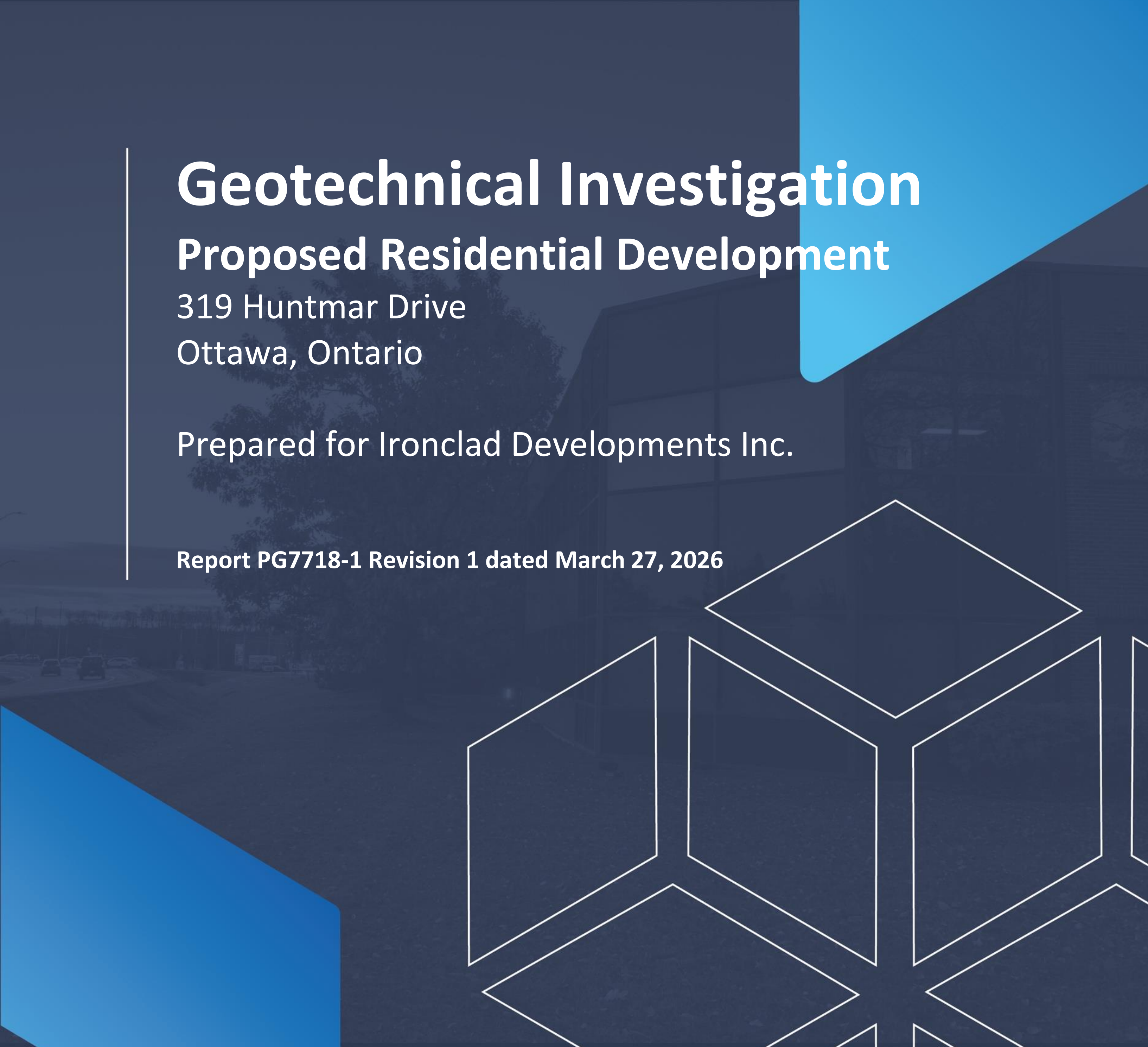

Geotechnical Investigation

Proposed Residential Development

319 Huntmar Drive
Ottawa, Ontario

Prepared for Ironclad Developments Inc.

Report PG7718-1 Revision 1 dated March 27, 2026

Table of Contents

Appendices

1.0 Introduction

Paterson Group (Paterson) was commissioned by Ironclad Developments Inc. to complete a geotechnical investigation for the proposed residential development to be located at 319 Huntmar Drive in the City of Ottawa (refer to Figure 1 - Key Plan in Appendix 2 of this report for the general site location).

The objectives of the investigation were to:

☐ Determine the subsurface soil and groundwater conditions by means of boreholes.

☐ Provide geotechnical recommendations for the design of the proposed development including construction considerations which may affect the design.

The following report has been prepared specifically and solely for the aforementioned project which is described herein. The report contains our findings and includes geotechnical recommendations pertaining to the design and construction of the proposed development as understood at the time of this report.

Investigating the presence or potential presence of contamination on the subject property was not part of the scope of work of the present investigation. Therefore, the present report does not address environmental issues.

2.0 Proposed Development

Based on the available drawings, it is understood that the proposed development will consist of six (6) multi-storey residential buildings. It is further understood that the development will be provided with underground parking levels which will extend only over the footprint of the buildings or connect structures.

Associated at-grade paved parking areas, access lanes and landscaped areas are also anticipated surrounding the proposed buildings. It is expected that the site will be municipally serviced.

It is understood that previously existing buildings located throughout the subject site have been demolished at the time of preparing this report, and any remnants will be removed at the time of construction.

3.0 Method of Investigation

3.1 Field Investigation

The field program for the current investigation was carried out from March 12 to March 17, 2020. At that time, 15 boreholes were advanced to a maximum depth of 9.8 m below existing ground surface. Previous investigations were also completed by this firm in October 2012, December 2010, and October 2006, consisting of a total of 2 boreholes, drilled to a maximum depth of 9.8 m below original ground surface, and 1 test pit, excavated to approximately 4.1 m below original ground surface. An environmental field investigation was also completed on November 4, 2025, which consisted of a total of 15 test pits excavated to approximately 2.0 m below ground surface. The test hole locations for all the investigations were distributed in a manner to provide general coverage of the subject site. The approximate locations of the test holes are shown on Drawing PG7718-1 - Test Hole Location Plan included in Appendix 2.

The boreholes were completed with a track-mounted auger drill rig operated by a two-person crew, and the test pit were excavated using a hydraulic shovel or mini excavator. All fieldwork was conducted under the full-time supervision of Paterson personnel under the direction of a senior engineer from the geotechnical division. The drilling procedure consisted of augering to the required depths at the selected locations, and sampling and testing the overburden, while the test pit procedure consisted of excavating to the required depth at the selected location and sampling the overburden.

Sampling and In Situ Testing

Borehole samples were recovered from a 50 mm diameter split-spoon (SS) or the auger flights (AU). All soil samples were visually inspected and initially classified on site. Grab samples were collected from the test pit at selected intervals. All samples were placed in sealed plastic bags and transported to our laboratory for further examination and classification. The depths at which the split-spoon, auger samples and grab samples were recovered from the test holes are shown as SS, AU and G respectively, on the Soil Profile and Test Data sheets presented in Appendix 1.

A Standard Penetration Test (SPT) was conducted in conjunction with the recovery of the split spoon samples. The SPT results are recorded as "N" values on the Soil Profile and Test Data sheets. The "N" value is the number of blows required to drive the split spoon sampler 300 mm into the soil after a 150 mm initial penetration using a 63.5 kg hammer falling from a height of 760 mm.

Undrained shear strength testing was carried out at regular depth intervals in cohesive soils, using field vanes. Reference should be made to the Soil Profile and Test Data Sheets provided in Appendix 1.

The overburden thickness was evaluated by a dynamic cone penetration test (DCPT) completed at borehole BH 5-20 and BH 15-20. The DCPT consists of driving a steel drill rod, equipped with a 50 mm diameter cone at the tip, using a 63.5 kg hammer falling from a height of 760 mm. The number of blows required to drive the cone into the soil is recorded for each 300 mm increment.

The subsurface conditions observed in the test holes were recorded in detail in the field. The soil profiles are presented on the Soil Profile and Test Data sheets in Appendix 1 of this report.

Groundwater

Standpipe piezometers were installed in all borehole locations to permit monitoring of the groundwater levels subsequent to the completion of the sampling program. Groundwater levels are discussed in Subsection 4.3 and presented on the Soil Profile and Test Data sheets in Appendix 1 of this report.

3.2 Field Survey

The test hole locations were selected by Paterson to provide general coverage of the proposed development taking into consideration the existing site features and underground utilities. The test hole locations and ground surface elevation at each test hole location were surveyed by Paterson with respect to a geodetic datum. One test hole undertaken in 2010 was surveyed by Stantec Geomatics at that time and also referenced to a geodetic datum. The location of the test holes, and the ground surface elevation at each test hole location, are presented on Drawing PG7718-1 – Test Hole Location Plan in Appendix 2.

3.3 Laboratory Testing

Soil samples were recovered from the subject site and visually examined in our laboratory to review the results of the field logging. One selected sample of cohesive soil was submitted for unidimensional consolidation testing during previous investigations.

3.4 Analytical Testing

One (1) soil sample was submitted for analytical testing to assess the corrosion potential for exposed ferrous metals and the potential of sulphate attacks against subsurface concrete structures. The sample was analyzed to determine the concentration of sulphate and chloride, the resistivity, and the pH of the sample. The results are discussed in Section 6.8 and shown in Appendix 1.

4.0 Observations

4.1 Surface Conditions

The subject site consists of a relatively flat undeveloped grassed area, with the exception of an existing billboard structure located in the south portion of the site, and an access road that bisects the site in a northwest to southeast direction. Foundations of old buildings have been encountered throughout the site and as indicated on Drawing PG7718-1 – Test Hole Location Plan in Appendix 2. Based on historical aerial photographs available through GeoOttawa, it is understood that a residential dwelling and multiple agricultural buildings were located along the northwest portion of the property. Reference should be made to Figure 2 and Figure 3 included in Appendix 1 of this report and.

The site is bordered by Huntmar Drive to the northeast, by the Trans-Canda Highway to the south and by treed and grassed areas to the west and northwest and further by the Tanger Outlets commercial plaza. A section of Feedmill Creek meanders in a west to east direction within a valley corridor located north and northwest of the subject site.

4.2 Subsurface Profile

Overburden

Generally, the subsurface profile at the test hole locations consists of a thin topsoil layer and/or fill material underlain by a silty clay deposit. The fill layer, where encountered, was generally observed to consist of a brown silty clay with varying amounts of sand, gravel and crushed stone, and extended to approximate depths ranging between 0.7 and 2.3 m below the ground surface.

The fill layer was observed to be underlain by a deposit of hard to very stiff brown silty clay extending to approximate depths varying between 4.6 to 6.1 m below the existing ground surface. The silty clay deposit was further underlain by a deposit of stiff to firm grey silt clay. One sample of the silty clay deposit was submitted for unidimensional consolidation testing. The results are summarized in Table 1 below.

Table 1 - Summary of Consolidation Test Results

Sample	Depth (m)	p'_c (kPa)	p'_o (kPa)	C_{cr}	C_c
BH 10-10 TW 9	8.01	152	96	0.022	0.788

Practical refusal to DCPT was encountered at BH 5-20 and BH 15-20 at a depth of approximately 19.4 and 13.8 m below ground surface, respectively.

Reference should be made to the Soil Profile and Test Data sheets in Appendix 1 for specific details of the soil profiles encountered at each test hole location.

Bedrock

Based on available geological mapping, the bedrock at the subject site consists of interbedded limestone and shale of the Verulam Formation with an overburden thickness ranging between 10 to 25 m.

4.3 Groundwater

Groundwater levels were measured at all installed standpipe piezometers and depths of sidewall groundwater infiltration were observed during the test pit excavation. The observed groundwater levels are summarized in Table 2 below.

Table 2 - Summary of Groundwater Level Readings

Test Hole Number	Ground Elevation (m)	Groundwater Levels (m)		Recording Date
		Depth	Elevation	
BH 3-20	100.37	1.39	98.98	March 20, 2020
BH 4-20	100.26	0.92	99.34	
BH 5-20	100.66	Dry	NA	
BH 6-20	101.13	2.05	99.08	
BH 8-20	101.47	Dry	NA	
BH 9-20	101.60	2.09	99.51	
BH 10-20	101.74	1.83	99.91	
BH 11-20	101.98	1.87	100.11	
BH 13-20	100.73	1.65	99.08	
BH 14-20	100.33	1.09	99.24	
BH 15-20	99.97	0.76	99.21	
BH 16*	100.48	1.26	99.22	November 22, 2012
TP 7	-	1.80	NA	October 19, 2006

Note: Borehole elevations are referenced to a geodetic datum.
* Borehole Elevation provided by Stantec

The recorded groundwater levels are also indicated on the applicable Soil Profile and Test Data sheet presented in Appendix 1. It should be noted that groundwater levels are subject to seasonal fluctuations, therefore the groundwater levels could vary at the time of construction.

5.0 Discussion

5.1 Geotechnical Assessment

From a geotechnical perspective, the subject site is considered suitable for the proposed development. Based on our review, the proposed structures may be supported by conventional shallow footings bearing on an undisturbed stiff silty clay bearing surface.

Due to the presence of a silty clay layer, the subject site is subjected to a permissible grade restriction. Our permissible grade raise recommendations are discussed in Subsection 5.3.

The above and other considerations are further discussed in the following sections.

5.2 Site Grading and Preparation

Stripping Depth

Topsoil and deleterious fill, such as those containing organic materials, should be stripped from under any buildings, paved areas, pipe bedding and other settlement sensitive structures. Care should be taken not to disturb adequate bearing soils below the founding level during site preparation activities. Disturbance of subgrade may result in having to sub-excavate the disturbed material and the placement of additional suitable fill material.

The existing fill material, where free of significant organic materials, should be reviewed by Paterson at the time of construction to determine if the existing fill can be left in place below paved areas and below the slab granular fill layers. Where the fill is deemed acceptable, sub-excavation of the existing fill down to the native subgrade will only be required to be completed below the proposed footings, including the lateral support zone of each footing. Any fill left in place will be required to be re-compacted using suitably-sized vibratory sheepsfoot rollers in dry conditions and above freezing temperatures. The compaction efforts should also be reviewed and approved by Paterson personnel at the time of construction.

Existing foundation walls and other construction debris, as is expected to be encountered throughout areas of previous historical structures, should be entirely removed from within the proposed building perimeters. Under paved areas, existing remnants such as foundation walls should be excavated to a minimum of 500 mm below the subgrade. Existing foundation walls and other construction debris is not considered suitable for reuse at the site.

Fill Placement

Fill used for grading beneath the proposed buildings should consist of clean imported granular fill, such as Ontario Provincial Standard Specifications (OPSS) Granular A or Granular B Type II. This material should be tested and approved prior to delivery to the site. The fill should be placed in lifts no greater than 300 mm thick and compacted using suitable compaction equipment for the lift thickness. Fill placed beneath the building and paved areas should be compacted to at least 98% of the material's standard Proctor maximum dry density (SPMDD).

Non-specified existing fill, along with site-excavated soil, can be used as general landscaping fill where settlement of the ground surface is of minor concern. If this material is to be used to build up the subgrade level for areas to be paved, it should be compacted in maximum 300 mm thick loose lifts to at least 98% of the material's SPMDD. The fill should be prepared by segregating all cobbles and boulders larger than 200 mm in diameter, significant amounts of organics (i.e., peat, topsoil, roots, stumps, logs, etc.) and inorganic debris (i.e., construction debris, plastics, PVC, metals, etc.).

Sampling and testing of the fill material for grain-size distribution and standard proctor values should be completed by Paterson prior to re-use of the subject fill and during the construction phase. Frozen material may not be considered for this purpose, and this type of fill cannot be planned to be placed during periods of freezing conditions (i.e., winter months). The pre-construction planning process should consider the impact of winter on placement of fill and the type of fill that may be placed at that time. This fill placement process should be reviewed and approved by Paterson field personnel upon completion of each lift and who are experienced in reviewing the placement of soil fill in this manner. Non-specified existing fill and site-excavated soils are not suitable for placement as backfill against foundation walls, unless used in conjunction with a geocomposite drainage membrane, such as CCW MiraDRAIN 2000 or Delta-Teraxx.

Fill used for grading beneath the base and subbase layers of paved areas should consist, unless otherwise specified, of clean imported granular fill, such as OPSS Granular A, Granular B Type II or select subgrade material. This material should be tested and approved by Paterson prior to delivery to the site. The fill should be placed in lifts no greater than 300 mm thick and compacted using suitable compaction equipment for the lift thickness. Fill placed beneath the paved areas should be compacted to at least 100% of its SPMDD.

Non-specified existing fill and site-excavated soils are not suitable for use as backfill against foundation walls unless used in conjunction with a composite drainage membrane as discussed under subsection 6.1.

Under winter conditions, if snow and ice is present within the stone fill below future basement slabs, then settlement of the fill should be expected and support of a future basement slab and/or temporary supports for slab pours will be negatively impacted and could undergo settlement during spring and summer time conditions. Paterson personnel should complete periodic inspections during fill placement to ensure that snow and ice quantities are minimized. Providing a heat source during winter construction may be recommended should compacted fill material is intended to be exposed for long periods of time.

Protection of Subgrade (Footings Founded Upon Grey Silty Clay)

Where foundations are located upon a firm to stiff layer of grey silty clay, it is recommended that a minimum 75 mm thick lean concrete mud slab be placed on the undisturbed silty clay subgrade shortly after the completion of the excavation. The main purpose of the mudslab is to reduce the risk of disturbance of the subgrade under the traffic of workers and equipment.

The final excavation to these footings at the bearing surface level and the placing of the mud slab should be done in smaller sections to avoid exposing large areas of the silty clay to potential disturbance due to drying.

5.3 Foundation Design

Coordination with Structural Design Team Recommendation

The following bearing resistance values are provided based on our understanding of the in-situ subsoil properties and nature of the proposed structures. The current bearing resistance values only consider preliminary grading concepts and do not consider the actual planned footing geometries, founding elevations and basement level grading, all of which are recommended to be confirmed by Paterson during the future design stages and on a per-building basis.

It is recommended that the structural design team and Paterson complete detailed reviews of the proposed structural foundation layout during the preliminary and detailed design stages to confirm conformance with our recommendations and understanding of the in-situ subsoils.

Paterson may review the proposed layouts and verify the suitability of footing sizes, spacing and contact pressures against our subsoils overage and advise if further measures would be required to be considered from a geotechnical perspective in support of design and construction.

Bearing Resistance Values – Conventional Spread Footings

Very Stiff to Stiff Brown Silty Clay Bearing Surface

Pad footings up to 6 m wide and strip footings up to 3 m wide placed upon an undisturbed, very stiff to stiff, brown silty clay bearing surface can be designed using a bearing resistance value at serviceability limit states (SLS) of **150 kPa** and a factored bearing resistance value at ultimate limit states (ULS) of **225 kPa**.

This bearing resistance value is only suitable for footings that are located more than 750 mm above the grey portion of the silty clay layer. If footings are located within this zone or within the grey silty clay, the following paragraph provides recommendations for the design of those footing structures.

Firm to Stiff Grey Silty Clay Bearing Surface

For pad footings up to 4 m wide and strip footings up to 2 m wide that are anticipated to be located upon a minimum 75 mm thick mud slab underlain by firm to stiff grey silty clay bearing surface footings can be preliminarily designed using a bearing resistance value of **80 kPa** at SLS and **120 kPa** at ULS.

Additional Notes

A geotechnical resistance factor of 0.5 was applied to the reported bearing resistance value at ULS.

An undisturbed bearing surface consists of a surface from which all topsoil and deleterious materials, such as loose, frozen or disturbed soil, whether in situ or not, have been removed, in the dry, prior to the placement of concrete for footings.

Footings placed on a soil bearing surface and designed using the bearing resistance values at SLS given above will be subjected to potential post construction total and differential settlements of 25 and 20 mm, respectively.

Lateral Support

The bearing medium under footing-supported structures is required to be provided with adequate lateral support with respect to excavations and different foundation levels.

Adequate lateral support is provided to the soils above the groundwater table when a plane extending horizontally and vertically from the perimeter of the footing at a minimum of 1.5H:1V passes through in situ soil of the same or higher capacity as the bearing medium soil.

Settlement and Permissible Grade Raise

Based on the results from the previous field investigations and laboratory testing programs, a permissible grade raise of up to **2 m** may be considered for the subject site. A long-term groundwater table dewatering of 0.5 m was assumed as part of our assessment.

If higher than permissible grade raises are required, preloading with or without a surcharge, lightweight fill (LWF) and/or other measures should be investigated to reduce the risks of unacceptable long-term post construction total and differential settlements.

Where required, LWF should consist of EPS (expanded polystyrene) Type 19 and Type 12 geofoam blocks throughout hardscaped (paved or other areas with concrete surface features) and landscaped areas, respectively. The LWF should be placed upon a flat soil surface. The entire LWF layer footprint is recommended to be covered with a layer of polyethylene. If the LWF will be located in an area of landscaping, a minimum of 600 mm of soil cover is recommended to be provided to the LWF layer to promote grass and associated vegetation to establish overtop the LWF.

The LWF requirements should be detailed in grading plans and reviewed from a geotechnical perspective. The placement of all LWF should be reviewed by Paterson personnel. It is advised that a brief pre-construction meeting be held between Paterson and the construction team to confirm placement methodology prior to installation.

5.4 Design for Earthquakes

A seismic site class for seismic site response can be taken as **Class X_D** for the foundation design of the proposed development, as presented in Table 4.1.8.4.B of the Ontario Building Code 2024. The soil underlying the site is not considered susceptible to liquefaction or cyclic softening per the methodology outlined in the current Canadian Foundation Engineering Manual (2025).

5.5 Basement Slab

With the removal of all topsoil and deleterious materials within the footprint of the proposed buildings, the fill and native soil approved by Paterson personnel at the time of construction is considered to be an acceptable subgrade surface on which to commence backfilling for the floor slab construction.

The recommended pavement structures noted in Subsection 5.7 will be applicable for the founding level of the proposed parking garage structure. However, if storage or other uses of the lower level involve the construction of a concrete floor slab, the upper 200 mm of sub-slab fill may consist of 19 mm clear crushed stone.

All backfill material within the footprint of the proposed building should be placed in maximum 300 mm thick loose layers and compacted to at least 98% of its SPMDD. Any soft areas should be removed and backfilled with appropriate backfill material. OPSS Granular B Type II, with a maximum particle size of 50 mm, are recommended for backfilling below the floor slab.

A sub-slab drainage system, consisting of lines of perforated drainage pipe subdrains connected to a positive outlet, should be provided under the lowest level floor slab. The spacing of the sub-slab drainage pipes can be determined at the time of construction to confirm groundwater infiltration levels, if any. This is discussed further in Subsection 6.1.

