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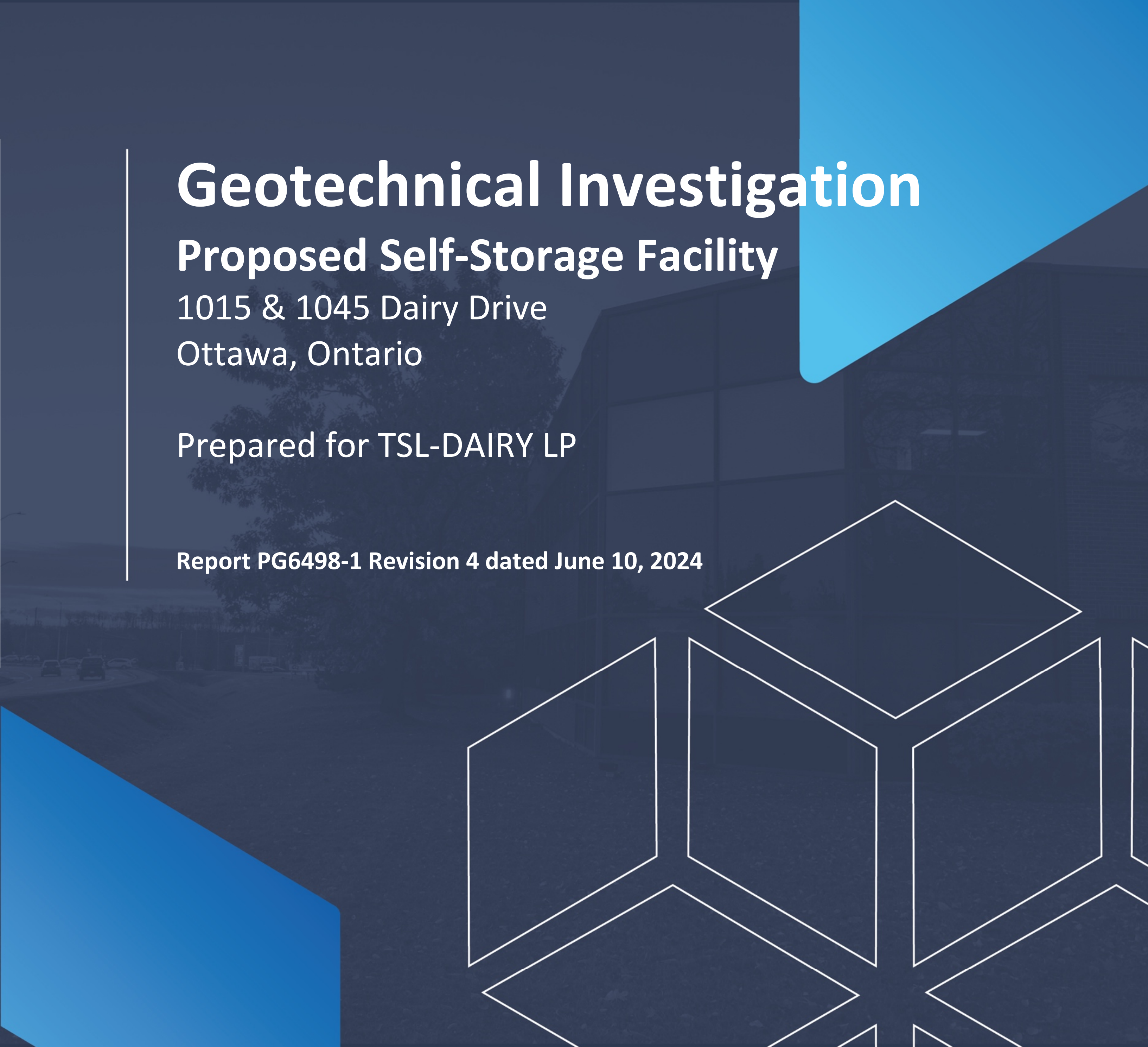

Geotechnical Investigation

Proposed Self-Storage Facility

1015 & 1045 Dairy Drive
Ottawa, Ontario

Prepared for TSL-DAIRY LP

Report PG6498-1 Revision 4 dated June 10, 2024

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1.0 Introduction

Paterson Group (Paterson) was commissioned by TSL-DAIRY LP to conduct a geotechnical investigation for the proposed development to be located at 1015 & 1045 Dairy Drive in the City of Ottawa (refer to Figure 1 - Key Plan in Appendix 2 of this report).

