
 Date & Time: **Sep 5, 2024**
 Method of Shipment:

Client's Comments:

 Arrival Temperature °C:
 Laboratory Remarks:

Regulatory Requirements:

OPSS Reg.

Purpose for sampling:

 Road Base
 Road Subbase
 Subgrade
 Backfill

 Engineering Fill
 Soil Classification
 Other



Rock Core Compressive Strength Test Report

Lab No.	Sample Location	Date Cylinders Cast	Date Received in Lab	Date Tested	Density (kg/m ³)	Load (KN)	Correction Coefficient	Sample Strength (MPa)	Sample Diameter (mm)	Sample Height (mm)	Type of Fracture
23-1060	BH1(45'10"-46'10")	07-Nov-23	10-Nov-23	06-Dec-23	2618	46.6	0.87	13.0	63.1	71.5	3
23-1061	BH1(53'5"-54')	"	"	"	4148	76.1	0.87	21.2	63.1	73.1	3

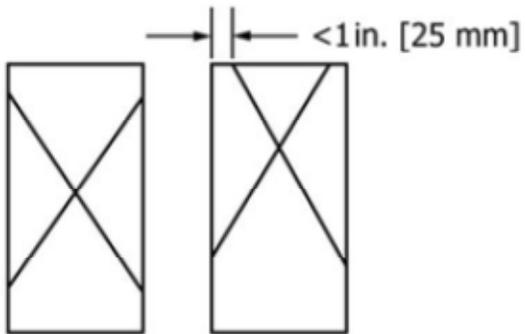
Project Number: 23-13330
Project: 900 Lakeshore Road West, Mississauga
Client: 1000570027 Ontario Inc.

Tested and Reported By:

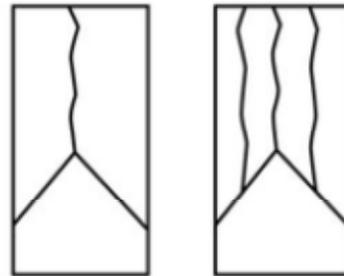
Behnam Sayad-Pour
Behnam Sayad-Pour
Laboratory Supervisor

15-400 Esna Park Drive, Markham, ON L3R 3K2
www.fishereng.com

Tel: (905) 475-7755
Fax: (905) 475-7718



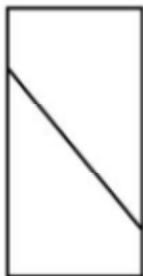
Type 1
Reasonably well-formed
cones on both ends, less
than 1 in. [25 mm] of
cracking through caps



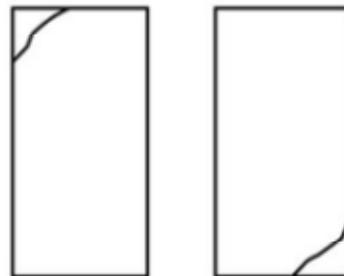
Type 2
Well-formed cone on one
end, vertical cracks running
through caps, no well-
defined cone on other end



Type 3
Columnar vertical cracking
through both ends, no well-
formed cones



Type 4
Diagonal fracture with no
cracking through ends;
tap with hammer to
distinguish from Type 1



Type 5
Side fractures at top or
bottom (occur commonly
with unbonded caps)



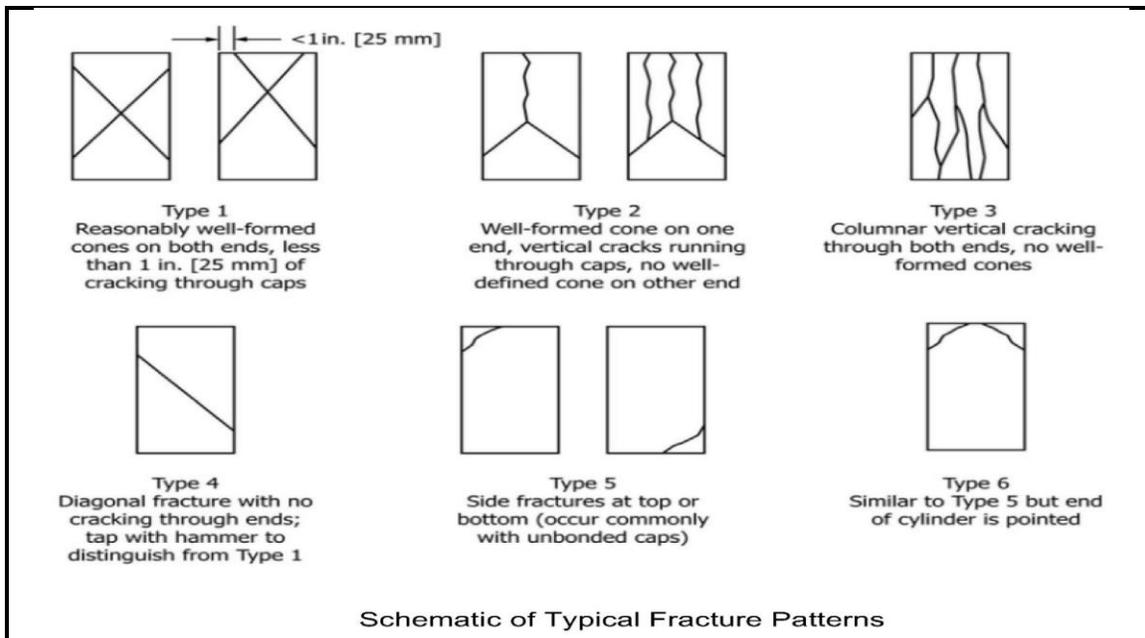
Type 6
Similar to Type 5 but end
of cylinder is pointed

Schematic of Typical Fracture Patterns

Rock Core Compressive Strength Test Report

Lab No.	Sample Location	Coring Date	Date Received in Lab	Date Reported	Density (kg/m ³)	Load (KN)	Correction Coefficient	Sample Strength (MPa)	Sample Diameter (mm)	Sample Height (mm)	Type of Fracture
24-660	BH103(52'-53')	03-Sep-24	05-Sep-24	23-Sep-24	2674	77.4	1	24.8	63	126.4	1

Project Number: 24-14065
Project: 900 Lakeshore Road, Mississauga
Client: 1000570027 Ontario Inc.



Tested and Reported By:


Behnam Sayad-Pour
 Laboratory Supervisor

15-400 Esna Park Drive, Markham, ON L3R 3K2
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 Fax: (905) 475-7718