5.6 Basement Wall

There are several combinations of backfill materials and retained soils that could be applicable for the basement walls of the subject structure. However, the conditions can be well-represented by assuming the retained soil consists of a material with an angle of internal friction of 30 degrees and a bulk (drained) unit weight of 20 kN/m^3.

Where undrained conditions are expected (i.e., below the groundwater level), the applicable effective (undrained) unit weight of the retained soil can be taken as 13 kN/m3, where applicable. A hydrostatic pressure should be added to the total static earth pressure when using the effective unit weight.

Lateral Earth Pressures

The static horizontal earth pressure (p_o) can be calculated using a triangular earth pressure distribution equal to $K_o \cdot \gamma \cdot H$ where:

K_o = at-rest earth pressure coefficient of the applicable retained material (0.5)
γ = unit weight of fill of the applicable retained soil (kN/m^3)
H = height of the wall (m)

An additional pressure having a magnitude equal to $K_o \cdot q$ and acting on the entire height of the wall should be added to the above diagram for any surcharge loading, q (kPa), that may be placed at ground surface adjacent to the wall. The surcharge pressure will only be applicable for static analyses and should not be used in conjunction with the seismic loading case.

Actual earth pressures could be higher than the “at-rest” case if care is not exercised during the compaction of the backfill materials to maintain a minimum separation of 0.3 m from the walls with the compaction equipment.

Seismic Earth Pressures

The total seismic force (P_{AE}) includes both the earth force component (P_o) and the seismic component (ΔP_{AE}).

The seismic earth force (ΔP_{AE}) can be calculated using $0.375 \cdot a_c \cdot \gamma \cdot H^2/g$ where:

a_c = $(1.45 - a_{max}/g)a_{max}$
γ = unit weight of fill of the applicable retained soil (kN/m^3)
H = height of the wall (m)
g = gravity, 9.81 m/s^2

The peak ground acceleration (a_{max}) for the subject site is 0.35g according to OBC 2024. Note that the vertical seismic coefficient is assumed to be zero.

The earth force component (P_o) under seismic conditions can be calculated using $P_o = 0.5\ K_o\ \gamma\ H^2$, where $K_o = 0.5$ for the soil conditions noted above.

The total earth force (P_{AE}) is considered to act at a height, h (m), from the base of the wall, where:

$$h = \{P_o \cdot (H/3) + \Delta P_{AE} \cdot (0.6 \cdot H)\}/P_{AE}$$

The earth forces calculated are unfactored. For the ULS case, the earth loads should be factored as live loads, as per OBC 2024.

5.7 Pavement Structure

Car only parking areas and access lanes are proposed as part of the development at this site. The proposed pavement structures are shown in Tables 3 and 4 below.

Table 3 – Recommended Pavement Structure – Light Vehicle Parking

Thickness (mm)	Material Description
50	**Wear Course –** Superpave 12.5-FC2 Asphaltic Concrete
150	**BASE –** OPSS Granular A Crushed Stone
300	**SUBBASE –** OPSS Granular B Type II Crushed Stone
SUBGRADE - Either fill, in situ silty clay or sand/crushed stone material placed over in situ soil	

Table 4 – Recommended Pavement Structure –Local Roadways, Access Lanes and Heavy Vehicle Parking

Thickness (mm)	Material Description
40	**Wear Course –** Superpave 12.5-FC2 Asphaltic Concrete
50	**Upper Binder Course –** Superpave 19.0 Asphaltic Concrete
150	**BASE –** OPSS Granular A Crushed Stone
400	**SUBBASE –** OPSS Granular B Type II Crushed Stone
SUBGRADE - Either fill, in situ silty clay or sand/crushed stone material placed over in situ soil	

If soft spots develop in the subgrade during compaction or due to construction traffic, the affected areas should be excavated and replaced with OPSS Granular A or OPSS Granular B Type II material. The pavement granular base and subbase should be placed in maximum 300 mm thick lifts and compacted to a minimum of 100% of the material's SPMDD using suitable vibratory equipment.

Minimum Performance Graded (PG) 58-34 asphalt cement should be used for this project. Cement asphalt should be compacted to a minimum average density of 93% and no more than 98%.

If soft spots develop in the subgrade during compaction or due to construction traffic, the affected areas should be excavated and replaced with OPSS Granular B Type II material. Weak subgrade conditions may be experienced over service trench fill materials. This may require the use of geotextile, thicker subbase or other measures that can be recommended at the time of construction as part of the field observation program and is discussed further in the following portion of this report.

Temporary Access Roads and Construction Traffic

Paterson anticipates that the earthworks contractor will require several haul roads, staging areas and other temporary access lanes to facilitate construction traffic. Paterson also anticipates construction traffic will be directed over unpaved access paths constructed using the base and subbase layers identified in the above-noted tables and will be used throughout the duration of the construction phase.

Omitting the asphalt layer, the above-noted pavement designs are not considered suitable to support temporary construction traffic without requiring additional measures to remediate the proposed base and subbase layers to accommodate the placement of asphalt to complete the pavement design.

Therefore, provisions should be carried to either reinstate temporary construction access and haul roads prior to placing asphalt or improve the durability of the temporary unpaved construction access and haul roads to minimize additional efforts for preparing the base course for the placement of asphalt once construction traffic would no longer be required.

Examples of scenarios that would require these provisions would consist of areas which construction traffic results in rutting and compromising subgrade soils, placement of subbase layers directly over subgrade shortly following periods of spring thaw, snowmelt and rainfall events or over service trenches that may consist of poorly compacted backfill.

For planning purposes, temporary construction haul roads and working pads should be planned to be 600 mm of crushed stone consisting of a 500 mm of a combination of OPSS Granular B Type I or Type II crushed stone and/or blast-rock covered with a minimum 50 to 100 mm thick layer of OPSS Granular B Type II or OPSS Granular A crushed stone (to provide suitable surface for vehicle tires) over a Paterson-reviewed and -approved subgrade.

These types of roads should also be underlain by a non-woven geotextile layer, such as Terraifx 200R, where they would be integrated into the final pavement structure and accommodate the placement of asphalt to minimize pumping of fines into the subbase layer. Cow-pathing site-generated soil may also be considered to provide suitable haul and access roads.

Temporary access roads that will not support heavy truck traffic (i.e., conventional light-duty vehicles only) may be prepared using a minimum of 150 mm of OPSS Granular A and 400 mm of OPSS Granular B Type II crushed stone.

However, provisions should be carried to provide a non-woven geotextile separation layer, such as Terrafix 200R, over the subgrade soils to lessen the amount of fines that migrate into the subbase layers in response to a combination of construction traffic and seasonal fluctuations in the subgrades performance. Provisions should also be carried to scarify and replace the upper 100 to 150 mm of these areas with clean OPSS Granular A crushed stone prior to placing asphalt.

Provisions should also be carried by the earthworks contractor to suitably compact trench backfill placed over services when reinstating servicing trenches below areas proposed to support paved areas. Since it is anticipated this material would consist of workable brown silty clay or silty sand fill (and not wet, non-workable grey silty clay) it would be recommended to place this material in maximum 400 mm thick loose lifts compacted using a suitably sized vibratory sheepsfoot roller making several passes under the supervision of Paterson field personnel.

The subgrade surface is also recommended to be provided with a layer of bi-axial geogrid, such as Terrafix TBX2500, to improve the stiffness of the reinstated trench backfill subgrade for supporting the final pavement structures.

These efforts would be reviewed, approved and advised upon by Paterson field staff during the construction program. Further, Paterson should review design, tender and construction documents associated with temporary and permanent pavement design throughout those phases of the project.

Pavement Structure Drainage

Satisfactory performance of the pavement structure is largely dependent on the contact zone between the subgrade material and the base stone in a dry condition. Failure to provide adequate drainage under conditions of heavy wheel loading can result in the fine subgrade soil being pumped into the voids in the stone subbase, thereby reducing load carrying capacity.

Where silty clay is anticipated at the pavement subgrade level, consideration should be given to installing subdrains during the pavement construction. The subdrain inverts should be approximately 300 mm below subgrade level, and the subgrade surface should be crowned to promote water flow to the drainage lines.

6.0 Design and Construction Precautions

6.1 Foundation Drainage and Backfill

It is recommended that a perimeter foundation drainage system be provided for the proposed structures. The system should consist of a 100 to 150 mm diameter perforated corrugated plastic pipe, surrounded on all sides by a minimum of 150 mm of 19 mm clear crushed stone, placed at the footing level around the exterior perimeter of the structures where double-sided pours will be undertaken.

Although it is expected most foundation walls will be undertaken in a double-sided methodology, areas where blind-sided pours will be considered, the perimeter drainage pipe should be placed along the interior side of the foundation wall and connected to sleeves placed within the foundation wall at a 6 m center-to-center spacing. The pipe should have a positive outlet, such as a gravity connection to the storm sewer.

It is anticipated that underfloor drainage will be required to provide an outlet for water captured by the buildings drainage system since it is assumed external gravity outlets will not be able to be accommodated by the sewer design. The layout of the perimeter and underfloor drainage systems should be determined by Paterson during the design phase once the foundation structure and sump pit locations are known. The perimeter drainage pipe would connect to a series of underfloor drainage lines which would direct water to sump pit(s) within the lower basement area.

A positive-side (i.e., placed on exterior faces) waterproofing system should also be provided for any elevator shafts and pools located within the lowest basement level. A continuous PVC waterstop should be installed within the interface between the concrete base slab below the elevator shaft foundation walls. It is recommended that Paterson review all basement waterproofing/drainage system designs during the design phase.

Waterproofing layers for podium deck surfaces should overlap across and below the top end lap of the vertically installed composite foundation drainage board to mitigate the potential for water to migrate between the drainage board and foundation wall and as depicted in Figure 4 – Podium Deck to Foundation Wall Drainage System Tie-In Detail.

Foundation Backfill

Backfill against the exterior sides of the foundation walls should consist of free-draining, non-frost susceptible granular materials. The greater part of the site excavated materials will be frost susceptible and, as such, are not recommended for re-use as backfill against the foundation walls unless used in conjunction with a composite drainage system, such as CCW MiraDRAIN 2000 or Delta-Teraxx or an approved equivalent. Imported granular materials, such as clean sand or OPSS Granular B Type I granular material, should otherwise be used for this purpose.

Sidewalks and Walkways

Backfill material below sidewalk and walkway subgrade areas or other settlement sensitive structures which are not adjacent to the buildings should consist of free-draining, non-frost susceptible material. This material should be placed in maximum 300 mm thick loose lifts and compacted to at least 98% of its SPMDD under dry and above freezing conditions.

Finalized Drainage and Waterproofing Design

Paterson should be provided with the finalized or current structural and architectural drawings for the proposed buildings to provide specific waterproofing and drainage design recommendations for design and tender. The design will provide recommendations for other items such as minimum pipe spacings, pipe mechanical connections below grade, transitioning from blind to double sided pours (if applicable), etc.

6.2 Protection of Footings Against Frost Action

Perimeter footings of heated structures are recommended to be insulated against the deleterious effects of frost action. A minimum 1.5 m thick soil cover, or an equivalent combination of soil cover and foundation insulation, should be provided in this regard.

Exterior unheated footings, such as isolated piers, are more prone to deleterious movement associated with frost action than the exterior walls of the structure, and require additional protection, such as soil cover of 2.1 m, or an equivalent combination of soil cover and foundation insulation.

Unheated structures, such as the access ramp wall footings, may be required to be insulated against the deleterious effect of frost action. A minimum of 2.1 m of soil cover alone, or a minimum of 0.6 m of soil cover, in conjunction with foundation insulation, should be provided.

6.3 Excavation Side Slopes

Temporary Side Slopes

The temporary excavation side slopes anticipated should either be excavated to acceptable slopes or retained by shoring systems from the beginning of the excavation until the structure is backfilled.

Excavation side slopes above the groundwater level extending to a maximum vertical height of 3 m should be cut back at 1H:1V or flatter. The flatter slope associated with Type 3 soils is required for excavation below the encountered groundwater level and/or the depth of the brown-grey clay interface within the clay layer, whichever is higher. Excavations undertaken above these limitations may be undertaken per a Type 2 soils methodology and in accordance with the Occupational Health and Safety Act and Regulations for Construction Projects.

Excavated soil should not be stockpiled directly at the top of excavations and heavy equipment should maintain safe working distance from the excavation sides.

Excavation side slopes carried out for the building footprint are recommended to be provided surface protection from erosion by rain and surface water runoff if shoring is not anticipated to be implemented. This can be accomplished by covering the entire surface of the excavation side-slopes with tarps secured between the top and bottom of the excavation and approved by Paterson personnel at the time of construction. It is further recommended to maintain a relatively dry surface along the bottom of the excavation footprint to mitigate the potential for sloughing of side-slopes.

An appropriately selected engineered steel trench box is recommended to protect personnel working in trenches for site service installations. Services are expected to be installed by “cut and cover” methods and excavations should not remain open for extended periods of time.

Slopes in excess of 3 m in height should be periodically inspected by Paterson field personnel in order to detect if the slopes are exhibiting signs of distress.

6.4 Pipe Bedding and Backfill

Bedding and backfill materials should be in accordance with the most recent Material Specifications and Standard Detail Drawings from the Department of Public Works and Services, Infrastructure Services Branch of the City of Ottawa.

The pipe bedding for sewer and water pipes should consist of at least 150 mm of OPSS Granular A material. The bedding layer thickness should be increased to a minimum thickness of 300 mm if the subgrade consists of grey silty clay. Clear stone is not recommended for use as bedding material. The material should be placed in maximum 300 mm thick lifts and compacted to a minimum of 99% of the SPMDD. The bedding material should extent at a minimum to the spring line of the pipe.

The cover material, which should consist of OPSS Granular A, should extend from the spring line of the pipe to a minimum of 300 mm above the obvert of the pipe. The material should be placed in maximum 300 mm thick lifts and compacted to a minimum of 99% of the SPMDD.

It should generally be possible to re-use the moist (not wet) brown silty clay above the cover material if the excavation and backfilling operations are conducted in dry and above-freezing weather conditions. Wet silty clay materials will be difficult to re-use, as the high water contents make compacting impractical without an extensive drying period, and are not recommended to be re-used for these purposes.

Where hard surface areas are considered above the trench backfill, the trench backfill material within the frost zone (about 1.8 m below finished grade) should consist of the soils exposed at the trench walls to minimize differential frost heaving.

All trench backfill should be placed in maximum 300 mm thick loose lifts and compacted to a minimum of 95% of the SPMDD and is recommended to be reviewed and approved by Paterson field personnel at the time of construction.

Clay Seals

To reduce long-term lowering of the groundwater level at the subject site, clay seals should be provided in the service trenches. The seals should be at least 1.5 m long and should extend from trench wall to trench wall. Generally, the seals should extend from the frost line and fully penetrate the bedding, subbedding and cover material.

The seals should consist of a relatively dry and compactible brown or workable silty clay soil placed in maximum 225 mm thick loose layers and compacted to a minimum of 95% of the material’s SPMDD. The clay seals should be placed at the site boundaries and at strategic locations at no more than 60 m intervals in the service trenches.

Paterson may review and advise on appropriate clay sela locations once preliminary site servicing plans are available for review and coordination.

Backfilling Within Trench Boxes

When the bedding and cover material is placed within the confines of a trench box and steel plates, it is recommended that the trench box be placed tightly against the outside of the trench walls and remains approximately 300 mm above the obvert level of the service pipe.

The vertical excavation sidewalls within the lower portion of the trench (below the obvert level of the pipe) can be supported using steel plates extended down to the bottom of the trench. The steel plates can be extended below the base of the excavation to prevent basal heave, in conjunction with adequate dewatering measures when located below the groundwater table.

To minimize the potential for disturbance of the bedding and cover material and subsequent settlement of the service pipe during the removal of the steel plates, it is recommended that the bedding layer be re-compacted tightly against the trench sidewalls upon removal/lifting of the steel plate up to the top of the bedding layer and prior to placing the pipe. This is recommended to mitigate settlement of the pipe that would results from removing the plates without re-compacting the fill that would be left unconfined to the sides of the trench. This procedure would be repeated for the springling and cover layers until the steel plates are removed.

It is generally recommended that this procedure be reviewed by Paterson field personnel at the time of construction.

6.5 Groundwater Control

Due to the relatively impervious nature of the silty clay materials, it is anticipated that groundwater infiltration into the excavations should be low to moderate and controllable using open sumps. The contractor should be prepared to direct water away from all bearing surfaces and subgrades, regardless of the source, to prevent disturbance to the founding medium.

Groundwater Control During Construction

Under the current regulations enacted by the Ministry of Environment, Conservation and Parks (MECP), any dewatering in excess of 50,000 L/day requires a registration on the Environmental Activity and Sector Registry (EASR), so long as that dewatering is related to construction. If the dewatering is not related to construction, a Permit to Take Water obtained from the MECP will be required.

In the event that an EASR is required to facilitate dewatering of the proposed development, a minimum of three to four weeks should be allotted for completion of the EASR registration and the Water Taking and Discharge Plan, to be prepared by a Qualified Person as stipulated under O.Reg. 63/16. Should a Permit to Take Water be required, a minimum of five to six months should be allotted for completion of the permit, due to the minimum review period imposed by the MECP.

Impacts on Neighbouring Properties

It is anticipated that several structures will be located throughout the subject site and provided with one basement level of underground parking. Based on our review of the subsoils, the low hydraulic conductivity of the in-situ soils and proposed development concepts, it is not anticipated that adverse effects to neighbouring properties would results by temporary construction dewatering that is anticipated to be required during the construction phase. Long-term dewatering by the construction of the proposed development is not anticipated to results in negative impacts to neighbouring properties.

6.6 Winter Construction

Precautions must be taken if winter construction is considered for this project.

Where excavations are completed in proximity to existing structures which may be adversely affected due to the freezing conditions. The subsurface conditions mostly consist of frost susceptible materials. In the presence of water and freezing conditions, ice could form within the soil mass. Heaving and settlement upon thawing could occur.

In particular, where a shoring system is constructed, the soil behind the shoring system will be subjected to freezing conditions and could result in heaving of the structure(s) placed within or above frozen soil. Provisions should be made in the contract documents to protect the walls of the excavations from freezing, if and where applicable.

In the event of construction during below zero temperatures, the founding stratum should be protected from freezing temperatures by the installation of straw, propane heaters and/or glycol lines and tarpaulins or other suitable means. The base of the excavations should be insulated from sub-zero temperatures immediately upon exposure and until such time as heat is adequately supplied to the building and the foundation is protected with sufficient soil cover to prevent freezing at founding level.

Trench excavations, foundation construction and pavement construction are difficult activities to complete during freezing conditions without introducing frost in the subgrade or in the excavation walls and bottoms. Precautions should be considered if such activities are to be completed during freezing conditions. Additional information could be provided, if required.

Under winter conditions, if snow and ice are present within imported fill below future basement slabs, then settlement of the fill should be expected and support of a future basement slab and/or temporary supports for slab pours will be negatively impacted and could undergo settlement during spring and summer time conditions. Paterson should complete periodic inspections during fill placement to ensure that snow and ice quantities are minimized in settlement-sensitive areas.

6.7 Limits of Hazard Lands

A slope stability analysis was previously conducted at the subject site by Paterson in 2012. From the analysis, a geotechnical limit of hazard lands setback line was provided along the top of slope for the Feedmill Creek valley corridor walls.

The subject section of the Feedmill Creek is located within a 40 to 50 m wide valley corridor with a 1 to 3 m high valley wall. The valley corridor is less defined within the west portion of the site, where the valley walls are close to 1 m or less. The majority of the slope face was noted at the time to be grass covered with minor surficial erosional activities noted. Some sloughing and minor undercutting along the valley wall face was noted where the watercourse has meandered in close proximity to the slope.

The limit of hazard lands includes a 6 m erosion access allowance taken from the top of slope. It should be noted that based on the analysis results, the majority of the slope was considered stable.

The toe erosion allowance for the valley corridor wall slopes was based on the cohesive nature of the soils, the erosional activities observed at the time of investigation and the width of the watercourse. Signs of erosion were noted along the existing watercourse during the 2012 investigation, especially where the watercourse meandered in close proximity to the toe of the corridor wall. It was considered that a toe erosion allowance of 5 m was appropriate for the corridor walls confining the existing watercourse. The toe erosion allowance should be applied from the top of stable slope, where the watercourse has meandered to within 10 m of the toe of the slope. The toe erosion allowance should be taken from the bank full water’s edge in areas where the watercourse is greater than 10 m from the toe of the existing slope.

A site visit was conducted on March 16, 2020, to investigate site conditions. The slope along the subject section of the Feedmill Creek was noted to be treed and grass covered. No signs of sloughing or undercutting were observed.

As no new signs of erosion were observed during the last investigation and the slope face was noted to be treed and grassed, the original limit of hazard lands setback limits are still applicable.

6.8 Corrosion Potential and Sulphate

The results of analytical testing show that the sulphate content is less than 0.1%. This result is indicative that Type 10 Portland cement (normal cement) would be appropriate for this site. The chloride content and the pH of the samples indicate that they are not significant factors in creating a corrosive environment for exposed ferrous metals at this site, whereas the resistivity is indicative of a slightly to moderately aggressive environment.

6.9 Landscaping Considerations

Tree Planting Considerations

In accordance with the City of Ottawa Tree Planting in Sensitive Marine Clay Soils (2017 Guidelines), Paterson completed a soils review of the site to determine applicable tree planting setbacks. Given the thickness of the very stiff to stiff brown silty clay layer (i.e., 4 to 6 m deep) and the founding depth of the proposed structures, trees may be planned assuming the pertinent portion of the subsoils consist of clay of low to medium potential for soil volume change.

The following tree planting setbacks are recommended for the low to medium sensitivity silty clay deposit and where trees are located near buildings founded on cohesive soils.

- ☐ Large trees (mature height over 14 m) can be planted within these areas provided that a tree to foundation setback equal to the full mature height of the tree can be provided.

- ☐ Tree planting setback limits may be reduced to 4.5 m for small (mature tree height up to 7.5m) and medium size trees (mature tree height 7.5 m to 14 m), provided that the conditions noted below are met.

- ☐ A small tree must be provided with a minimum of 25 m^3 of available soils volume while a medium tree must be provided with a minimum of 30 m^3 of available soil volume, as determined by the Landscape Architect. The developer is to ensure that the soil is generally un-compacted when backfilling in street tree planting locations.

☐ The tree species must be small (mature tree height up to 7.5 m) to medium size (mature tree height 7.5 m to 14 m) as confirmed by the Landscape Architect.

☐ Grading surrounding the tree must promote drainage to the tree root zone (in such a manner as not to be detrimental to the tree), as noted on the Grading Plan.