The objectives of the geotechnical investigation were to:

- Determine the subsoil and groundwater conditions at this site 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. It contains our findings and includes geotechnical recommendations pertaining to the design and construction of the subject development as they are understood at the time of writing this report.

2.0 Proposed Development

Based on the available drawings, it is understood that the proposed development will consist of 2 self-storage buildings, Buildings A and B, and 2 sets of industrial condominiums, Buildings C and D.

Buildings A and B will have approximate footprints of 6,400 m^2 and 3,600 m^2, respectively. Each of these buildings will have 2 levels, with the lower level being below-grade at the eastern boundary of the site and daylighting at the western boundary of the site along Dairy Drive.

Buildings C and D will have approximate footprints of 560 m^2 and 910 m^2, respectively, and will consist of single-storey, slab-on-grade structures.

Associated asphalt-paved access lanes and parking areas with landscaped margins will immediately surround the proposed buildings. It is also anticipated that the development will be municipally serviced.

3.0 Method of Investigation

3.1 Field Investigation

Field Program

The field program for the current investigation was carried out on December 8 and 9, 2022. At that time, 4 boreholes and 8 test pits were advanced to maximum depths of 7.4 and 2.3 m below the existing ground surface, respectively. A previous investigation was completed by others on February 11, 2019 and consisted of five (5) boreholes advanced to a maximum depth of 6.7 m below ground surface. The test hole locations were placed in a manner to provide general coverage of the subject site taking into consideration site features and underground utilities. The test hole locations are presented on Drawing PG6498-1 - Test Hole Location Plan included in Appendix 2.

The boreholes were completed using a low clearance drill rig operated by a two-person crew while the test pits were completed using a backhoe and backfilled with the excavated soil upon completion. 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 and at the selected locations sampling the overburden, while the test pit procedure consisted of excavating to the required depth and sampling the overburden.

Sampling and In Situ Testing

The soil samples were recovered from the auger flights and using a 50 mm diameter split-spoon sampler. Grab samples were collected from the test pits at selected intervals. The samples were initially classified on site, placed in sealed plastic bags, and transported to our laboratory. The depths at which the auger, split-spoon and grab samples were recovered from the boreholes are shown as AU, SS and G, respectively, on the Soil Profile and Test Data sheets in Appendix 1.

The 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 in cohesive soils using a field vane apparatus.

The overburden thickness was evaluated by a dynamic cone penetration test (DCPT) completed at borehole BH 4-22. The DCPT consists of driving a steel drill rod, equipped with a 50 mm diameter cone at its 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 logged on the Soil Profile and Test Data sheets in Appendix 1 of this report.

Groundwater

All boreholes were fitted with a flexible polyethylene standpipe to allow groundwater level monitoring subsequent to the completion of the field program.

The groundwater observations are discussed in Section 4.3 and presented in the Soil Profile and Test Data sheets in Appendix 1.

3.2 Field Survey

The test hole locations were selected by Paterson to provide general coverage of the subject site. The test hole locations and ground surface elevation at each test hole location completed by Paterson were surveyed by Paterson using a high precision GPS and referenced to a geodetic datum. The location of the boreholes is presented on Drawing PG6498-1 - 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. A total of one (1) shrinkage test, one (1) grain size distribution analysis, and one (1) Atterberg limits test were completed on selected soil samples. The results are presented in Section 4.2 and on the Grain Size Distribution and Hydrometer Testing Results, Atterberg Limit Results and Shrinkage Test Results sheets presented in Appendix 1.

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 submitted to determine the concentration of sulphate and chloride, the resistivity, and the pH of the sample. The results are presented in Appendix 1 and are discussed further in Section 6.7.

4.0 Observations

4.1 Surface Conditions

The majority of the subject site currently consists of undeveloped land covered with a grass surface and shrubs. A large 3 to 4 m high fill pile was also observed to be present in the central portion of the site.