It is well documented in the literature, and it is our experience, that fast-growing trees located near buildings founded on cohesive soils that shrink on drying can result in long-term differential settlements of the structures. Tree varieties that have the most pronounced effect on foundations are seen to consist of poplars, willows and some maples (i.e., Manitoba Maples) and, as such, they should not be considered in the landscaping design.

Retaining Walls and Garage Ramp Foundation Walls

Retaining walls should be designed by a Licensed Professional Engineer in the Province of Ontario and should be subject to a conforming global stability analysis. The foundation walls will be designed by a licensed structural engineer and should be designed using the earth pressure parameters provided in the following sections.

All sections of the retaining wall(s) should be designed so that their internal and external failure modes comply with CHBD requirements. Furthermore, any proposed retaining wall should be designed to maintain an adequate factor of safety greater than 1.5 under static loading conditions and greater than 1.1 under seismic loading conditions.

The applicable seismic design should incorporate Peak Ground Acceleration (PGA) for the Ottawa area as per the latest Ontario Building Code.

It is also required that the bearing medium of the proposed wall be reviewed by Paterson field personnel at the time of excavation and prior to placement of the granular bedding layer. Based on the results of the geotechnical investigation, it is anticipated that the walls will be founded over an engineered fill pad or undisturbed, in-situ soil bearing surfaces.

The soil parameters presented in Table 5 can be used in the design of the retaining walls.

Table 5 – Soil Parameters for Global Stability Analysis				
Soil Layer	**Unit Weight (kN/m^3)**	**Friction Angle (°)**	**Effective Cohesion (kPa)**	**Total Cohesion (kPa)**
Brown Silty Clay	17	33	5	80
Grey Silty Clay	16	33	10	40

It is recommended that a 100 mm diameter perforated corrugated plastic pipe with geosock, surrounded by 150 mm of 19 mm clear crushed stone on all sides, be placed behind the heel of the wall. The pipe should have a positive outlet, either in front of, below, or to the side of the wall, towards a natural slope or drainage system.

Backfill Materials

Retaining walls should be backfilled with free-draining granular material, as Granular A or Granular B Type II materials. Longitudinal drains and outlets should also be incorporated to ensure proper drainage of the backfill material.

It is further recommended that backfill material be placed within a wedge-shaped area defined by a line drawn from below the rear edge of the wall's base block at a slope of 1H:1V, or a minimum of 1 m behind the rear of the blocks. All material must be compacted to a minimum of 98% of the materials SPMDD.

Geotechnical parameters of the proposed free draining backfill material to be used at the subject site are provided in Table 6 for design purposes.

Table 6 – Geotechnical Parameters for Backfill Material							
Material Description	**Unit Weight (kN/m^3)**		**Friction Angle (°) φ'**	**Friction Factor, tan δ**	**Lateral Earth Pressure Coefficients**		
	Drained γ_{dry}	**Effective γ'**			**Active K_a**	**At Rest K_o**	**Passive K_P**
Granular A (Crushed Stone)	22	13.5	38	0.6	0.24	0.38	4.20
Granular B Type II (Crushed Stone)	22	13.5	40	0.6	0.22	0.36	4.60

Lateral Earth Pressure

It is recommended that a minimum of 1 m of backfill material consisting of clean, imported crushed stone as Granular A or Granular B Type II. The soil parameters shown in Table 13 and Table 14 above should be used for retaining wall design.

6.10 Low-Impact Development Considerations

Due to the poor hydraulic properties of in-situ silty clay soils, infiltration-type LID practices are not considered suitable for the subject site from a geotechnical perspective.

7.0 Recommendations

It is recommended that the following be carried out by Paterson once preliminary and future details of the proposed development have been prepared:

- Review preliminary and detailed grading, servicing and structural plan(s) from a geotechnical perspective.
- Review of architectural plans pertaining to foundation and underfloor drainage systems and waterproofing details for elevator shafts.

It is a requirement for the foundation design data provided herein to be applicable that a material testing and observation program be performed by the geotechnical consultant. The following aspects of the program should be performed by Paterson:

- Review and inspection of the installation of the foundation drainage systems.
- Observation of all bearing surfaces prior to the placement of concrete.
- Sampling and testing of the concrete and fill materials.
- Periodic observation of the condition of unsupported excavation side slopes in excess of 3 m in height, if applicable.
- Observation of all subgrades prior to backfilling and follow-up field density tests to determine the level of compaction achieved.
- Observation of clay seal placement at specified locations.
- Field density tests to determine the level of compaction achieved.
- Sampling and testing of the bituminous concrete including mix design reviews.

A report confirming that these works have been conducted in general accordance with our recommendations could be issued upon the completion of a satisfactory inspection program by the geotechnical consultant.

All excess soil must be handled as per *Ontario Regulation 406/19: On-Site and Excess Soil Management*.

8.0 Statement of Limitations

The recommendations provided are in accordance with the present understanding of the project. Paterson requests permission to review the recommendations when the drawings and specifications are completed.

A soils investigation is a limited sampling of a site. Should any conditions at the site be encountered which differ from those at the test locations, Paterson requests immediate notification to permit reassessment of our recommendations.

The recommendations provided herein should only be used by the design professionals associated with this project. They are not intended for contractors bidding on or undertaking the work. The latter should evaluate the factual information provided in this report and determine the suitability and completeness for their intended construction schedule and methods. Additional testing may be required for their purposes.

The present report applies only to the project described in this document. Use of this report for purposes other than those described herein or by person(s) other than Ironclad Developments Inc. or their agents, is not authorized without review by Paterson for the applicability of our recommendations to the alternative use of the report.

Paterson Group Inc.

Fernanda Carozzi, PhD. Geoph.

Drew Petahtegoose, P.Eng.

LICENSED PROFESSIONAL ENGINEER
March 27, 2026
D. J. PETAHTEGOOSE
100568013
PROVINCE OF ONTARIO

Report Distribution:

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APPENDIX 1

SOIL PROFILE AND TEST DATA SHEETS

SYMBOLS AND TERMS

CONSOLIDATION TESTING RESULTS

ANALYTICAL TESTING RESULTS

patersongroup Consulting Engineers

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
8555 Campeau Drive
Ottawa, Ontario

DATUM Geodetic

REMARKS

BORINGS BY CME-55 Low Clearance Drill

DATE 2020 March 13

FILE NO. PG5287

HOLE NO. BH 1-20

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content % 20 40 60 80	Piezometer Construction
GROUND SURFACE						0	100.98		
TOPSOIL 0.08		AU	1						
FILL: Brown silty clay, trace sand		SS	2	67	16	1	99.98		
2.13		SS	3	12	8	2	98.98		
Very stiff, brown **SILTY CLAY**		SS	4	100	12	3	97.98		
3.66		SS	5	100	17				
End of Borehole									

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers
154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
8555 Campeau Drive
Ottawa, Ontario

DATUM Geodetic

REMARKS

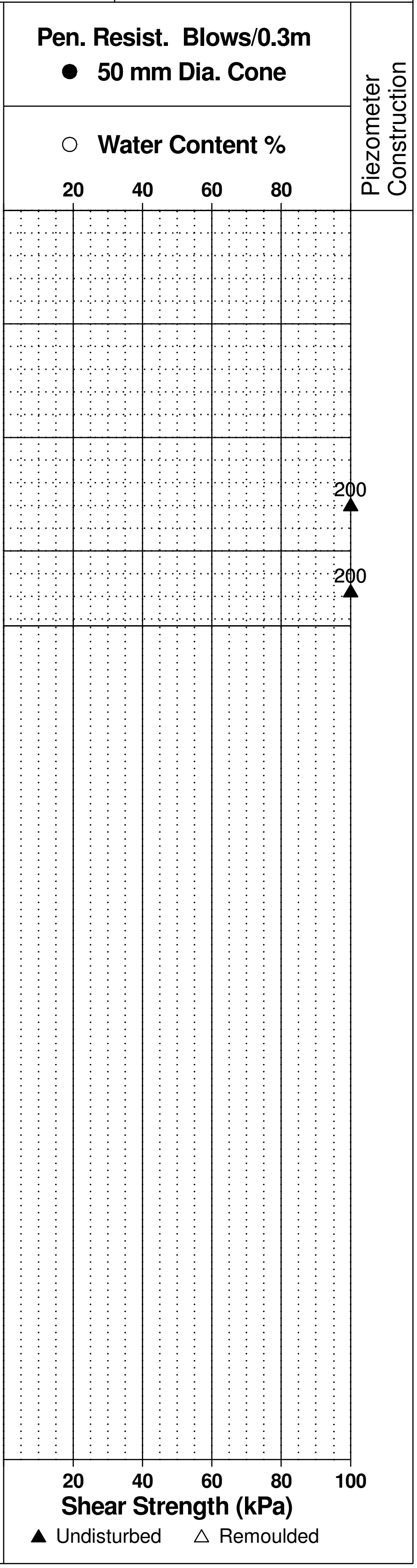
BORINGS BY CME-55 Low Clearance Drill

DATE 2020 March 13

FILE NO. PG5287

HOLE NO. BH 2-20

SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	% RECOVERY	N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE					0	99.47
TOPSOIL 0.20	AU	1				
FILL: Brown silty clay, trace gravel 1.37	SS	2	12	2	1	98.47
Hard, brown **SILTY CLAY**	SS	3	75	6	2	97.47
					3	96.47
3.66 End of Borehole						



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
8555 Campeau Drive
Ottawa, Ontario

DATUM Geodetic

REMARKS

BORINGS BY CME-55 Low Clearance Drill

DATE 2020 March 12

FILE NO. **PG5287**

HOLE NO. **BH 3-20**

SOIL DESCRIPTION

GROUND SURFACE

FILL: Brown silty sand with crushed stone 0.53

FILL: Brown silty clay with gravel, some sand 2.30

Hard to very stiff, brown **SILTY CLAY**

- stiff to firm and grey by 5.3m depth

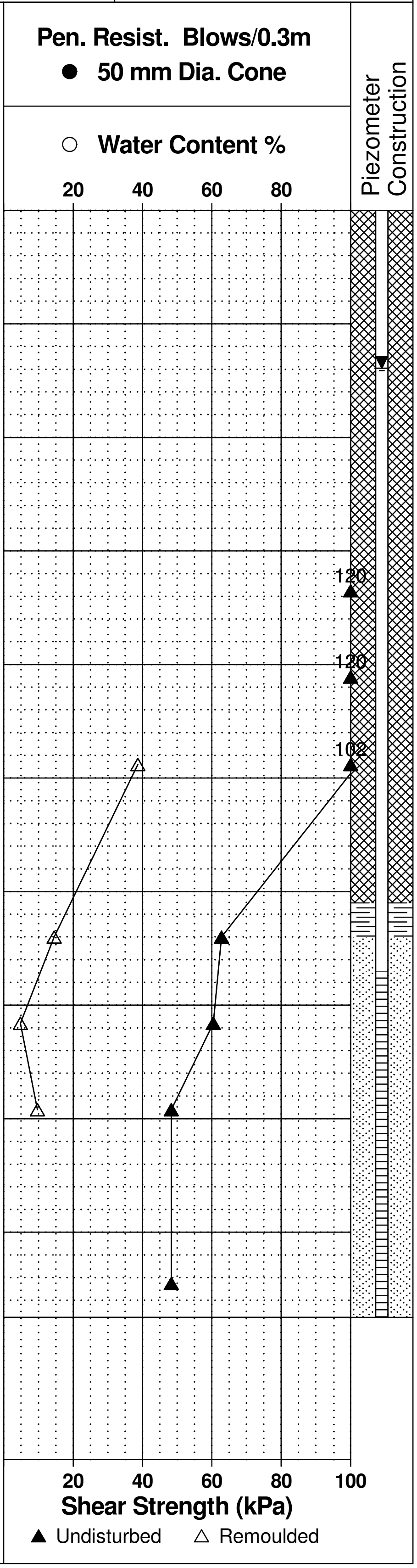
9.75

End of Borehole

(GWL @ 1.39m - March 20, 2020)

SAMPLE TYPE	NUMBER	% RECOVERY	N VALUE or RQD
AU	1		
SS	2	46	4
SS	3	79	6
SS	4	100	6
SS	5	100	P
SS	6	100	2

DEPTH (m)	ELEV. (m)
0	100.37
1	99.37
2	98.37
3	97.37
4	96.37
5	95.37
6	94.37
7	93.37
8	92.37
9	91.37



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SOIL PROFILE AND TEST DATA

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Ottawa, Ontario

DATUM Geodetic

REMARKS

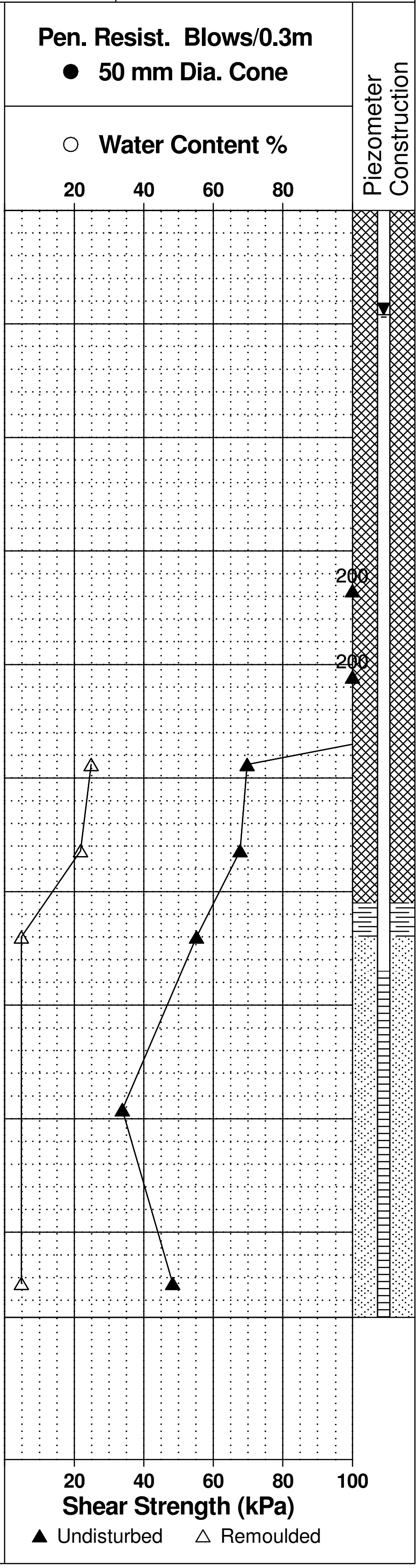
BORINGS BY CME-55 Low Clearance Drill

DATE 2020 March 13

FILE NO. PG5287

HOLE NO. BH 4-20

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	100.26
TOPSOIL 0.18		AU	1				
FILL: Brown silty clay, trace sand and gravel		SS	2	0	6	1	99.26
2.13		SS	3	38	4	2	98.26
		SS	4	100	8		
						3	97.26
Hard to very stiff, brown **SILTY CLAY**						4	96.26
- stiff to firm and grey by 4.6m depth						5	95.26
						6	94.26
						7	93.26
						8	92.26
						9	91.26
9.75							
End of Borehole (GWL @ 0.92m - March 20, 2020)							



SOIL PROFILE AND TEST DATA

Geotechnical Investigation
8555 Campeau Drive
Ottawa, Ontario

DATUM Geodetic

REMARKS

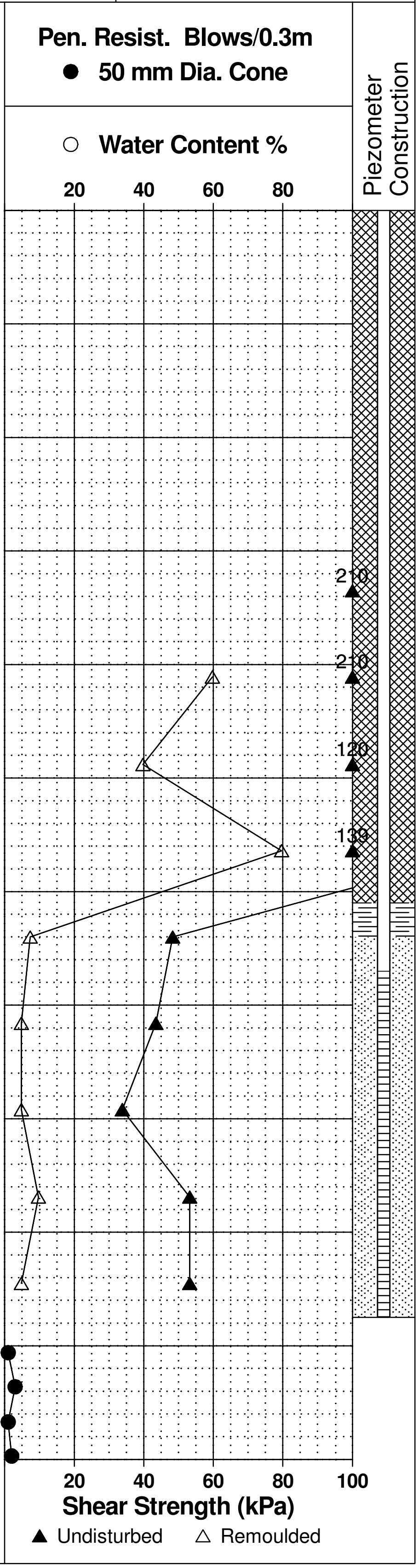
BORINGS BY CME-55 Low Clearance Drill

DATE 2020 March 13

FILE NO. PG5287

HOLE NO. BH 5-20

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	% RECOVERY	N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	100.66
TOPSOIL 0.10		AU	1				
		SS	2	29	5	1	99.66
		SS	3	88	6	2	98.66
		SS	4	100	7		
						3	97.66
Hard to very stiff, brown **SILTY CLAY**						4	96.66
						5	95.66
- stiff to firm and grey by 6.1m depth						6	94.66
						7	93.66
						8	92.66
9.75						9	91.66
Dynamic Cone Penetration Test commenced at 9.75m depth.						10	90.66
						11	89.66



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SOIL PROFILE AND TEST DATA

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REMARKS

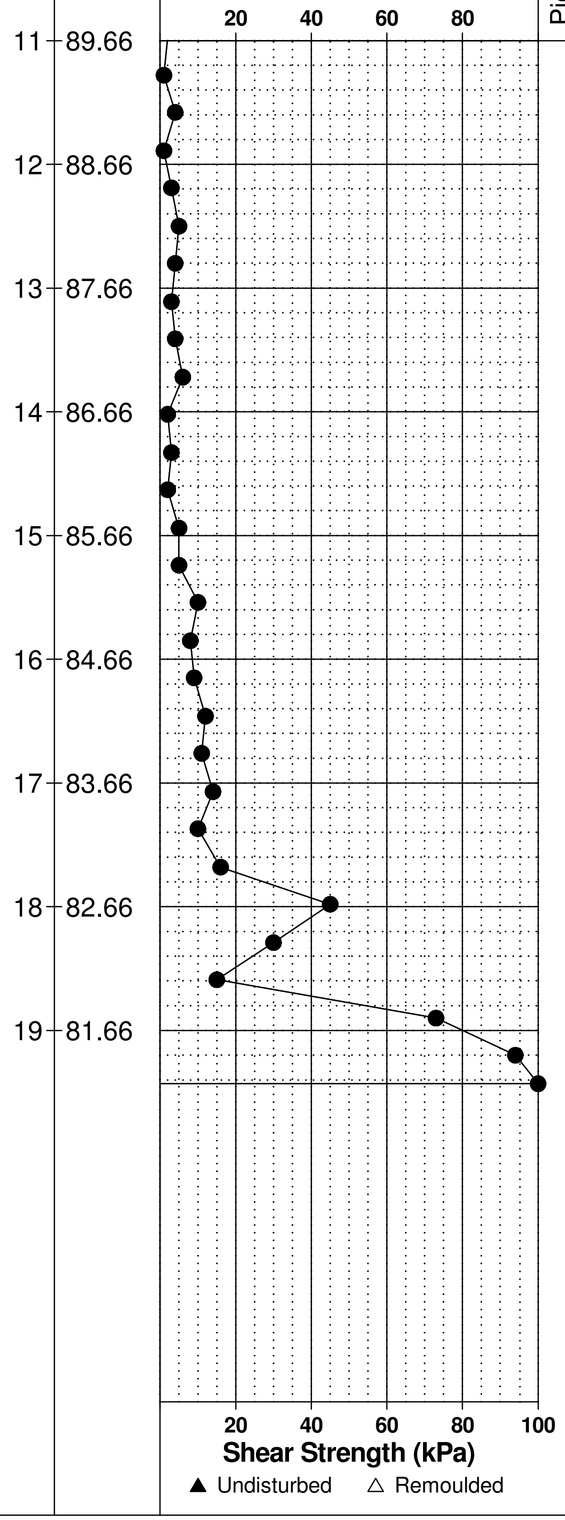
BORINGS BY CME-55 Low Clearance Drill

DATE 2020 March 13

FILE NO. PG5287

HOLE NO. BH 5-20

SOIL DESCRIPTION	STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE		TYPE	NUMBER	% RECOVERY	N VALUE or RQD				
19.43 End of Borehole Practical DCPT refusal at 19.43m depth. (BH dry - March 20, 2020)									



SOIL PROFILE AND TEST DATA

Geotechnical Investigation
8555 Campeau Drive
Ottawa, Ontario

DATUM Geodetic

REMARKS

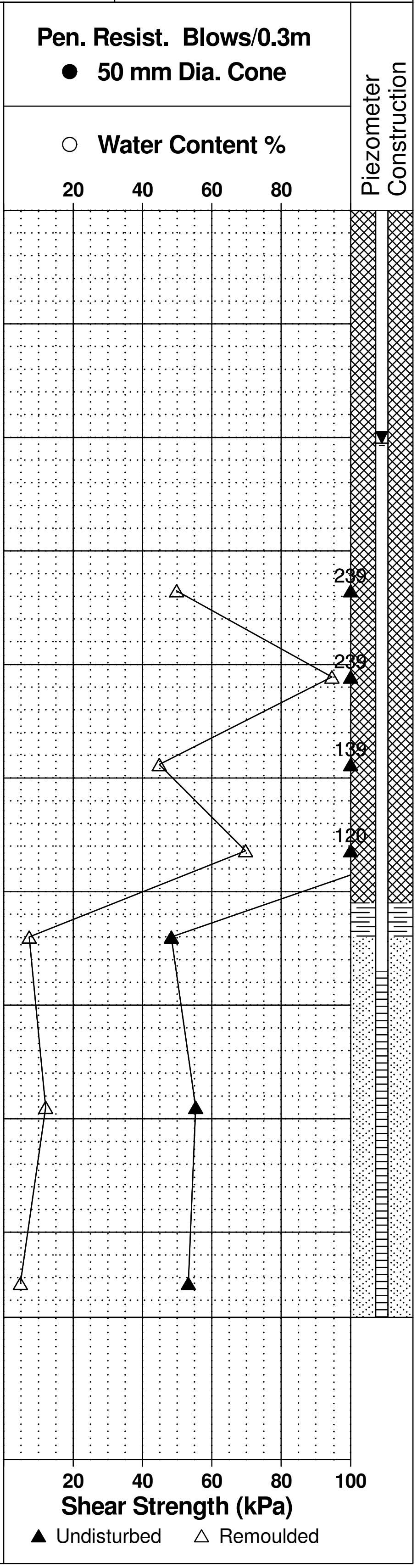
BORINGS BY CME-55 Low Clearance Drill

DATE 2020 March 16

FILE NO. PG5287

HOLE NO. BH 6-20

SOIL DESCRIPTION	STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)
		TYPE	NUMBER	% RECOVERY	N VALUE or RQD		
GROUND SURFACE						0	101.13
TOPSOIL 0.13		AU	1				
		SS	2	29	8	1	100.13
		SS	3	4	9		
						2	99.13
		SS	4	100	7		
						3	98.13
Hard to very stiff, brown **SILTY CLAY**						4	97.13
						5	96.13
						6	95.13
- firm to stiff and grey by 6.10m depth							
						7	94.13
						8	93.13
						9	92.13
9.75							
End of Borehole (GWL @ 2.05m - March 20, 2020)							



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154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
8555 Campeau Drive
Ottawa, Ontario

DATUM Geodetic

REMARKS

BORINGS BY CME-55 Low Clearance Drill

DATE 2020 March 13

FILE NO. PG5287

HOLE NO. BH 7-20

SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE					0	101.18
TOPSOIL 0.20	AU	1				
FILL: Brown silty clay, trace crushed stone 1.37	SS	2	8	6	1	100.18
Very stiff, brown **SILTY CLAY**	SS	3	62	7	2	99.18
	SS	4	92	7	3	98.18
3.66	SS	5	100	9		
End of Borehole						

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone

○ Water Content %

20 40 60 80

Piezometer Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

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154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
8555 Campeau Drive
Ottawa, Ontario

DATUM Geodetic

FILE NO. **PG5287**

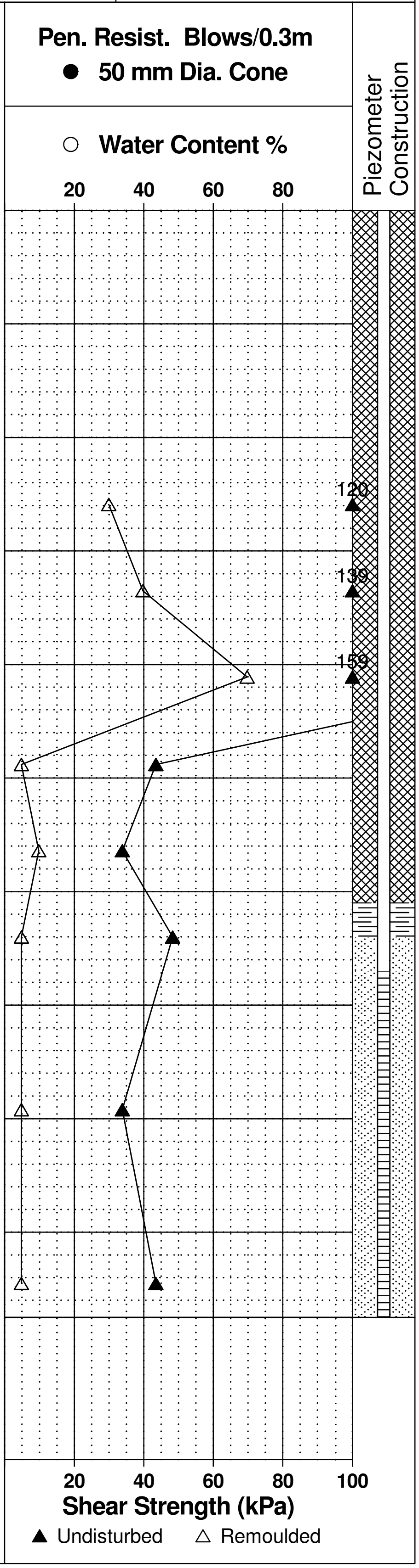
REMARKS

HOLE NO. **BH 8-20**

BORINGS BY CME-55 Low Clearance Drill

DATE 2020 March 16

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	101.47
TOPSOIL 0.18		AU	1				
		SS	2	75	7	1	100.47
		SS	3	100	3		
						2	99.47
Very stiff, brown **SILTY CLAY**						3	98.47
						4	97.47
- stiff to firm and grey by 4.6m depth						5	96.47
						6	95.47
						7	94.47
						8	93.47
						9	92.47
9.75							
End of Borehole (BH dry - March 20, 2020)							



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154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
8555 Campeau Drive
Ottawa, Ontario

DATUM Geodetic

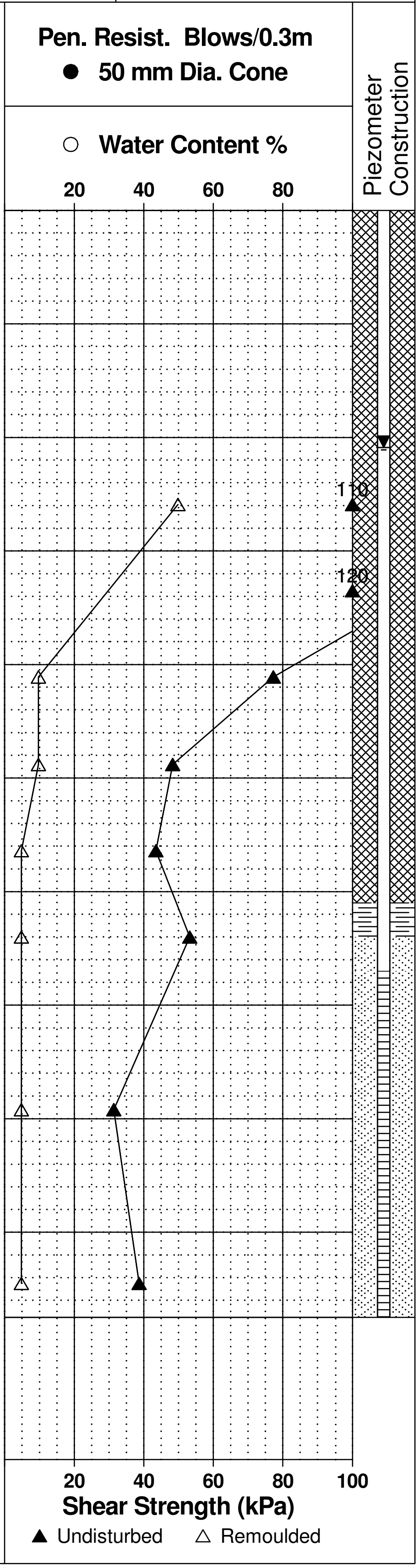
FILE NO. PG5287

REMARKS

HOLE NO. BH 9-20

BORINGS BY CME-55 Low Clearance Drill **DATE** 2020 March 16

SOIL DESCRIPTION	STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)
		TYPE	NUMBER	% RECOVERY	N VALUE or RQD		
GROUND SURFACE						0	101.60
TOPSOIL 0.20		AU	1				
		SS	2	75	4	1	100.60
		SS	3	67	4	2	99.60
Hard to stiff, brown **SILTY CLAY**						3	98.60
						4	97.60
- stiff to firm and grey by 4.6m depth						5	96.60
						6	95.60
						7	94.60
						8	93.60
						9	92.60
9.75							
End of Borehole							
(GWL @ 2.09m - March 20, 2020)							



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154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
8555 Campeau Drive
Ottawa, Ontario

DATUM Geodetic

REMARKS

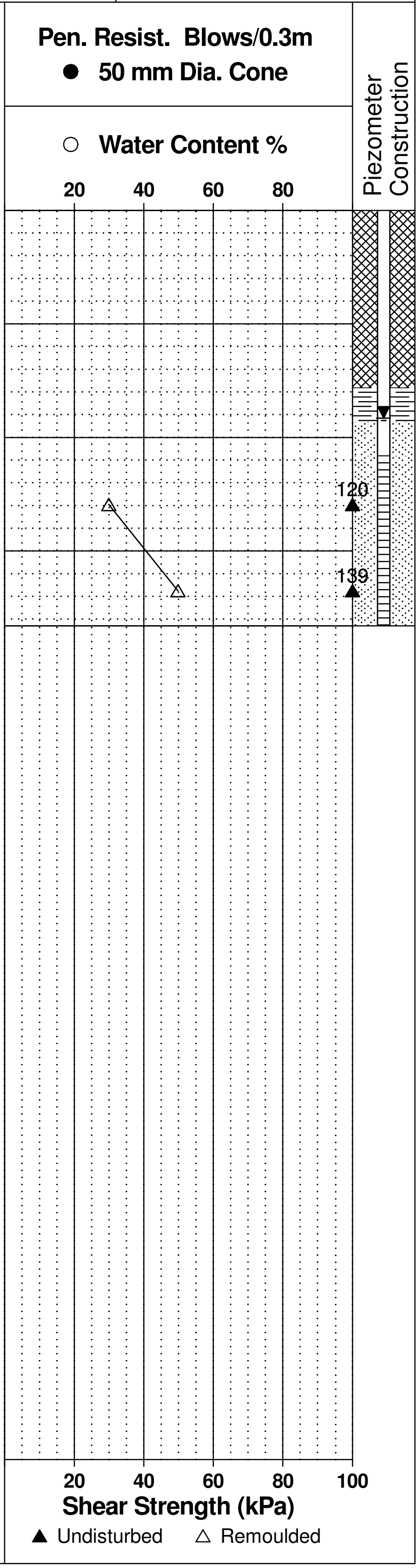
BORINGS BY CME-55 Low Clearance Drill

DATE 2020 March 17

FILE NO. PG5287

HOLE NO. BH10-20

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	101.74
TOPSOIL 0.15	■	AU	1				
Very stiff, brown **SILTY CLAY**	▨					1	100.74
		SS	2	79	4		
		SS	3	88	3		
						2	99.74
						3	98.74
3.66							
End of Borehole							
(GWL @ 1.83m - March 20, 2020)							



SOIL PROFILE AND TEST DATA

Geotechnical Investigation
8555 Campeau Drive
Ottawa, Ontario

DATUM Geodetic

REMARKS

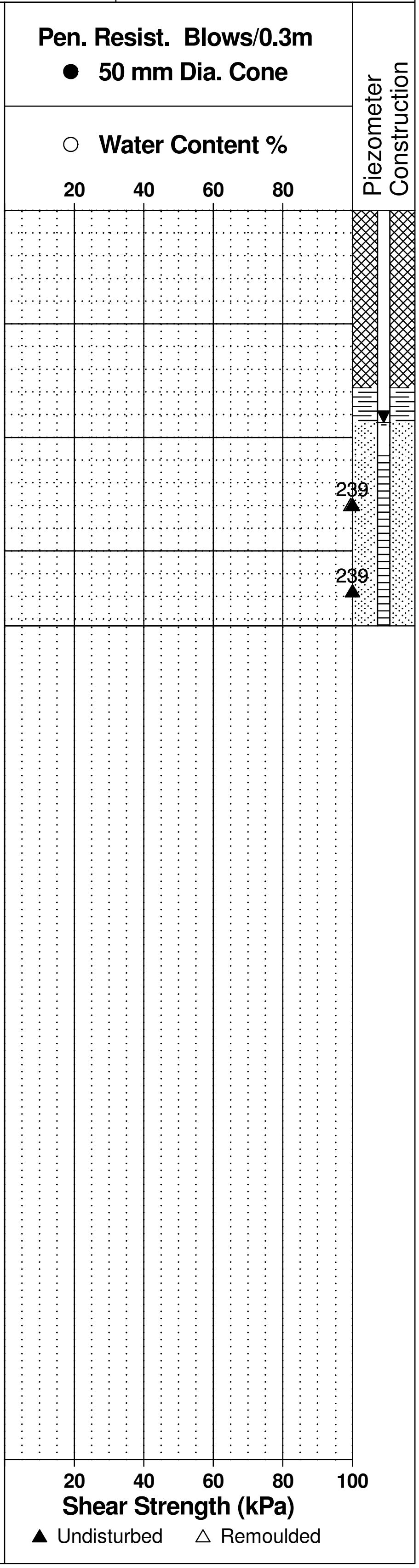
BORINGS BY CME-55 Low Clearance Drill

DATE 2020 March 17

FILE NO. PG5287

HOLE NO. BH11-20

SOIL DESCRIPTION	Depth of stratum base (m)	TYPE	NUMBER	% RECOVERY	N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	101.98
TOPSOIL	0.20						
FILL: Brown silty clay with gravel	0.76	AU	1				
Hard, brown **SILTY CLAY**	3.66	SS	2	50	4	1	100.98
		SS	3	88	4	2	99.98
						3	98.98
End of Borehole							
(GWL @ 1.87m - March 20, 2020)							



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154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
8555 Campeau Drive
Ottawa, Ontario

DATUM Geodetic

REMARKS

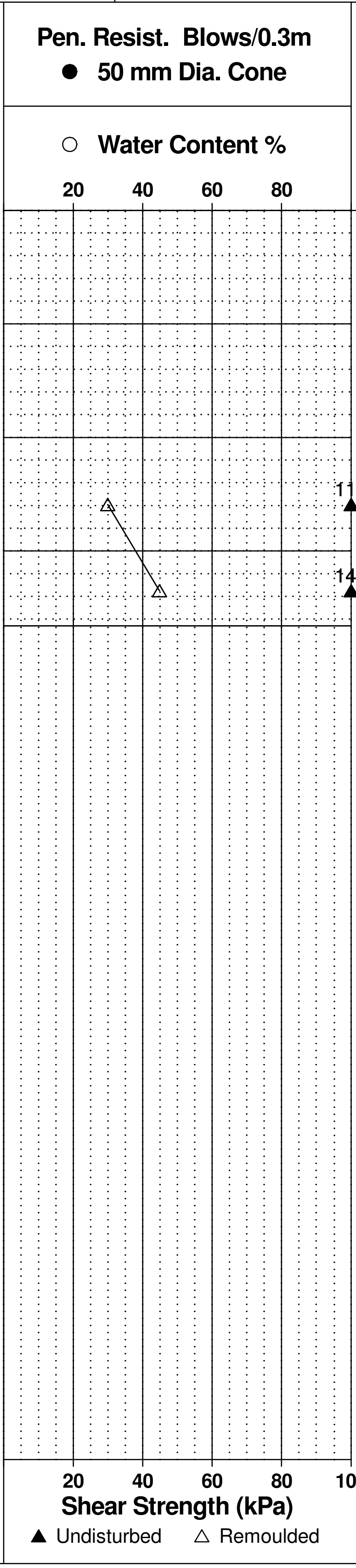
BORINGS BY CME-55 Low Clearance Drill

DATE 2020 March 17

FILE NO. PG5287

HOLE NO. BH12-20

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Piezometer Construction
GROUND SURFACE						0	101.44	
TOPSOIL 0.20		AU	1					
Very stiff, brown **SILTY CLAY**		SS	2	83	3	1	100.44	
		SS	3	96	3	2	99.44	
						3	98.44	
3.66								
End of Borehole								



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154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
8555 Campeau Drive
Ottawa, Ontario

DATUM Geodetic

REMARKS

BORINGS BY CME-55 Low Clearance Drill

DATE 2020 March 16

FILE NO. **PG5287**

HOLE NO. **BH13-20**

SOIL DESCRIPTION

GROUND SURFACE

TOPSOIL 0.15

Hard to stiff, brown **SILTY CLAY**

- stiff to firm and grey by 4.6m depth

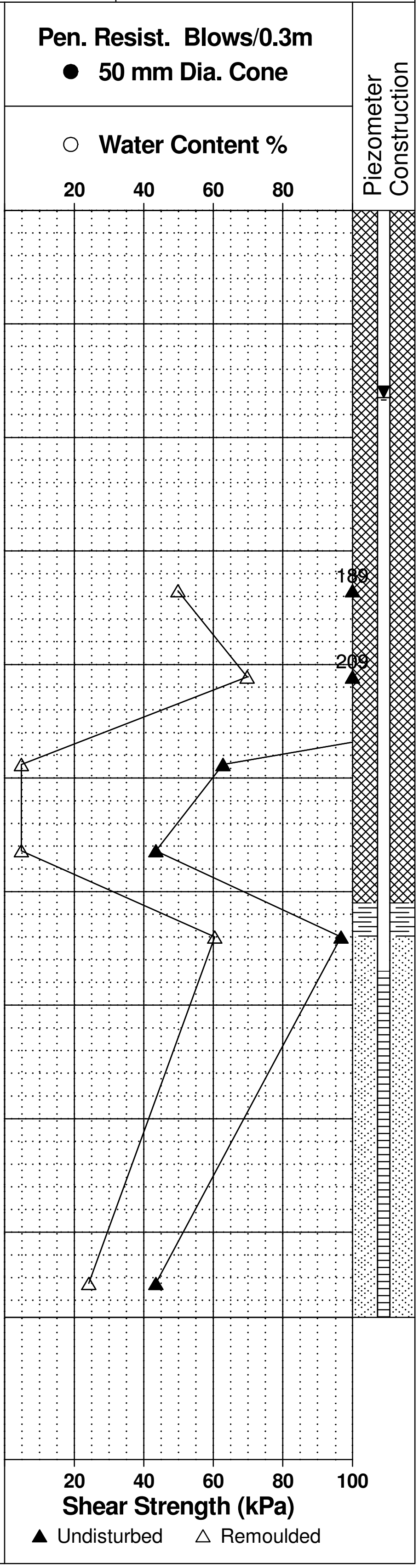
9.75

End of Borehole

(GWL @ 1.65m - March 20, 2020)

TYPE	NUMBER	% RECOVERY	N VALUE or RQD
AU	1		
SS	2	54	5
SS	3	100	7
SS	4	100	4
SS	5	100	W

DEPTH (m)	ELEV. (m)
0	100.73
1	99.73
2	98.73
3	97.73
4	96.73
5	95.73
6	94.73
7	93.73
8	92.73
9	91.73



SOIL PROFILE AND TEST DATA

Geotechnical Investigation
8555 Campeau Drive
Ottawa, Ontario

DATUM Geodetic

REMARKS

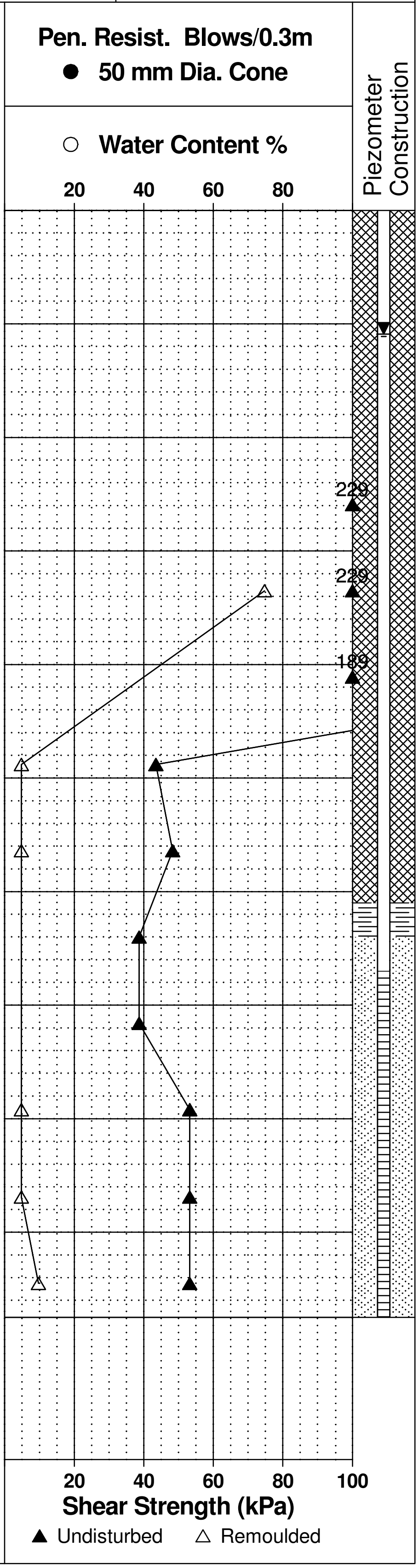
BORINGS BY CME-55 Low Clearance Drill

DATE 2020 March 12

FILE NO. PG5287

HOLE NO. BH14-20

SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE					0	100.33
TOPSOIL 0.08	AU	1				
	SS	2	100	7	1	99.33
	SS	3	92	8	2	98.33
Hard to very stiff, brown **SILTY CLAY**					3	97.33
					4	96.33
- firm to stiff and grey by 4.6m depth					5	95.33
					6	94.33
					7	93.33
					8	92.33
					9	91.33
9.75						
End of Borehole (GWL @ 1.09m - March 20, 2020)						



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154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
8555 Campeau Drive
Ottawa, Ontario

DATUM Geodetic

FILE NO. **PG5287**

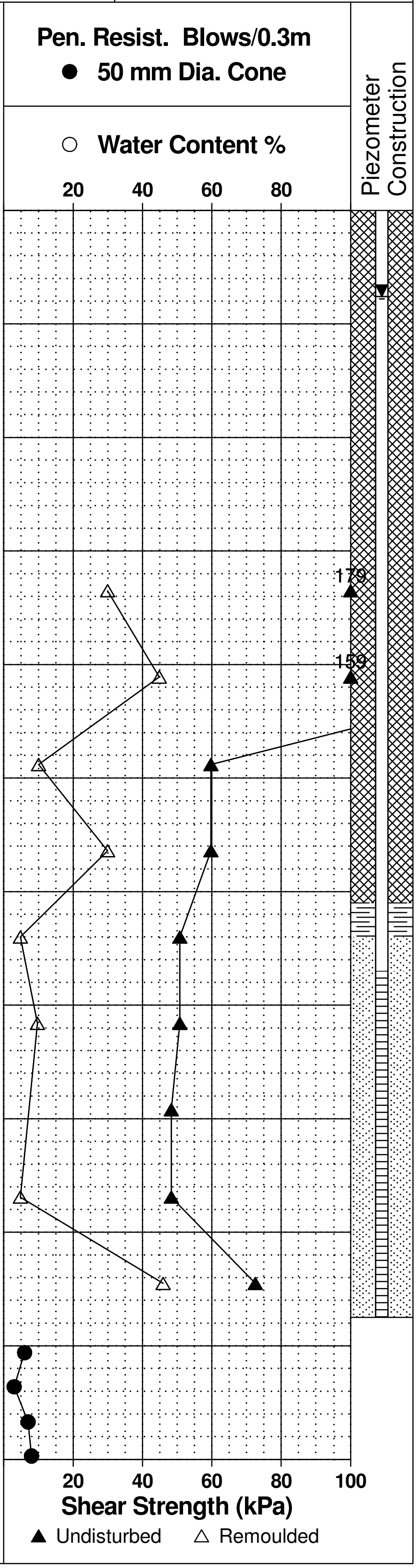
REMARKS

HOLE NO. **BH15-20**

BORINGS BY CME-55 Low Clearance Drill

DATE 2020 March 12

SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE					0	99.97
TOPSOIL 0.08	AU	1				
	SS	2	92	7	1	98.97
	SS	3	100	8	2	97.97
	SS	4	100	5		
					3	96.97
Very stiff to stiff, brown **SILTY CLAY**						
					4	95.97
- grey by 4.6m depth						
					5	94.97
					6	93.97
					7	92.97
					8	91.97
					9	90.97
9.75						
Dynamic Cone Penetration Test commenced at 9.75m depth.					10	89.97
					11	88.97