The subject site is bordered by an industrial property to the north, undeveloped land and further by Cardinal Creek to the east, Old Montreal Road to the south, and Dairy Drive to the west. The ground surface across the site slopes downward gradually from north to south, from approximate geodetic elevation 63 to 58 m, with the exception of the fill pile which extends up to about geodetic elevation 65.5 m. Further, the ravine around Cardinal Creek, located approximately 13 to 14 m from the eastern site boundary, slopes downward to about geodetic elevation 52 m.

4.2 Subsurface Profile

Generally, the subsurface profile encountered at the borehole locations consists of topsoil underlain by a layer of fill, over a deep deposit of silty clay.

At the location of the fill pile, the fill material extends to approximate depths of 0.3 to 3 m below the existing ground surface, and was generally observed to consist of brown to grey silty clay with trace amounts of organics, sand, crushed stone and occasional topsoil.

The deep silty clay deposit consists of a brown, hard to very stiff silty clay crust, becoming stiff and grey at a depth range of approximately 4.5 to 5.3 m below ground surface.

Practical refusal to the DCPT in borehole BH 4-22 was encountered at a depth of 29.0 m below existing ground surface.

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

Bedrock

Based on available geological mapping, the bedrock in the subject area consists of interbedded limestone and dolomite of the Gull River, with an overburden drift thickness of 15 to 25 m depth.

Laboratory Testing

Atterberg Limit Tests

Atterberg limits testing, as well as associated moisture content testing, was completed on a select silty clay sample. The results of the Atterberg limits test are presented in Table 1 and on the Atterberg limits Results sheet in Appendix 1. The results of the moisture content test are presented on the Soil Profile and Test Data Sheet in Appendix 1. The tested silty clay sample classifies as inorganic clay of high plasticity (CH) in accordance with the Unified Soil Classification System.

Table 1 - Atterberg Limits Results

Sample	Depth (m)	LL (%)	PL (%)	PI (%)	w (%)	Classification
BH 1-22	2.59	76	24	52	45.26	CH

Notes: LL: Liquid Limit; PL: Plastic Limit; PI: Plasticity Index; w: water content;
CH: Inorganic Clay of High Plasticity

Grain Size Distribution and Hydrometer Testing

Grain size distribution analysis was completed on 1 select recovered silty clay sample. The results of the grain size distribution analysis are presented in Table 2 and on the Grain Size Distribution sheet in Appendix 1.

Table 2 – Grain Size Distribution Results

Sample	Depth (m)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)
BH 2-22	1.83	0.0	0.2	99.8	

Shrinkage Test

Linear shrinkage testing was completed on a sample recovered from 2.59 m depth from borehole BH 2-22 and yielded a shrinkage limit of 20.3 and a shrinkage ratio of 1.69. The results of the shrinkage testing are presented on the Linear Shrinkage sheet in Appendix 1.

4.3 Groundwater

Groundwater levels were recorded at each piezometer location on December 14, 2022. The groundwater level readings are presented in the Soil Profile and Test Data sheets in Appendix 1, and in Table 3 below.

Table 3 – Summary of Groundwater Levels

Borehole Number	Ground Surface Elevation (m)	Measured Groundwater Level		Date Recorded
		Depth (m)	Elevation (m)	
BH 1-22	58.74	0.76	57.98	December 14, 2022
BH 2-22	59.42	0.43	58.99	December 14, 2022
BH 3-22	62.41	0.33	62.08	December 14, 2022
BH 4-22	63.66	3.85	59.81	December 14, 2022

Note: The ground surface elevation at each borehole location was surveyed using a handheld GPS using a geodetic datum.

It should be noted that surface water can become trapped within a backfilled borehole that can lead to higher than typical groundwater level observations.

The long-term groundwater levels can also be estimated based on the observed colour, consistency, and moisture content of the recovered soil samples. Based on these observations, the long-term groundwater table can be expected at approximately 4 to 5 m below ground surface. 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. The proposed buildings can be founded on conventional spread footings or a thickened edge slab foundation bearing on the undisturbed, hard to stiff silty clay.

Due to the presence of a deep silty clay deposit, permissible grade raise restrictions will be applied for the subject site. This is discussed in Section 5.3.

Given the Cardinal Creek ravine located east of the site, a slope stability assessment has been completed. This is provided in Section 6.9.