SOIL PROFILE AND TEST DATA

Geotechnical Investigation
8555 Campeau Drive
Ottawa, Ontario

DATUM Geodetic

REMARKS

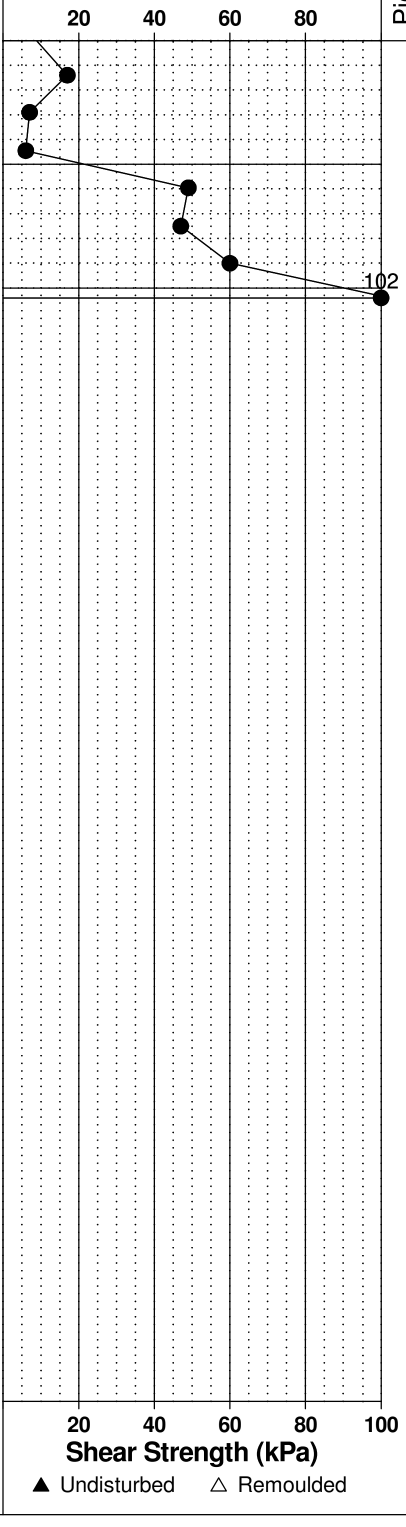
BORINGS BY CME-55 Low Clearance Drill

DATE 2020 March 12

FILE NO. PG5287

HOLE NO. BH15-20

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone / ○ Water Content %	Piezometer Construction
GROUND SURFACE									
						11	88.97		
						12	87.97		
13.08						13	86.97		
End of Borehole Practical DCPT refusal at 13.08m depth. (GWL @ 0.76m - March 20, 2020)									



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154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Proposed Commercial Development - Campeau Drive
Ottawa, Ontario

DATUM Ground surface elevations provided by Stantec Geomatics Ltd.

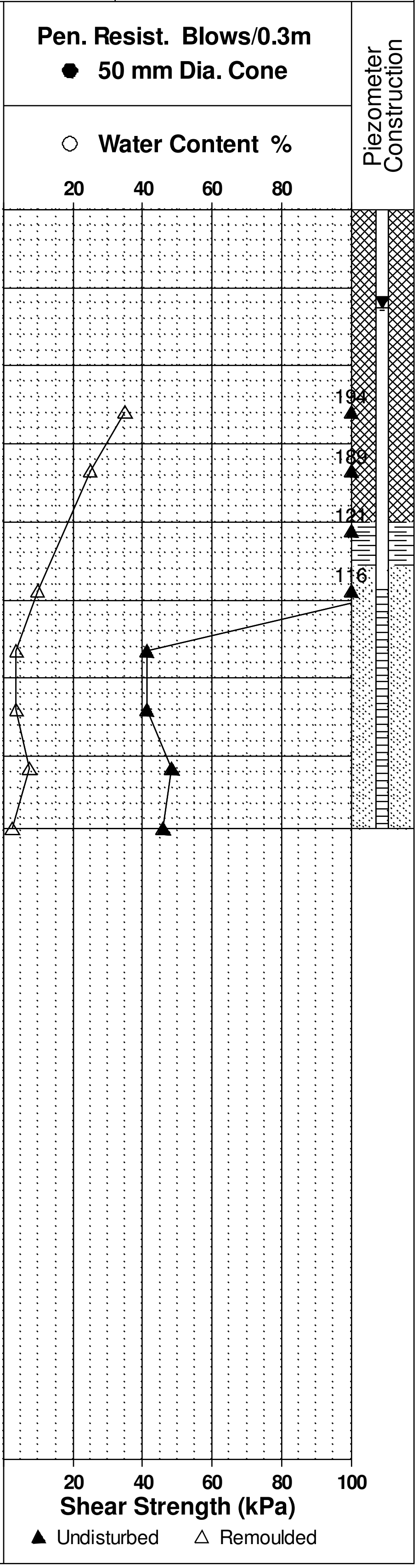
FILE NO. **PG2767**

REMARKS

HOLE NO. **BH16**

BORINGS BY CME 850X Power Auger **DATE** October 24, 2012

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	100.48
TOPSOIL 0.25		AU	1				
		SS	2	100	16	1	99.48
		SS	3	100	12	2	98.48
						3	97.48
Very stiff, brown **SILTY CLAY**						4	96.48
- firm by 5.1m depth						5	95.48
- grey by 5.9m depth						6	94.48
						7	93.48
7.92							
End of Borehole							
(GWL @ 1.26m-Nov. 22, 2012)							



patersongroup Consulting Engineers

28 Concourse Gate, Unit 1, Ottawa, ON K2E 7T7

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Prop. Kanata West Business Park - Huntmar Road
Ottawa, Ontario

DATUM Ground suface elevations provided by Stantec Geomatics

FILE NO. PG0912

REMARKS

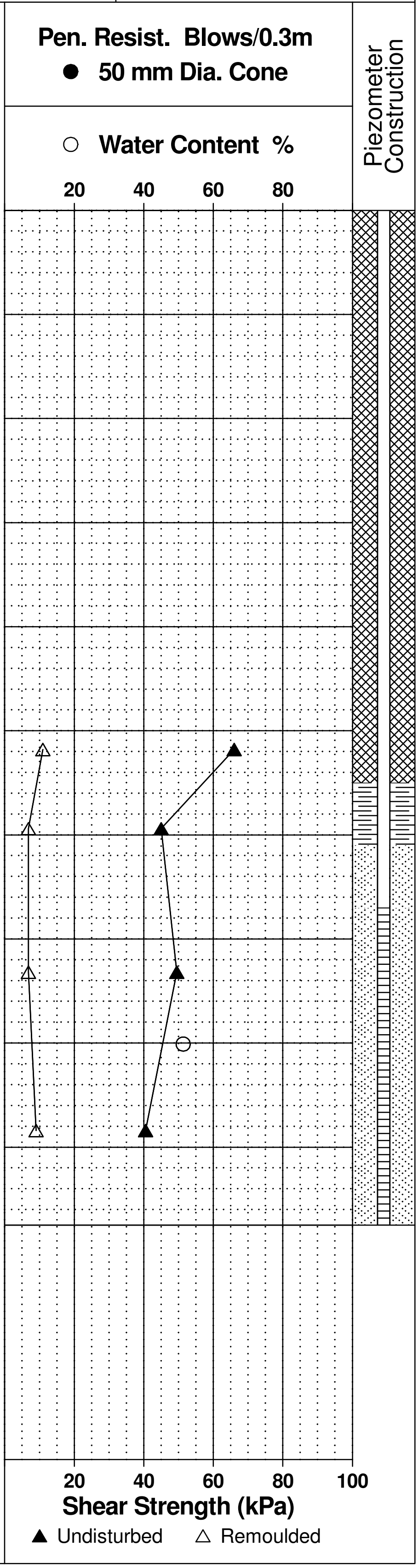
HOLE NO. BH10-10

BORINGS BY CME 55 Power Auger

DATE 3 December 2010

SOIL DESCRIPTION	STRATA DEPTH (m)	SAMPLE TYPE	NUMBER	% RECOVERY	N VALUE or RQD
GROUND SURFACE					
TOPSOIL	0.10	AU	1		
FILL: Brown silty sand	0.76	AU	2		
Very stiff to stiff, brown **SILTY CLAY**		SS	3		10
		SS	4		11
		SS	5	92	
		SS	6	100	4
- firm and grey by 5.2m depth		SS	7	100	
		TW	8		
		TW	9		
	9.75	TW	10		
End of Borehole					

DEPTH (m)	ELEV. (m)
0	100.62
1	99.62
2	98.62
3	97.62
4	96.62
5	95.62
6	94.62
7	93.62
8	92.62
9	91.62



SOIL PROFILE AND TEST DATA
Excess Soil Quality Assessment
319 Huntmar Drive, Ottawa, ON

COORD. SYS.: UTM ZONE 18 **EASTING:** 426691.52 **NORTHING:** 5016391.49 **ELEVATION:** 100.53

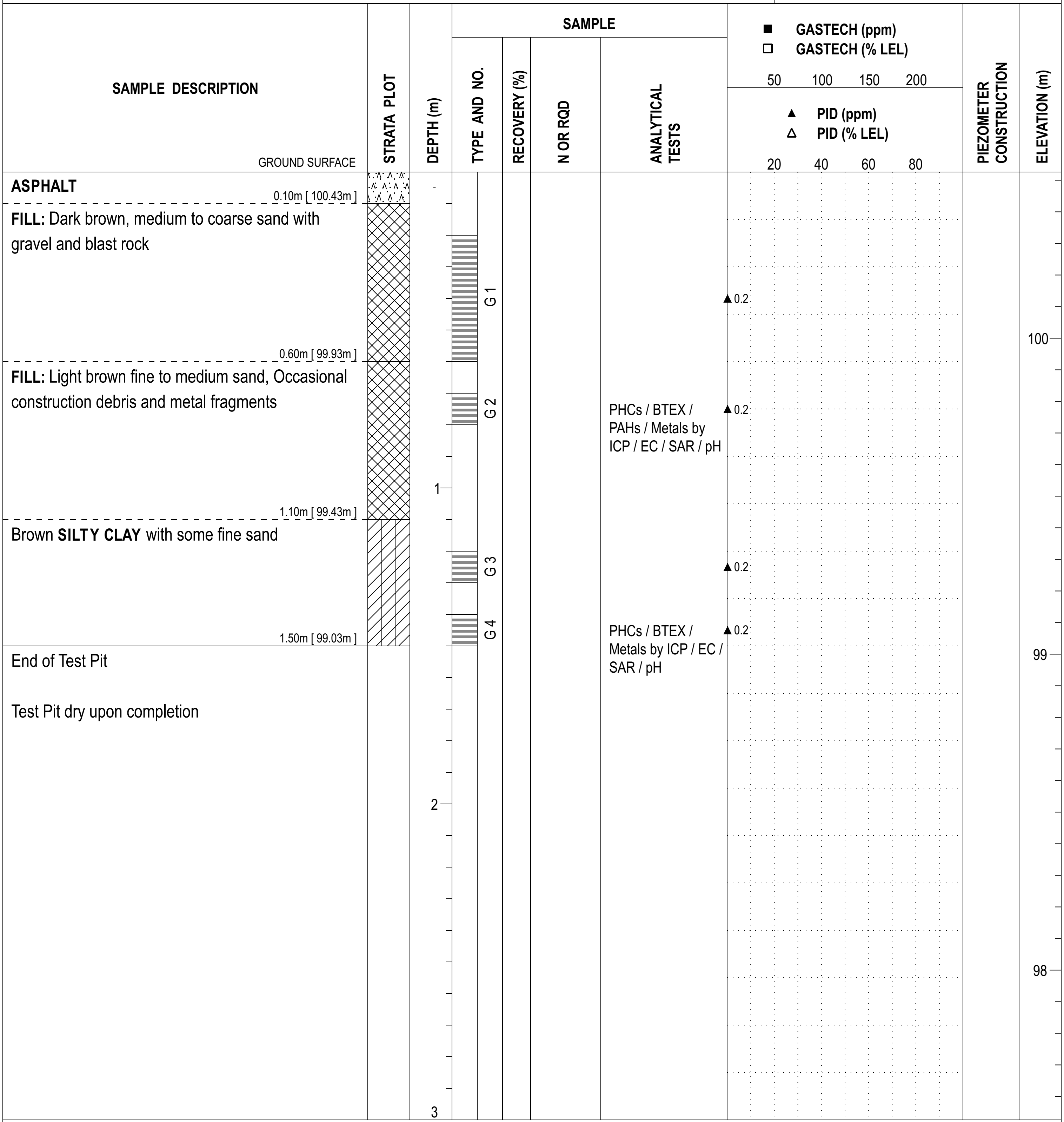
PROJECT: Proposed Residential Development

ADVANCED BY: Mini-excavator

REMARKS: Datum: NAD1983 (Canada) Geoid: CGG2013a **DATE:** November 4, 2025

FILE NO. : PE7242

HOLE NO. : TP 1-25



SAMPLE DESCRIPTION (GROUND SURFACE)	DEPTH	SAMPLE TYPE AND NO.	RECOVERY (%)	N OR RQD	ANALYTICAL TESTS	PID (ppm)
ASPHALT	0.10m [100.43m]					
FILL: Dark brown, medium to coarse sand with gravel and blast rock	0.60m [99.93m]	G 1				0.2
FILL: Light brown fine to medium sand, Occasional construction debris and metal fragments	1.10m [99.43m]	G 2			PHCs / BTEX / PAHs / Metals by ICP / EC / SAR / pH	0.2
Brown **SILTY CLAY** with some fine sand	1.50m [99.03m]	G 3				0.2
		G 4			PHCs / BTEX / Metals by ICP / EC / SAR / pH	0.2

End of Test Pit

Test Pit dry upon completion

SOIL PROFILE AND TEST DATA

Excess Soil Quality Assessment

319 Huntmar Drive, Ottawa, ON

COORD. SYS.: UTM ZONE 18 **EASTING:** 426715.79 **NORTHING:** 5016350.76 **ELEVATION:** 100.87

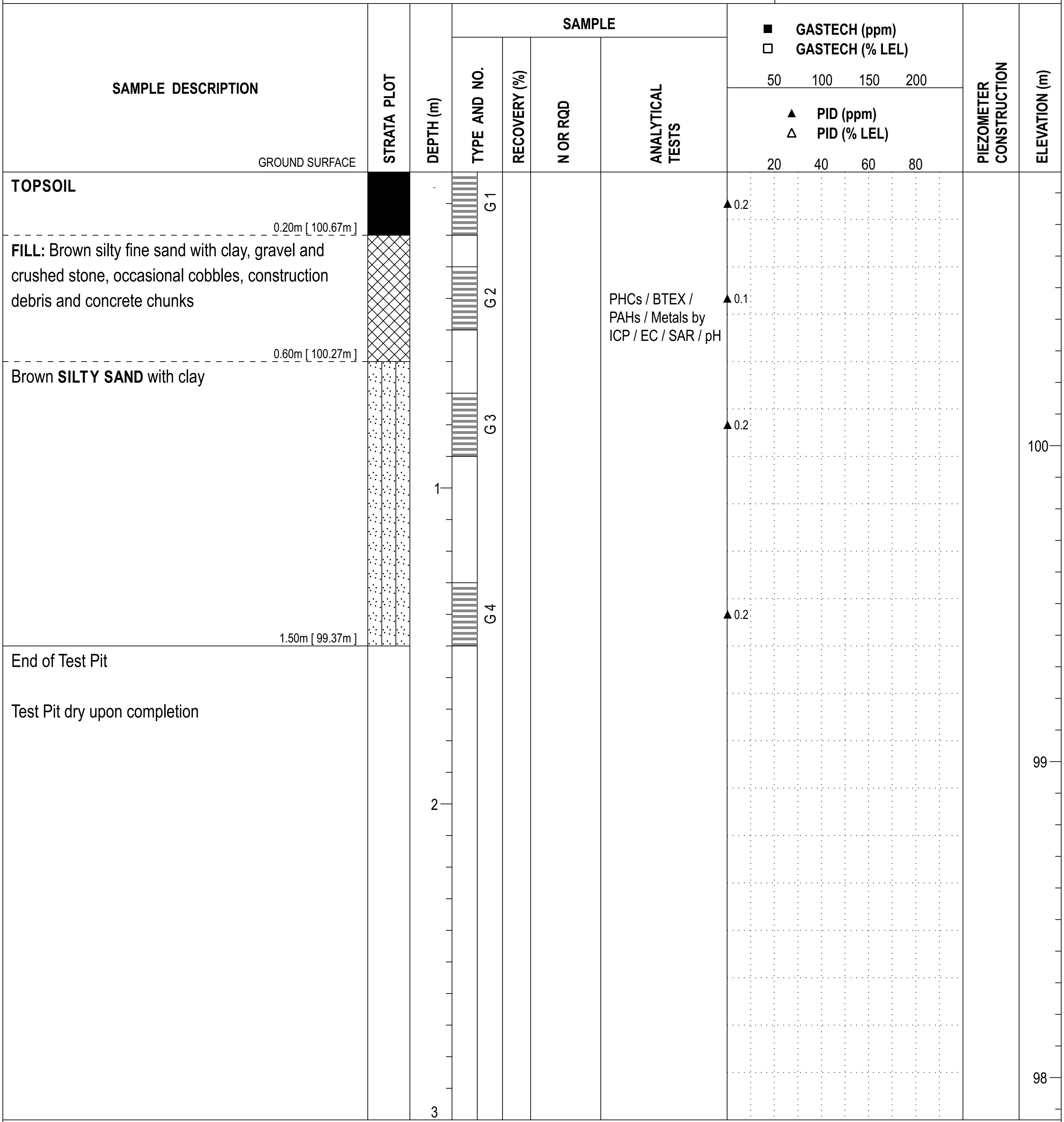
PROJECT: Proposed Residential Development

ADVANCED BY: Mini-excavator

REMARKS: Datum: NAD1983 (Canada) Geoid: CGG2013a **DATE:** November 4, 2025

FILE NO. : **PE7242**

HOLE NO. : **TP 2-25**



SAMPLE DESCRIPTION	Sample	Analytical Tests	PID (ppm)
TOPSOIL 0.20m [100.67m]	G 1		0.2
FILL: Brown silty fine sand with clay, gravel and crushed stone, occasional cobbles, construction debris and concrete chunks 0.60m [100.27m]	G 2	PHCs / BTEX / PAHs / Metals by ICP / EC / SAR / pH	0.1
Brown **SILTY SAND** with clay	G 3		0.2
1.50m [99.37m]	G 4		0.2

End of Test Pit

Test Pit dry upon completion

P:/AutoCAD Drawings/Test Hole Data Files/PE72xx/PE7242 - cgg2013a/data.sqlite 2026-03-27, 11:42 Paterson_Template CG

SOIL PROFILE AND TEST DATA

Excess Soil Quality Assessment

319 Huntmar Drive, Ottawa, ON

COORD. SYS.: UTM ZONE 18 **EASTING:** 426734.62 **NORTHING:** 5016324.05 **ELEVATION:** 101.01

PROJECT: Proposed Residential Development

ADVANCED BY: Mini-excavator

REMARKS: Datum: NAD1983 (Canada) Geoid: CGG2013a **DATE:** November 4, 2025

FILE NO. : PE7242

HOLE NO. : TP 3-25

SAMPLE DESCRIPTION	STRATA PLOT	DEPTH (m)	SAMPLE: TYPE AND NO.	SAMPLE: RECOVERY (%)	SAMPLE: N OR RQD	SAMPLE: ANALYTICAL TESTS	▲ PID (ppm)	PIEZOMETER CONSTRUCTION	ELEVATION (m)
GROUND SURFACE		0							101
TOPSOIL			G 1			PHCs / BTEX / Metals by ICP / EC / SAR / pH	0.0		
0.30m [100.71m]									
Brown **SILTY SAND** with clay			G 2				0.1		
		1							100
			G 3			PHCs / BTEX / Metals by ICP / EC / SAR / pH	0.0		
1.50m [99.51m]									
End of Test Pit Test Pit dry upon completion									
		2							99
		3							

Legend: ■ GASTECH (ppm) ☐ GASTECH (% LEL) 50 100 150 200; ▲ PID (ppm) △ PID (% LEL) 20 40 60 80

PATERSON GROUP

SOIL PROFILE AND TEST DATA

Excess Soil Quality Assessment

319 Huntmar Drive, Ottawa, ON

COORD. SYS.: UTM ZONE 18 **EASTING:** 426758.16 **NORTHING:** 5016354.27 **ELEVATION:** 101.59

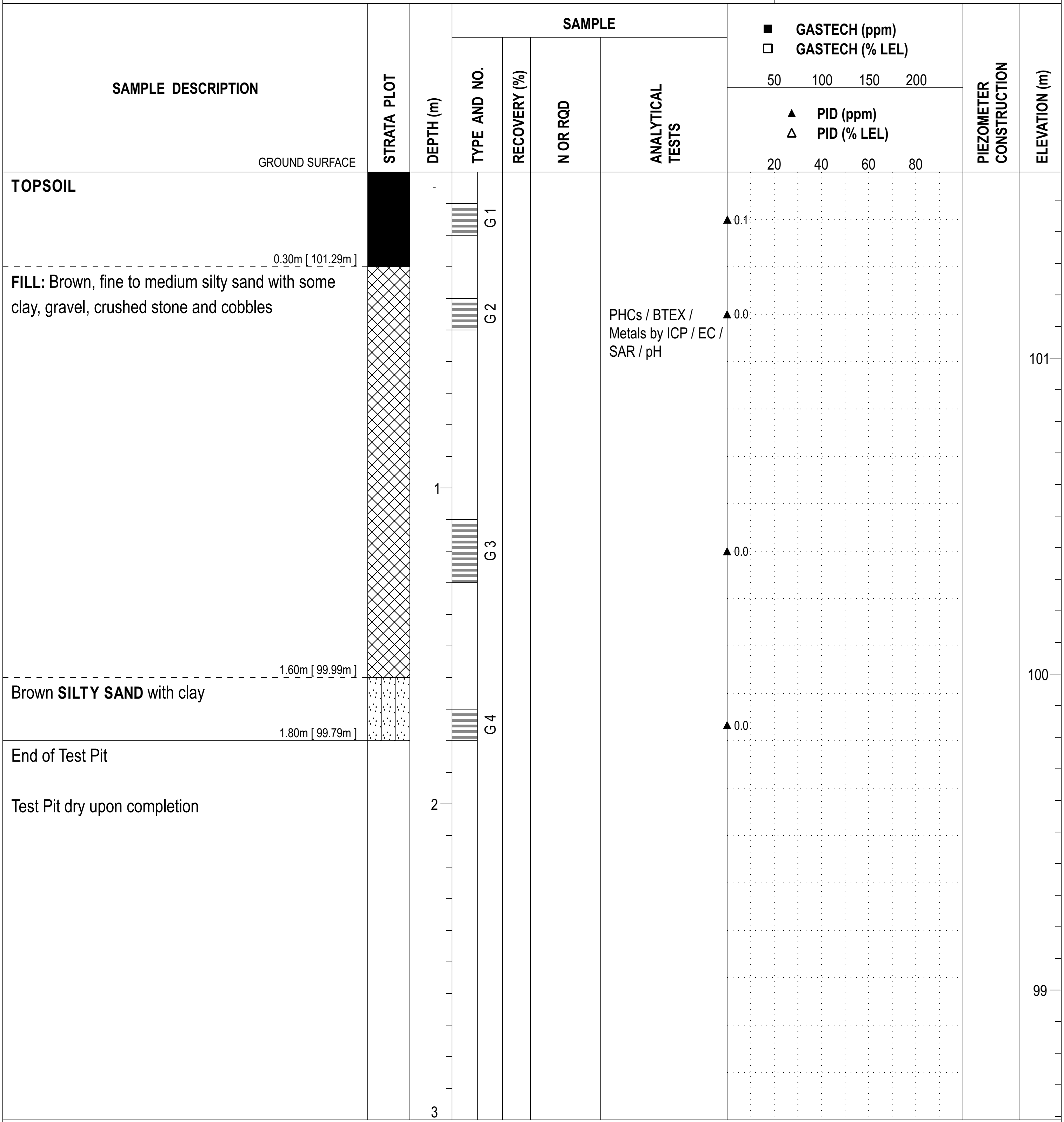
PROJECT: Proposed Residential Development

ADVANCED BY: Mini-excavator

REMARKS: Datum: NAD1983 (Canada) Geoid: CGG2013a **DATE:** November 4, 2025

FILE NO. : PE7242

HOLE NO. : TP 4-25



TOPSOIL

0.30m [101.29m]

FILL: Brown, fine to medium silty sand with some clay, gravel, crushed stone and cobbles

PHCs / BTEX / Metals by ICP / EC / SAR / pH

1.60m [99.99m]

Brown **SILTY SAND** with clay

1.80m [99.79m]

End of Test Pit

Test Pit dry upon completion

SOIL PROFILE AND TEST DATA
Excess Soil Quality Assessment
319 Huntmar Drive, Ottawa, ON

COORD. SYS.: UTM ZONE 18 **EASTING:** 426785.54 **NORTHING:** 5016389.02 **ELEVATION:** 100.46

PROJECT: Proposed Residential Development

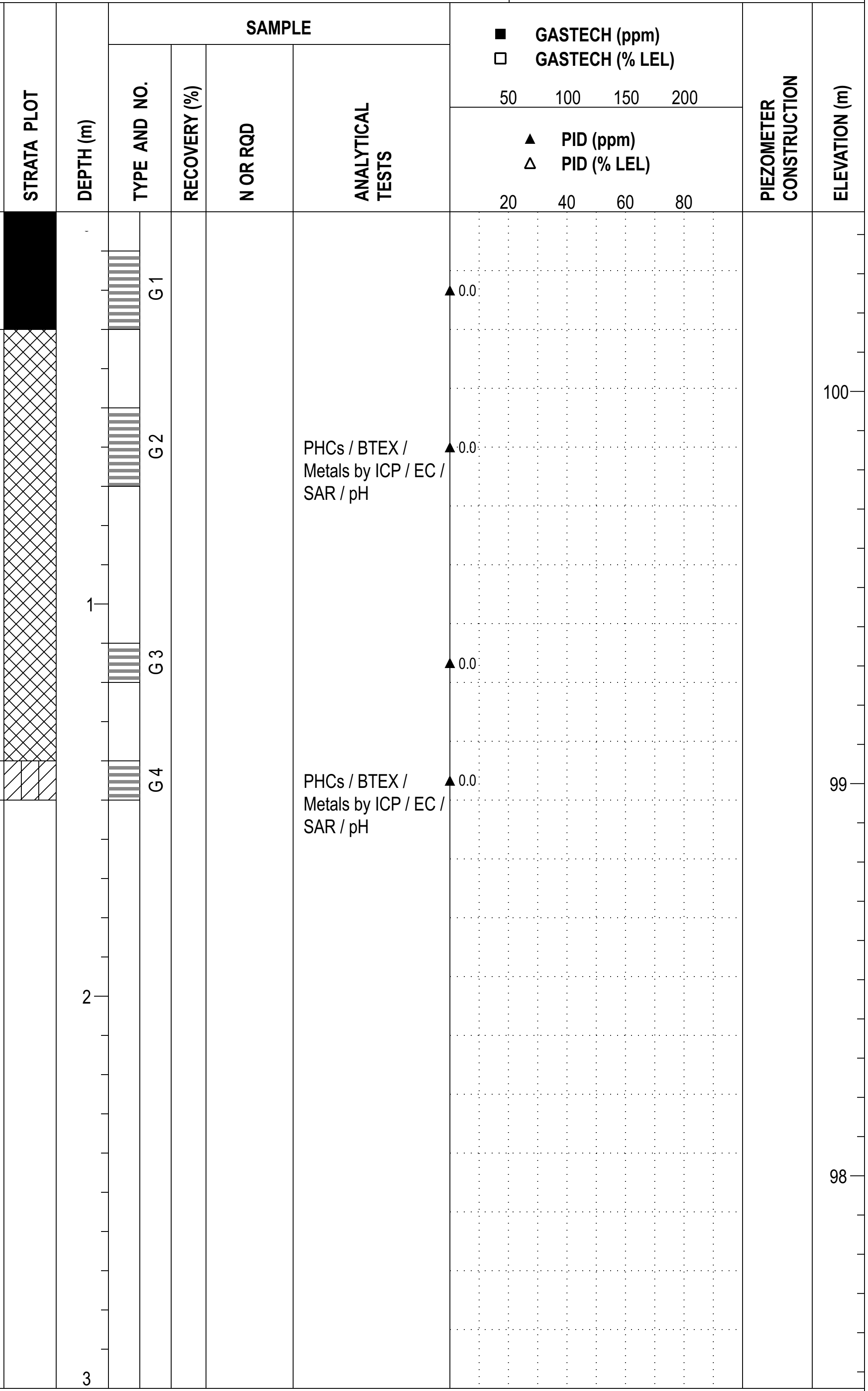
ADVANCED BY: Mini-excavator

REMARKS: Datum: NAD1983 (Canada) Geoid: CGG2013a **DATE:** November 4, 2025

FILE NO. : PE7242

HOLE NO. : TP 5-25

SAMPLE DESCRIPTION
GROUND SURFACE
TOPSOIL 0.30m [100.16m]
FILL: Brown, silty fine sand with clay, gravel, crushed stone and cobbles 1.40m [99.06m]
Brown **SILTY CLAY** 1.50m [98.96m]
End of Test Pit Test Pit dry upon completion



TYPE AND NO.	ANALYTICAL TESTS	PID (ppm)
G 1		0.0
G 2	PHCs / BTEX / Metals by ICP / EC / SAR / pH	0.0
G 3		0.0
G 4	PHCs / BTEX / Metals by ICP / EC / SAR / pH	0.0

SOIL PROFILE AND TEST DATA

Excess Soil Quality Assessment

319 Huntmar Drive, Ottawa, ON

COORD. SYS.: UTM ZONE 18 **EASTING:** 426734.92 **NORTHING:** 5016395.86 **ELEVATION:** 100.21

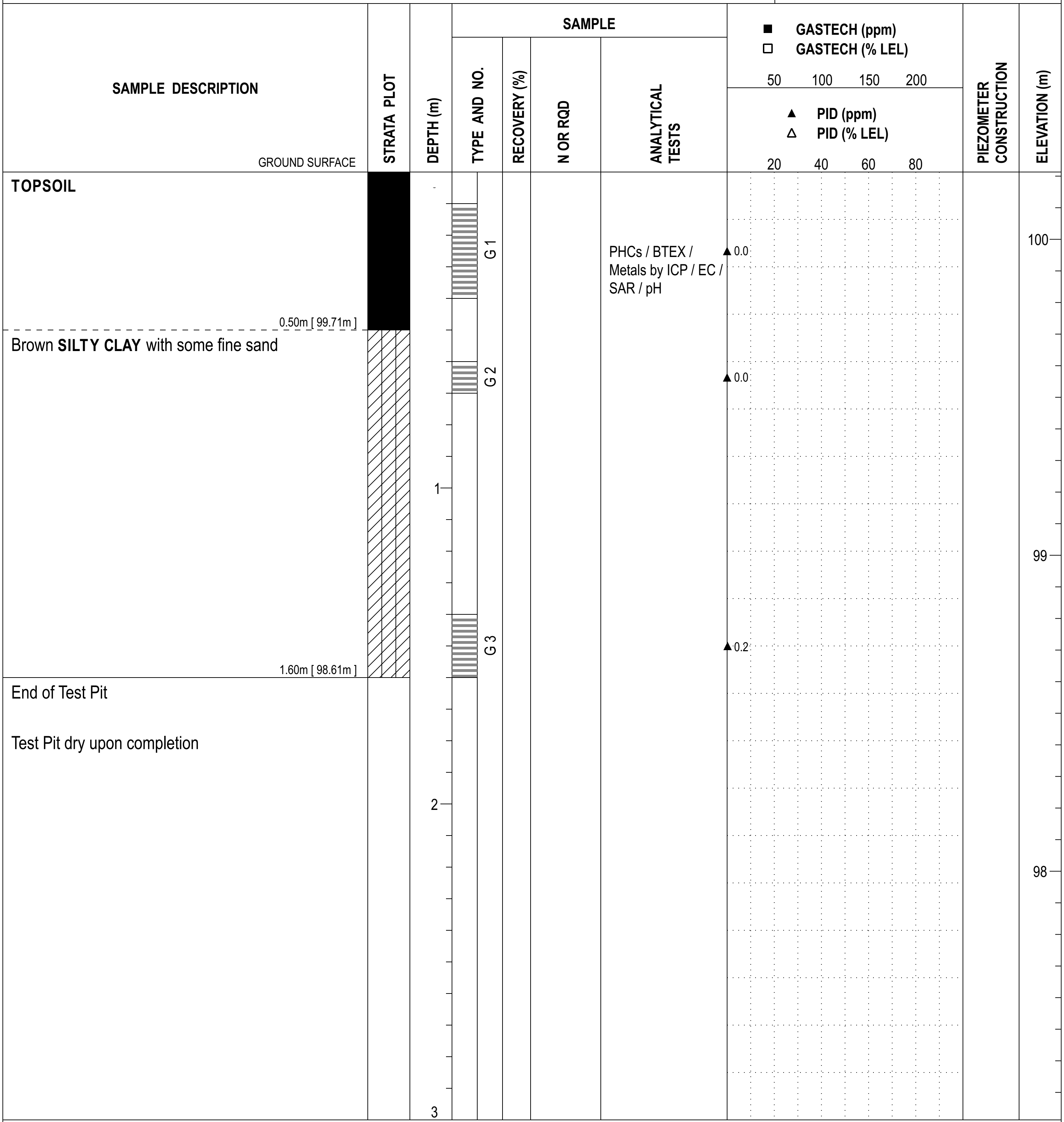
PROJECT: Proposed Residential Development

ADVANCED BY: Mini-excavator

REMARKS: Datum: NAD1983 (Canada) Geoid: CGG2013a **DATE:** November 4, 2025

FILE NO. : PE7242

HOLE NO. : TP 6-25



Sample Description	Sample	Analytical Tests	PID (ppm)
TOPSOIL 0.50m [99.71m]	G 1	PHCs / BTEX / Metals by ICP / EC / SAR / pH	0.0
Brown **SILTY CLAY** with some fine sand	G 2		0.0
1.60m [98.61m]	G 3		0.2

End of Test Pit

Test Pit dry upon completion

PATERSON GROUP

SOIL PROFILE AND TEST DATA

Excess Soil Quality Assessment

319 Huntmar Drive, Ottawa, ON

COORD. SYS.: UTM ZONE 18 **EASTING:** 426821.33 **NORTHING:** 5016410.50 **ELEVATION:** 100.56

PROJECT: Proposed Residential Development

ADVANCED BY: Mini-excavator

REMARKS: Datum: NAD1983 (Canada) Geoid: CGG2013a **DATE:** November 4, 2025

FILE NO. : **PE7242**

HOLE NO. : **TP 7-25**

■ GASTECH (ppm) 50 100 150 200
☐ GASTECH (% LEL)
▲ PID (ppm) 20 40 60 80
△ PID (% LEL)

SAMPLE DESCRIPTION	STRATA PLOT	DEPTH (m)	SAMPLE TYPE AND NO.	SAMPLE RECOVERY (%)	SAMPLE N OR RQD	SAMPLE ANALYTICAL TESTS	GASTECH / PID	PIEZOMETER CONSTRUCTION	ELEVATION (m)
GROUND SURFACE									
TOPSOIL 0.25m [100.31m]	■		G 1				▲ 0.1		
FILL: Brown silty clay with sand, crushed stone, and gravel, trace cobbles 0.80m [99.76m]	▨		G 2				▲ 0.1		100
FILL: Brown fine to medium sand with some crushed stone, gravel and cobbles 1.70m [98.86m]	▨	1	G 3			PHCs / BTEX / Metals by ICP / EC / SAR / pH	▲ 0.0		99
Brown **SILTY CLAY** with some sand 1.90m [98.66m]	▧		G 4				▲ 0.0		
End of Test Pit Test Pit dry upon completion		2 3							98

PATERSON GROUP

SOIL PROFILE AND TEST DATA

Excess Soil Quality Assessment

319 Huntmar Drive, Ottawa, ON

COORD. SYS.: UTM ZONE 18 **EASTING:** 426874.75 **NORTHING:** 5016437.25 **ELEVATION:** 99.72

PROJECT: Proposed Residential Development

ADVANCED BY: Mini-excavator

REMARKS: Datum: NAD1983 (Canada) Geoid: CGG2013a **DATE:** November 4, 2025

FILE NO. : PE7242

HOLE NO. : TP 8-25

■ GASTECH (ppm)
☐ GASTECH (% LEL)
50 100 150 200

▲ PID (ppm)
△ PID (% LEL)
20 40 60 80

SAMPLE DESCRIPTION GROUND SURFACE	STRATA PLOT	DEPTH (m)	SAMPLE: TYPE AND NO.	SAMPLE: RECOVERY (%)	SAMPLE: N OR RQD	SAMPLE: ANALYTICAL TESTS	GASTECH / PID	PIEZOMETER CONSTRUCTION	ELEVATION (m)
TOPSOIL 0.15m [99.57m]	■		G 1				▲0.5		
FILL: Brown silty clay with sand, crushed stone, and gravel, trace cobbles 1.40m [98.32m]	▨	1	G 2			PHCs / BTEX / Metals by ICP / EC / SAR / pH	▲0.2		99
Brown **SILTY CLAY** with some sand 1.60m [98.12m]	▧		G 3				▲0.1		98
End of Test Pit Test Pit dry upon completion		2 3							97

SOIL PROFILE AND TEST DATA

Excess Soil Quality Assessment

319 Huntmar Drive, Ottawa, ON

COORD. SYS.: UTM ZONE 18 **EASTING:** 426894.90 **NORTHING:** 5016456.55 **ELEVATION:** 99.20

PROJECT: Proposed Residential Development

ADVANCED BY: Mini-excavator

REMARKS: Datum: NAD1983 (Canada) Geoid: CGG2013a **DATE:** November 4, 2025

FILE NO. : PE7242

HOLE NO. : TP 9-25

SAMPLE DESCRIPTION GROUND SURFACE	STRATA PLOT	DEPTH (m)	SAMPLE: TYPE AND NO.	SAMPLE: RECOVERY (%)	SAMPLE: N OR RQD	SAMPLE: ANALYTICAL TESTS	■ GASTECH (ppm) □ GASTECH (% LEL) 50 100 150 200 ▲ PID (ppm) △ PID (% LEL) 20 40 60 80	PIEZOMETER CONSTRUCTION	ELEVATION (m)
TOPSOIL 0.15m [99.05m]		-	G 1				0.0		
FILL: Brown silty sand with clay and gravel, some cobbles, occasional construction debris and fragments of asphalt 0.80m [98.40m]			G 2				0.2		99
FILL: Dark brown silty clay with crushed stone and cobbles 1.60m [97.60m]		1	G 3			PHCs / BTEX / PAHs / Metals by ICP / EC / SAR / pH	10.4		98
Grey **SILTY CLAY** 1.90m [97.30m]			G 4			PHCs / BTEX / Metals by ICP / EC / SAR / pH	0.1		
End of Test Pit Test Pit dry upon completion		2							97
		3							

P:/AutoCAD Drawings/Test Hole Data Files/PE72xx/PE7242 - cgg2013a/data.sqlite 2026-03-27, 11:42 Paterson_Template CG

SOIL PROFILE AND TEST DATA
Excess Soil Quality Assessment
319 Huntmar Drive, Ottawa, ON

COORD. SYS.: UTM ZONE 18 **EASTING:** 426866.48 **NORTHING:** 5016482.11 **ELEVATION:** 99.88

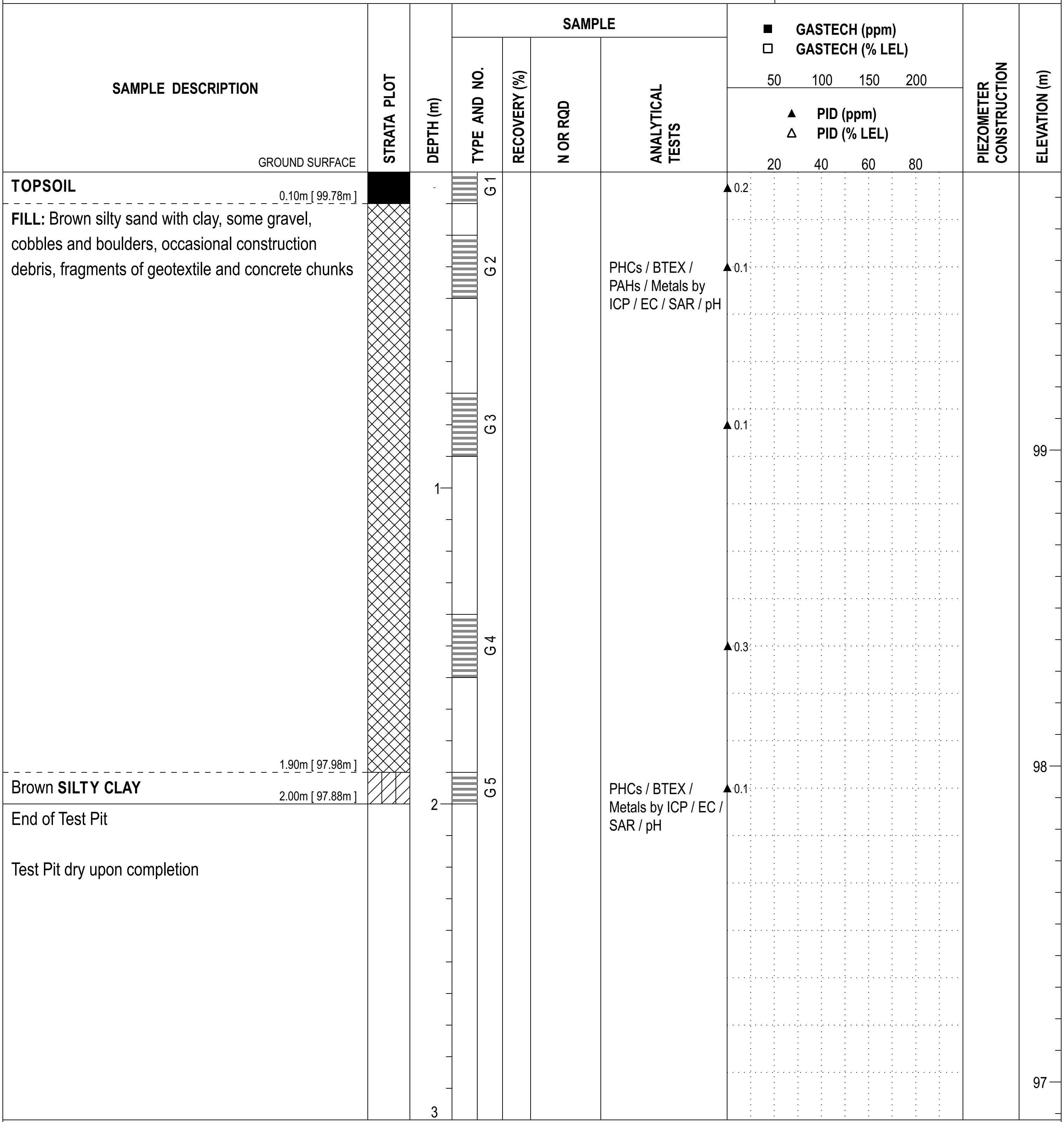
PROJECT: Proposed Residential Development

ADVANCED BY: Mini-excavator

REMARKS: Datum: NAD1983 (Canada) Geoid: CGG2013a **DATE:** November 4, 2025

FILE NO. : PE7242

HOLE NO. : TP10-25



SAMPLE DESCRIPTION	
TOPSOIL	0.10m [99.78m]
FILL: Brown silty sand with clay, some gravel, cobbles and boulders, occasional construction debris, fragments of geotextile and concrete chunks	1.90m [97.98m]
Brown **SILTY CLAY**	2.00m [97.88m]
End of Test Pit Test Pit dry upon completion	

TYPE AND NO.	ANALYTICAL TESTS	PID (ppm)
G 1		0.2
G 2	PHCs / BTEX / PAHs / Metals by ICP / EC / SAR / pH	0.1
G 3		0.1
G 4		0.3
G 5	PHCs / BTEX / Metals by ICP / EC / SAR / pH	0.1

PATERSON GROUP

SOIL PROFILE AND TEST DATA

Excess Soil Quality Assessment

319 Huntmar Drive, Ottawa, ON

COORD. SYS.: UTM ZONE 18 **EASTING:** 426846.38 **NORTHING:** 5016459.23 **ELEVATION:** 100.00

PROJECT: Proposed Residential Development

ADVANCED BY: Mini-excavator

REMARKS: Datum: NAD1983 (Canada) Geoid: CGG2013a **DATE:** November 4, 2025

FILE NO. : PE7242

HOLE NO. : TP11-25

SAMPLE DESCRIPTION	STRATA PLOT	DEPTH (m)	ELEVATION (m)
GROUND SURFACE			
TOPSOIL 0.20m [99.80m]	■		
FILL: Brown silty sand with clay, some gravel, crushed stone, cobbles, occasional boulders, construction debris, fragments of geotextile and concrete chunks 1.60m [98.40m]	▨	1	99
Brown **SILTY CLAY** 1.80m [98.20m]	▧		
End of Test Pit Test Pit dry upon completion		2 3	98 97

TYPE AND NO.	RECOVERY (%)	N OR RQD	ANALYTICAL TESTS	▲ PID (ppm)
G 1				0.4
G 2			PHCs / BTEX / PAHs / Metals by ICP / EC / SAR / pH	0.2
G 3				0.2
G 4				0.2

■ GASTECH (ppm)
☐ GASTECH (% LEL)
50 100 150 200

▲ PID (ppm)
△ PID (% LEL)
20 40 60 80

PIEZOMETER CONSTRUCTION

P:/AutoCAD Drawings/Test Hole Data Files/PE72xx/PE7242 - cgg2013a/data.sqlite 2026-03-27, 11:42 Paterson_Template CG

PATERSON GROUP

SOIL PROFILE AND TEST DATA

Excess Soil Quality Assessment

319 Huntmar Drive, Ottawa, ON

COORD. SYS.: UTM ZONE 18 **EASTING:** 426777.12 **NORTHING:** 5016440.22 **ELEVATION:** 99.59

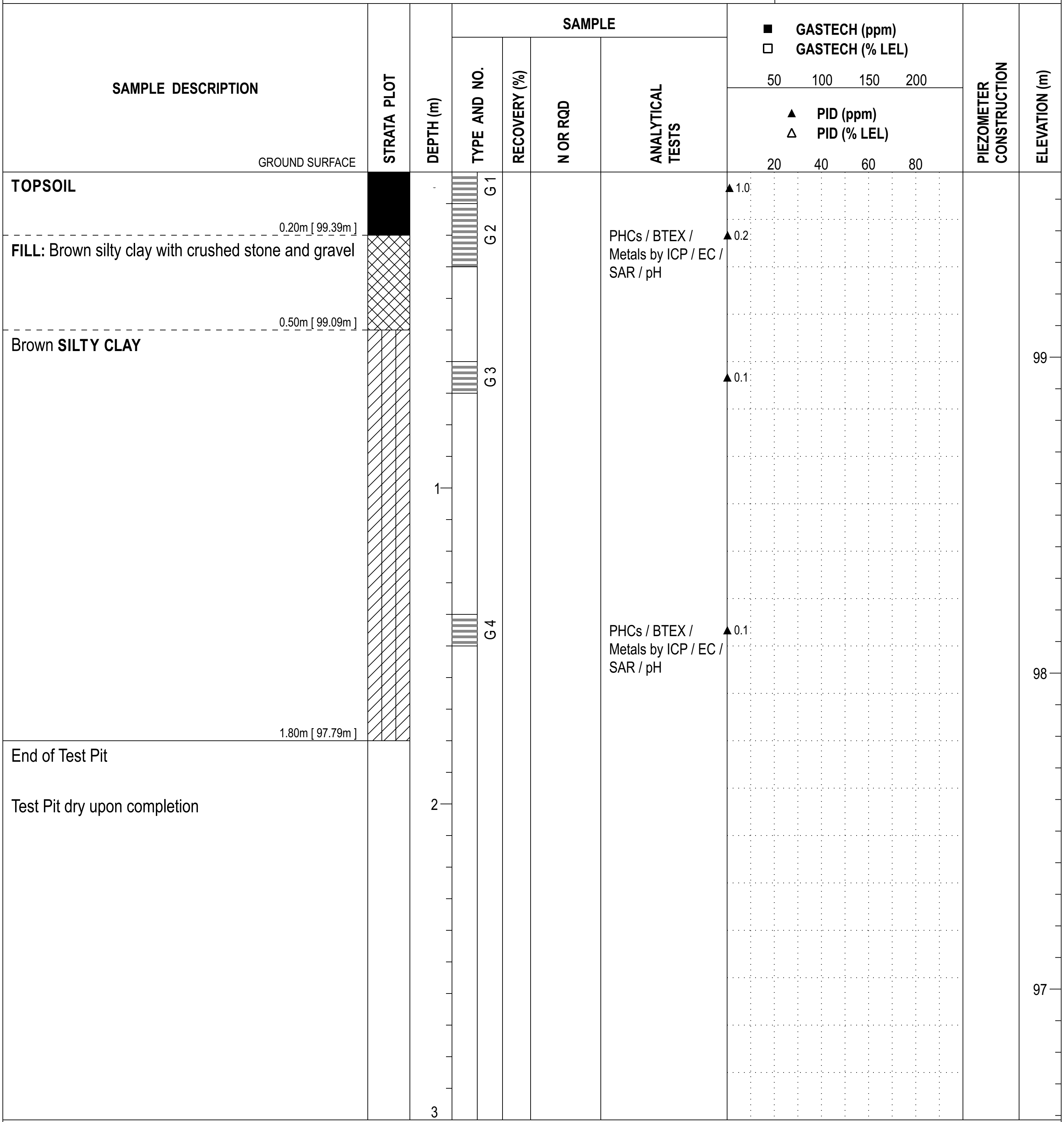
PROJECT: Proposed Residential Development

ADVANCED BY: Mini-excavator

REMARKS: Datum: NAD1983 (Canada) Geoid: CGG2013a **DATE:** November 4, 2025

FILE NO. : PE7242

HOLE NO. : TP12-25



TOPSOIL

0.20m [99.39m]

FILL: Brown silty clay with crushed stone and gravel

0.50m [99.09m]

Brown **SILTY CLAY**

1.80m [97.79m]

End of Test Pit

Test Pit dry upon completion

Sample	Analytical Tests	PID (ppm)
G 1		1.0
G 2	PHCs / BTEX / Metals by ICP / EC / SAR / pH	0.2
G 3		0.1
G 4	PHCs / BTEX / Metals by ICP / EC / SAR / pH	0.1

PATERSON GROUP

SOIL PROFILE AND TEST DATA

Excess Soil Quality Assessment

319 Huntmar Drive, Ottawa, ON

COORD. SYS.: UTM ZONE 18 **EASTING:** 426703.25 **NORTHING:** 5016387.22 **ELEVATION:** 100.53

PROJECT: Proposed Residential Development

ADVANCED BY: Mini-excavator

REMARKS: Datum: NAD1983 (Canada) Geoid: CGG2013a **DATE:** November 4, 2025

FILE NO. : **PE7242**

HOLE NO. : **TP13-25**

SAMPLE DESCRIPTION

GROUND SURFACE

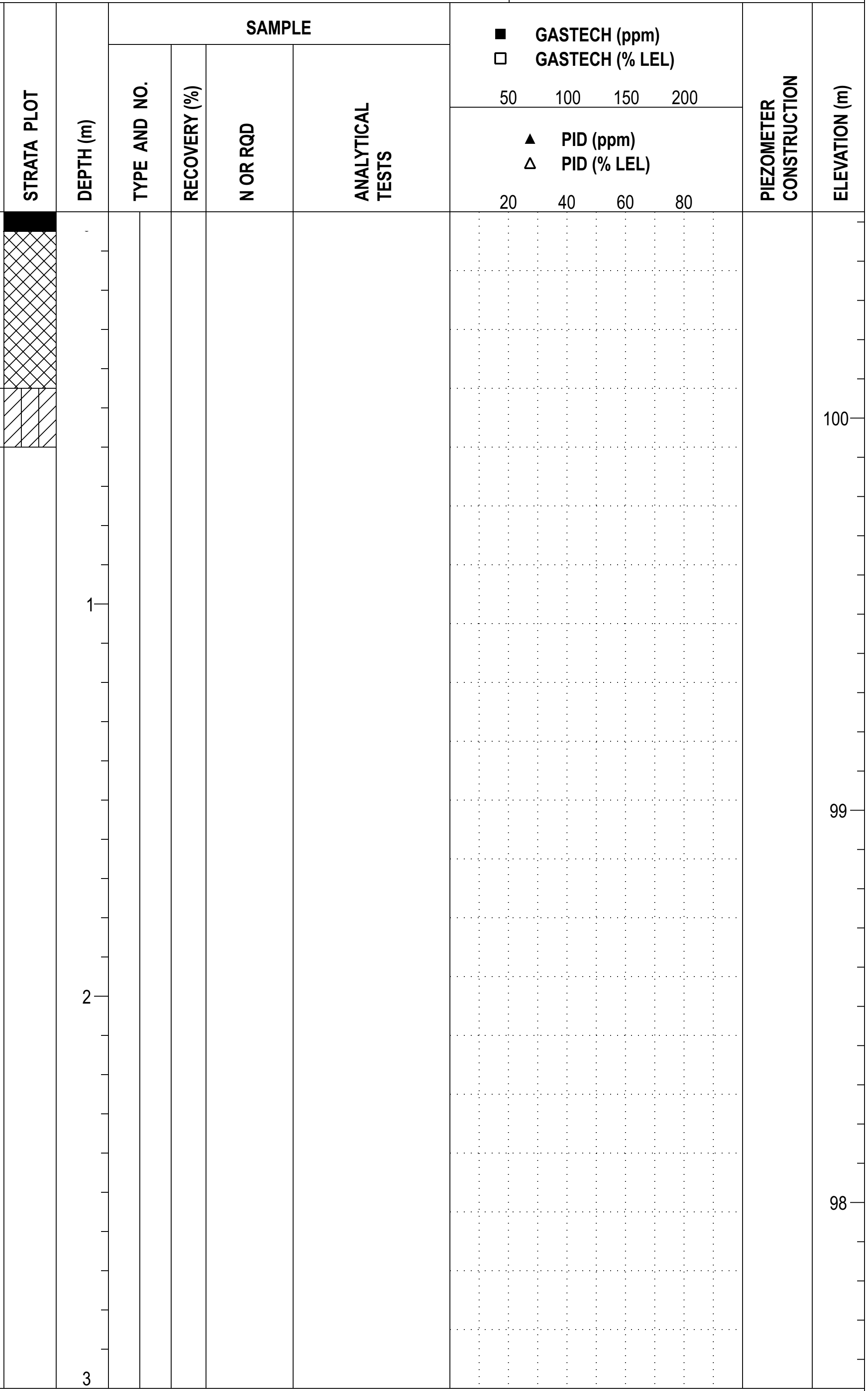
TOPSOIL 0.05m [100.48m]

FILL: Blast rock with silty sand and clay, some organics and crushed stone 0.45m [100.08m]

Brown **SILTY CLAY** with sand 0.60m [99.93m]

End of Test Pit

Test Pit dry upon completion



DISCLAIMER: THE DATA PRESENTED IN THIS SHEET IS THE PROPERTY OF PATERSON GROUP AND THE CLIENT FOR WHOM IT WAS PRODUCED. THIS SHEET SHOULD BE READ IN CONJUNCTION WITH ITS CORRESPONDING REPORT. PATERSON GROUP IS NOT RESPONSIBLE FOR THE UNAUTHORIZED USE OF THIS DATA.

PATERSON GROUP

SOIL PROFILE AND TEST DATA

Excess Soil Quality Assessment

319 Huntmar Drive, Ottawa, ON

COORD. SYS.: UTM ZONE 18 **EASTING:** 426703.82 **NORTHING:** 5016377.88 **ELEVATION:** 100.53

PROJECT: Proposed Residential Development

ADVANCED BY: Mini-excavator

REMARKS: Datum: NAD1983 (Canada) Geoid: CGG2013a **DATE:** November 4, 2025

FILE NO. : PE7242

HOLE NO. : TP14-25

SAMPLE DESCRIPTION	STRATA PLOT	DEPTH (m)	SAMPLE: TYPE AND NO.	SAMPLE: RECOVERY (%)	SAMPLE: N OR RQD	SAMPLE: ANALYTICAL TESTS	■ GASTECH (ppm) ☐ GASTECH (% LEL) 50 100 150 200 / ▲ PID (ppm) △ PID (% LEL) 20 40 60 80	PIEZOMETER CONSTRUCTION	ELEVATION (m)
GROUND SURFACE									
TOPSOIL 0.10m [100.43m]	■	-							
FILL: Blast rock with silty sand and clay, some crushed stone 0.70m [99.83m]	▨								100
Brown **SILTY CLAY** with sand 0.80m [99.73m]	▧								
End of Test Pit Test Pit dry upon completion		1							
									99
		2							
									98
		3							

PATERSON GROUP

SOIL PROFILE AND TEST DATA

Excess Soil Quality Assessment

319 Huntmar Drive, Ottawa, ON

COORD. SYS.: UTM ZONE 18 **EASTING:** 426693.99 **NORTHING:** 5016379.09 **ELEVATION:** 100.53

PROJECT: Proposed Residential Development

ADVANCED BY: Mini-excavator

REMARKS: Datum: NAD1983 (Canada) Geoid: CGG2013a **DATE:** November 4, 2025

FILE NO. : **PE7242**

HOLE NO. : **TP15-25**

SAMPLE DESCRIPTION	STRATA PLOT	DEPTH (m)	SAMPLE: TYPE AND NO.	SAMPLE: RECOVERY (%)	SAMPLE: N OR RQD	SAMPLE: ANALYTICAL TESTS	■ GASTECH (ppm) ☐ GASTECH (% LEL) 50 100 150 200 / ▲ PID (ppm) △ PID (% LEL) 20 40 60 80	PIEZOMETER CONSTRUCTION	ELEVATION (m)
GROUND SURFACE									
FILL: Blast rock with silty sand and clay, crushed stone, some organics and crushed stone		-							
0.70m [99.83m]									100
Brown **SILTY CLAY** with sand									
0.80m [99.73m]									
End of Test Pit Test Pit dry upon completion		1							99
		2							98
		3							

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Terrace Lands - Highway 417 at Huntmar Road
Ottawa, Ontario

DATUM

REMARKS

BORINGS BY Backhoe

DATE 19 Oct 06

FILE NO. PG0912

HOLE NO. TP 7

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Piezometer Construction
GROUND SURFACE						0		
FILL: Topsoil, clay, gravel, asphalt, filter cloth and piece of wire		G	1			1		∇
1.80 **FILL**: Brown silty sand-gravel with clay 2.00		G	2			2		
Very stiff, brown **SILTY CLAY**		G G	3 4			3 4		
4.06 End of Test Pit Open hole GWL @ 1.8m depth								

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone

○ Water Content %

20 40 60 80

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

SYMBOLS AND TERMS

SOIL DESCRIPTION

Behavioural properties, such as structure and strength, take precedence over particle gradation in describing soils. Terminology describing soil structure are as follows:

Desiccated	-	having visible signs of weathering by oxidation of clay minerals, shrinkage cracks, etc.
Fissured	-	having cracks, and hence a blocky structure.
Varved	-	composed of regular alternating layers of silt and clay.
Stratified	-	composed of alternating layers of different soil types, e.g. silt and sand or silt and clay.
Well-Graded	-	Having wide range in grain sizes and substantial amounts of all intermediate particle sizes (see Grain Size Distribution).
Uniformly-Graded	-	Predominantly of one grain size (see Grain Size Distribution).

The standard terminology to describe the strength of cohesionless soils is the relative density, usually inferred from the results of the Standard Penetration Test (SPT) 'N' value. The SPT N value is the number of blows of a 63.5 kg hammer, falling 760 mm, required to drive a 51 mm O.D. split spoon sampler 300 mm into the soil after an initial penetration of 150 mm.

Relative Density	'N' Value	Relative Density %
Very Loose	<4	<15
Loose	4-10	15-35
Compact	10-30	35-65
Dense	30-50	65-85
Very Dense	>50	>85

The standard terminology to describe the strength of cohesive soils is the consistency, which is based on the undisturbed undrained shear strength as measured by the in situ or laboratory vane tests, penetrometer tests, unconfined compression tests, or occasionally by Standard Penetration Tests.

Consistency	Undrained Shear Strength (kPa)	'N' Value
Very Soft	<12	<2
Soft	12-25	2-4
Firm	25-50	4-8
Stiff	50-100	8-15
Very Stiff	100-200	15-30
Hard	>200	>30

SYMBOLS AND TERMS (continued)

SOIL DESCRIPTION (continued)

Cohesive soils can also be classified according to their “sensitivity”. The sensitivity is the ratio between the undisturbed undrained shear strength and the remoulded undrained shear strength of the soil.

Terminology used for describing soil strata based upon texture, or the proportion of individual particle sizes present is provided on the Textural Soil Classification Chart at the end of this information package.

ROCK DESCRIPTION

The structural description of the bedrock mass is based on the Rock Quality Designation (RQD).

The RQD classification is based on a modified core recovery percentage in which all pieces of sound core over 100 mm long are counted as recovery. The smaller pieces are considered to be a result of closely-spaced discontinuities (resulting from shearing, jointing, faulting, or weathering) in the rock mass and are not counted. RQD is ideally determined from NXL size core. However, it can be used on smaller core sizes, such as BX, if the bulk of the fractures caused by drilling stresses (called “mechanical breaks”) are easily distinguishable from the normal in situ fractures.

RQD %	**ROCK QUALITY**
90-100	Excellent, intact, very sound
75-90	Good, massive, moderately jointed or sound
50-75	Fair, blocky and seamy, fractured
25-50	Poor, shattered and very seamy or blocky, severely fractured
0-25	Very poor, crushed, very severely fractured

SAMPLE TYPES

SS	-	Split spoon sample (obtained in conjunction with the performing of the Standard Penetration Test (SPT))
TW	-	Thin wall tube or Shelby tube
PS	-	Piston sample
AU	-	Auger sample or bulk sample
WS	-	Wash sample
RC	-	Rock core sample (Core bit size AXT, BXL, etc.). Rock core samples are obtained with the use of standard diamond drilling bits.

SYMBOLS AND TERMS (continued)

GRAIN SIZE DISTRIBUTION

MC% - Natural moisture content or water content of sample, %
LL - Liquid Limit, % (water content above which soil behaves as a liquid)
PL - Plastic limit, % (water content above which soil behaves plastically)
PI - Plasticity index, % (difference between LL and PL)

Dxx - Grain size which xx% of the soil, by weight, is of finer grain sizes
These grain size descriptions are not used below 0.075 mm grain size
D10 - Grain size at which 10% of the soil is finer (effective grain size)
D60 - Grain size at which 60% of the soil is finer

Cc - Concavity coefficient = $(D30)^2$ / (D10 x D60)
Cu - Uniformity coefficient = D60 / D10

Cc and Cu are used to assess the grading of sands and gravels:
Well-graded gravels have: $1 < Cc < 3$ and $Cu > 4$
Well-graded sands have: $1 < Cc < 3$ and $Cu > 6$
Sands and gravels not meeting the above requirements are poorly-graded or uniformly-graded.
Cc and Cu are not applicable for the description of soils with more than 10% silt and clay (more than 10% finer than 0.075 mm or the #200 sieve)

CONSOLIDATION TEST

p'_o - Present effective overburden pressure at sample depth
p'_c - Preconsolidation pressure of (maximum past pressure on) sample
Ccr - Recompression index (in effect at pressures below p'_c)
Cc - Compression index (in effect at pressures above p'_c)

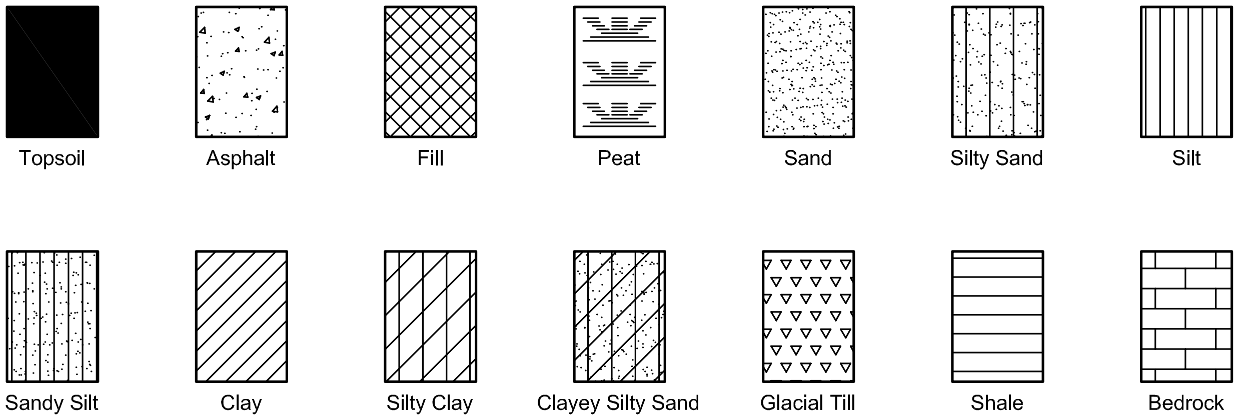
OC Ratio Overconsolidaton ratio = p'_c / p'_o
Void Ratio Initial sample void ratio = volume of voids / volume of solids
Wo - Initial water content (at start of consolidation test)

PERMEABILITY TEST

k - Coefficient of permeability or hydraulic conductivity is a measure of the ability of water to flow through the sample. The value of k is measured at a specified unit weight for (remoulded) cohesionless soil samples, because its value will vary with the unit weight or density of the sample during the test.

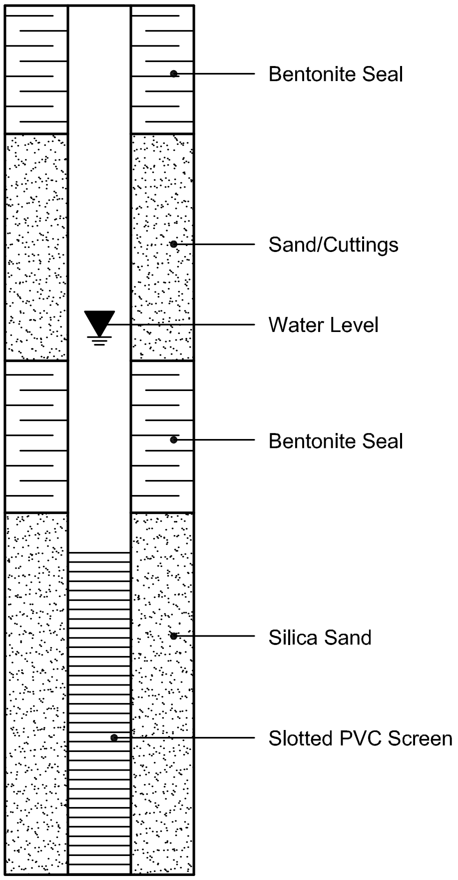
SYMBOLS AND TERMS (continued)

STRATA PLOT

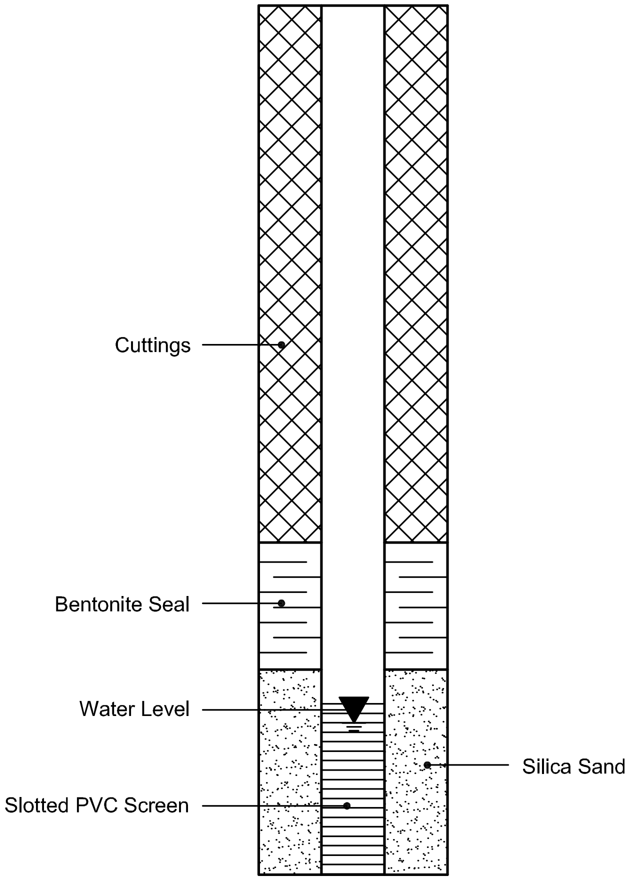


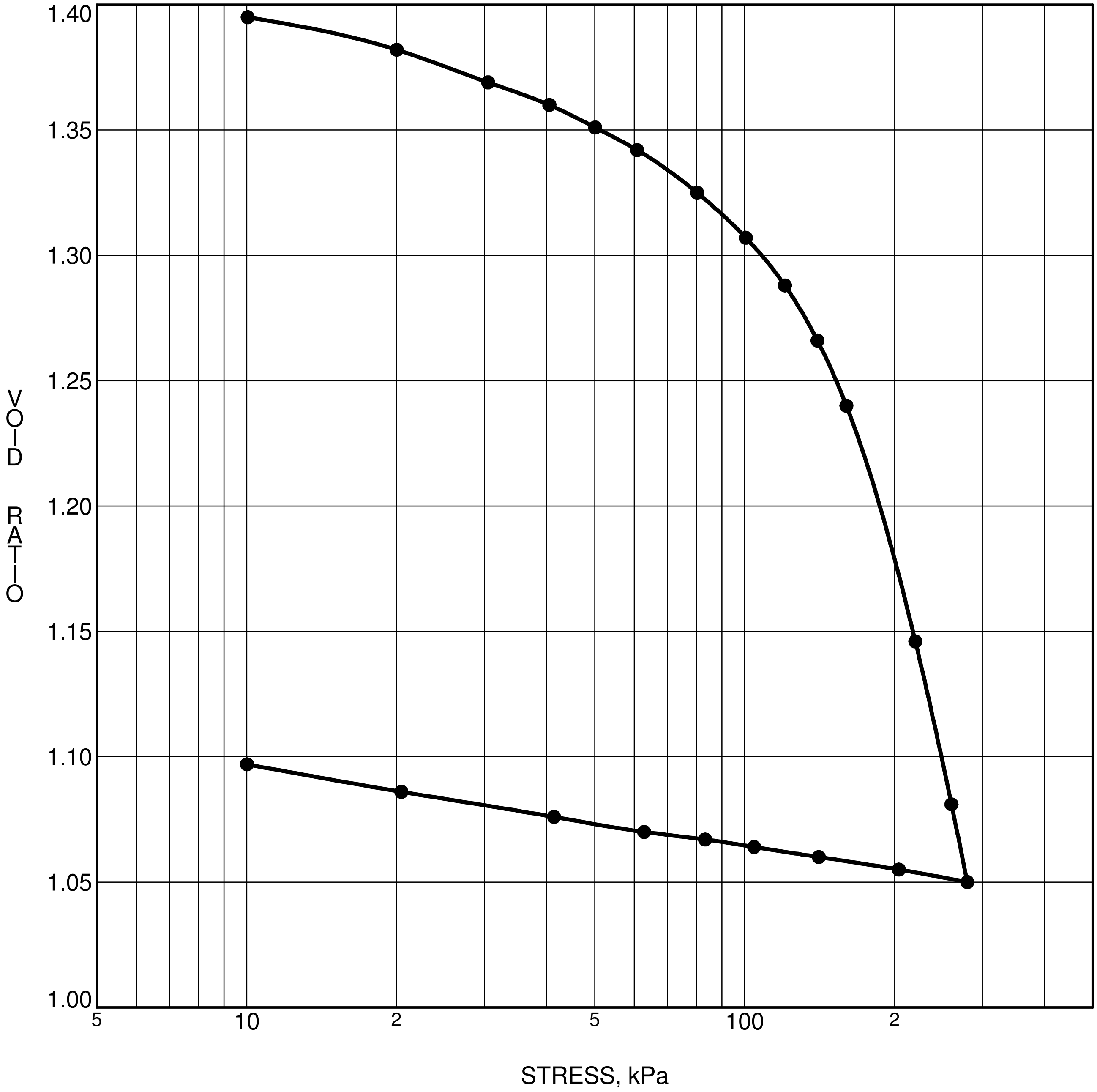
MONITORING WELL AND PIEZOMETER CONSTRUCTION

MONITORING WELL CONSTRUCTION



PIEZOMETER CONSTRUCTION





CONSOLIDATION TEST DATA SUMMARY					
Borehole No.	**BH10-10**	p'o	**96** kPa	Ccr	**0.022**
Sample No.	**TW 9**	p'c	**152** kPa	Cc	**0.788**
Sample Depth	**8.01** m	OC Ratio	**1.6**	Wo	**51.3** %
Sample Elev.	**92.61** m	Void Ratio	**1.412**	Unit Wt.	**17.2** kN/m^3

CLIENT **Taggart Realty Management**

FILE NO. **PG0912**

PROJECT **Geotechnical Investigation - Prop. Kanata West**
Business Park - Huntmar Road

DATE **1/18/2011**

patersongroup **Consulting Engineers**

28 Concouse Gate, Unit 1, Ottawa, Ontario K2E 7T7

CONSOLIDATION TEST

Certificate of Analysis

Client: **Paterson Group Consulting Engineers**

Client PO: 24703

Report Date: 20-Mar-2020

Order Date: 17-Mar-2020

Project Description: PG5287

	Client ID:	BH14-SS3	-	-	-
	Sample Date:	12-Mar-20 09:00	-	-	-
	Sample ID:	2012222-01	-	-	-
	MDL/Units	Soil	-	-	-
Physical Characteristics					
% Solids	0.1 % by Wt.	72.2	-	-	-
General Inorganics					
pH	0.05 pH Units	7.59	-	-	-
Resistivity	0.10 Ohm.m	5.54	-	-	-
Anions					
Chloride	5 ug/g dry	1100	-	-	-
Sulphate	5 ug/g dry	88	-	-	-

APPENDIX 2

FIGURE 1 - KEY PLAN

FIGURE 2 - HISTORICAL AERIAL PHOTOGRAPH (1991)

FIGURE 3 - HISTORICAL AERIAL PHOTOGRAPH (2017)

FIGURE 4 - PODIUM DECK TO FOUNDATION WALL DRAINAGE SYSTEM TIE-IN DETAIL

DRAWING PG7718-1 - TEST HOLE LOCATION PLAN

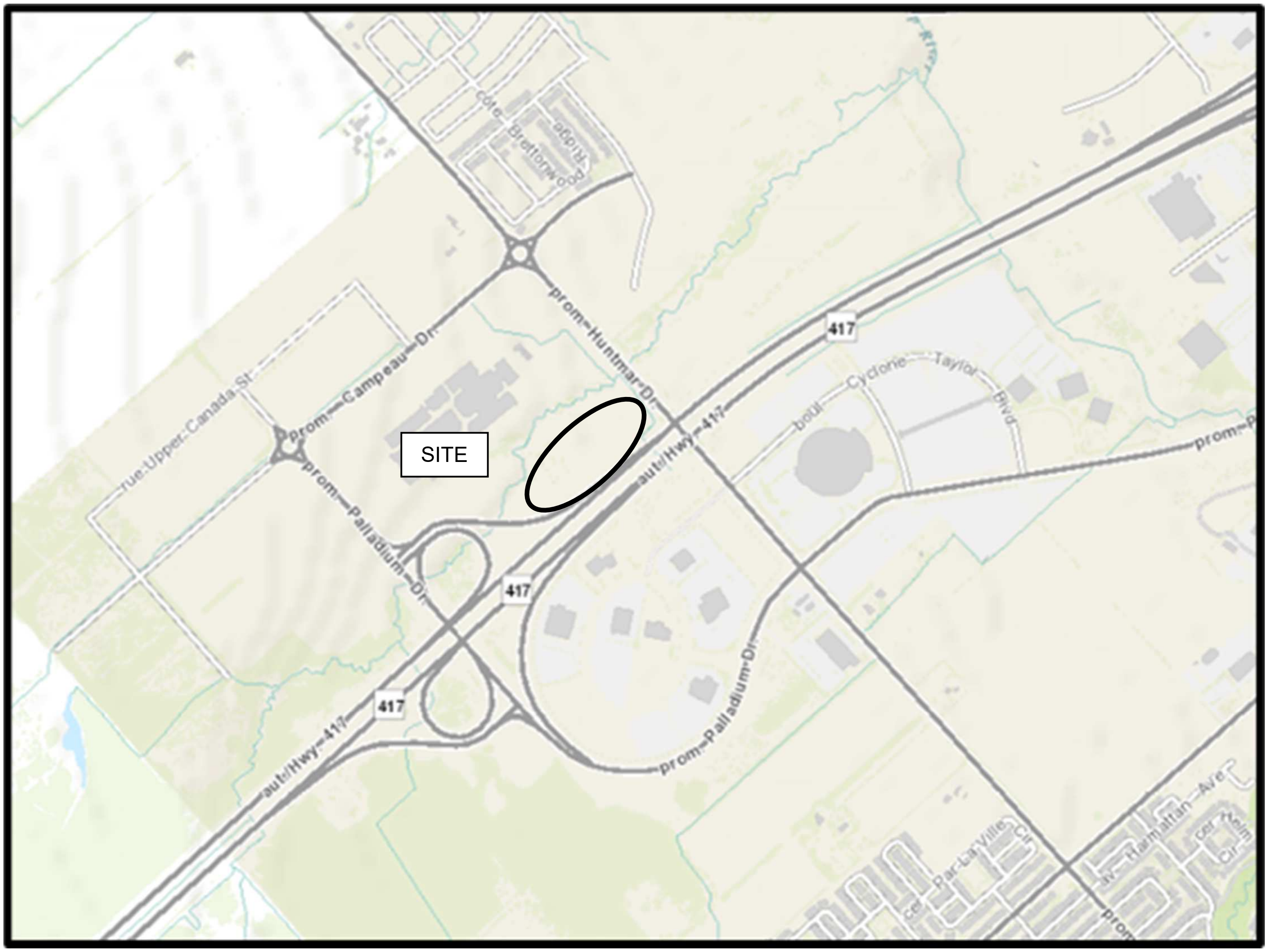


FIGURE 1

KEY PLAN

PATERSON GROUP

FIGURE 2

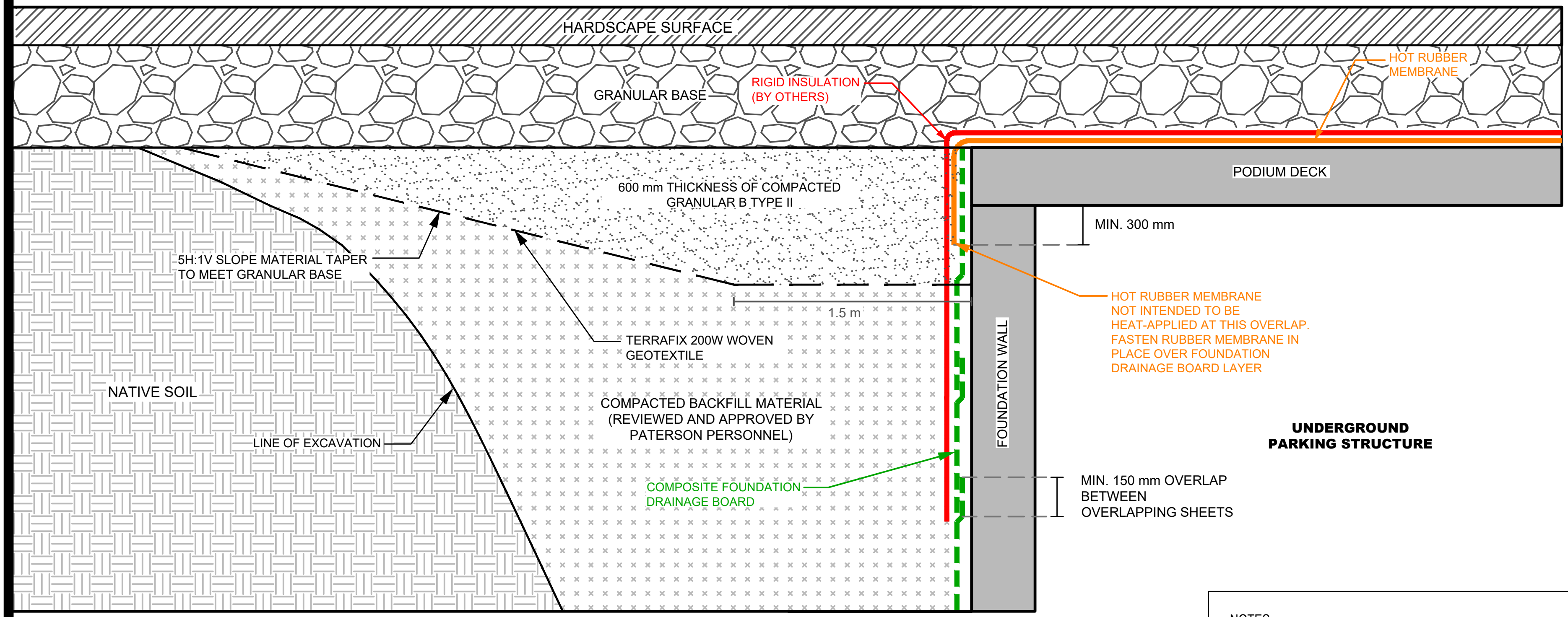
Aerial Photograph - 1991

PATERSON GROUP

FIGURE 3

Aerial Photograph - 2017

PATERSON GROUP



ALL PORTIONS OF THE ABOVE-NOTED DETAIL (INSULATION OF FOUNDATION DRAINAGE BOARD, HOT-RUBBER MEMBRANE OVER SLAB AND FOUNDATION WALL CONSTRUCTION JOINT AND OVERLAPPING/SHINGLING OF DRAINAGE BOARD SHOULD BE REVIEWED AT THE TIME OF CONSTRUCTION BY PATERSON PERSONNEL.

NOTES:

THE ABOVE DETAIL FOR HOT RUBBER, AND DRAINAGE BOARD OVERLAP IS APPLICABLE TO ALL EDGE-PORTIONS OF THE PODIUM DECK AND/OR SUSPENDED GROUND FLOOR SLAB STRUCTURE.

APPLICABILITY, THICKNESS AND EXTENSIONS OF RIGID INSULATION ARE SPECIFIED BY OTHERS

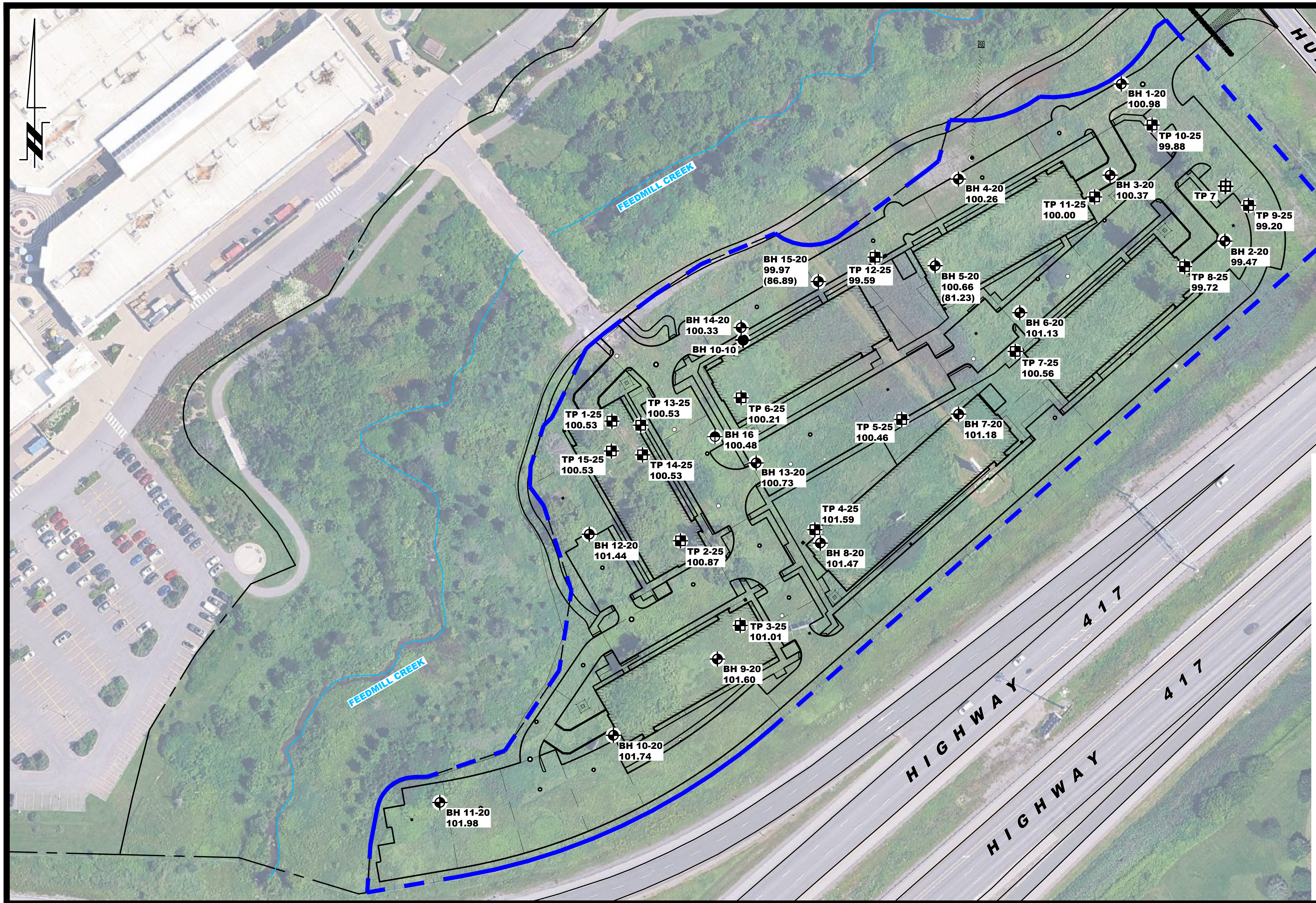
PATERSON GROUP
9 AURIGA DRIVE
OTTAWA, ON
K2E 7T9
TEL: (613) 226-7381

SEYMOUR PACIFIC DEVELOPMENTS (ONTARIO) LTD.
PROPOSED RESIDENTIAL DEVELOPMENT
319 HUNTMAR DRIVE
OTTAWA, ONTARIO

Title:

PODIUM DECK TO FOUNDATION WALL DRAINAGE SYSTEM TIE-IN DETAIL

Scale: NTS	**Date:** 03/2026
Drawn by: NFRV	**Report No.:** PG7718-1 R1
Checked by: DP	**Drawing No.:** FIGURE 4
Approved by: DJG	**Revision No.:**



LEGEND:

⊞	TEST PIT LOCATION (CURRENT INVESTIGATION)
⊕	BOREHOLE LOCATION (PREVIOUS INVESTIGATION - PG5287, 2020)
⊕	BOREHOLE LOCATION (PREVIOUS INVESTIGATION - PG2767, 2013)
●	BOREHOLE LOCATION (PREVIOUS INVESTIGATION - PG2767, 2010)
⊞	TEST PIT LOCATION (PREVIOUS INVESTIGATION - PG2767, 2010)
100.66	GROUND SURFACE ELEVATION (m)
(81.23)	PRACTICAL DCPT REFUSAL ELEV. (m)

ELEVATIONS AT TEST HOLES FOR PG5687, 2020
OBTAINED BY PATERSON PERSONNEL

ELEVATIONS AT TEST HOLES FOR PREVIOUS
INVESTIGATIONS PROVIDED BY STANTEC GEOMATICS

CONCEPTUAL PLAN PROVIDED BY IRONCLAD
DEVELOPMENT INC.

SCALE: 1:1250

0 5 10 15 20 25 50 75m

PATERSON GROUP

9 AURIGA DRIVE
OTTAWA, ON
K2E 7T9
TEL: (613) 226-7381

NO.	REVISIONS	DD/MM/YYYY	INITIAL
2	UPDATED CONCEPTUAL PLAN	26/03/2026	FC
1	UPDATED CONCEPTUAL PLAN AND ADDED 2025 TEST PIT LOCATION TP 1-25 TO TP 15-25	10/02/2026	FC

IRONCLAD DEVELOPMENTS INC.
GEOTECHNICAL INVESTIGATION
PROPOSED RESIDENTIAL DEVELOPMENT
319 HUNTMAR DRIVE

OTTAWA, ONTARIO

Title:

TEST HOLE LOCATION PLAN

Scale: 1:1250
Date: 10/2025
Drawn by: GK
Report No.: PG7718-1
Checked by: FC
Dwg. No.: PG7718-1
Approved by: DP
Revision No.: 2

p:\autocad drawings\geotechnical\pg77xx\pg7718\pg7718-1 test hole location plan (rev.02).dwg

11x17