The above and other considerations are 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 subgrade soils during site preparation activities. Disturbance of the subgrade may result in having to sub-excavate the disturbed material and the placement of additional suitable fill material.

Fill Placement

Fill used for grading beneath the proposed development should consist, unless otherwise specified, of clean imported granular fill, such as Ontario Provincial Standard Specifications (OPSS) Granular A, Granular B Type II. The imported fill material should be tested and approved prior to delivery. The fill should be placed in maximum 300 mm thick loose lifts and compacted by suitable compaction equipment. Fill placed beneath the building should be compacted to a minimum of 98% of the standard Proctor maximum dry density (SPMDD).

Non-specified existing fill along with site-excavated soil could be placed as general landscaping fill where settlement of the ground surface is of minor concern. These materials should be spread in lifts with a maximum thickness of 300 mm and compacted by the tracks of the spreading equipment to minimize voids.

If non-specified existing fill materials, such as from the fill pile on-site, are to be used to build up the subgrade level for areas to be paved, they should be compacted in thin lifts to a minimum density of 95% of the material's SPMDD.

5.3 Foundation Design

Conventional Spread Footings and/or Thickened Edge Slab Foundation

Strip footings or thickened edge slab foundations, up to 3 m wide, and pad footings, up to 5 m wide, placed on an undisturbed, hard to stiff silty clay bearing surface, or on engineered fill placed directly over the undisturbed, hard to stiff silty clay, 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**.

An undisturbed soil bearing surface consists of one from which all topsoil and deleterious materials, such as loose, frozen, or disturbed soil, have been removed, in the dry, prior to the placement of concrete footings.

Shallow foundations designed using the bearing resistance value at SLS provided 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 stiff silty clay above the groundwater table when a plane extending down and out from the bottom edge of the footing, at a minimum of 1.5H:1V, passes only through in situ soil of the same or higher capacity as that of the bearing medium.

Permissible Grade Raise Restrictions

Based on the undrained shear strength values of the silty clay deposit encountered throughout the subject site, the recommended permissible grade raise elevations for the proposed development are provided in Drawing PG6498-2 - Permissible Grade Raise Plan included in Appendix 2.

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

5.4 Design for Earthquakes

The site class for seismic site response can be taken as **Class D** for design of the proposed buildings at the subject site, in accordance with the Ontario Building Code (OBC) 2012. The soils underlying the subject site are not susceptible to liquefaction. Reference should be made to the latest revision of the 2012 Ontario Building Code for a full discussion of the earthquake design requirements.

5.5 Lowest Level Floor Slab Construction

With the removal of all topsoil and fill, containing deleterious or organic materials, the existing fill or hard to very stiff silty clay, approved by Paterson personnel at the time of construction, will be considered an acceptable subgrade surface on which to commence backfilling for floor slab construction.

Any soft or disturbed areas should be removed and backfilled with appropriate backfill material. OPSS Granular A or Granular B Type II, with a maximum particle size of 50 mm, or approved granular alternative material are recommended for backfilling below the floor slab.

For structures with basement slabs, such as Buildings A and B, it is recommended that the upper 200 mm of sub-floor fill consists of 19 mm clear crushed stone. Further, a sub-slab drainage system, consisting of lines of perforated drainage pipe subdrains connected to a positive outlet, should be provided underlying the basement slabs. This is discussed further in Section 6.1.

For structures with slab-on-grade construction, such as Buildings C and D, the upper 200 mm of sub-slab fill is recommended to consist of OPSS Granular A crushed stone. All backfill material within the footprint of the proposed buildings should be placed in maximum 300 mm thick loose layers and compacted to a minimum of 98% of the SPMDD.

However, if the proposed storage buildings are unheated, it is recommended that the lowest level floor slab be provided with a minimum 450 mm thick layer of 19 mm clear crushed stone below each building footprint. For this case, it is also recommended that a layer of rigid insulation be placed directly below the clear crushed stone layer. This is discussed further in Section 6.2.

5.6 Below-Grade Foundation Walls

There are several combinations of backfill materials and retained soils that could be applicable for the below-grade foundation walls of the subject structures. 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 dry unit weight of 20 kN/m^3.

Lateral Earth Pressures

The static horizontal earth pressure (P_o) can be calculated by a triangular earth pressure distribution equal to Ko·γ·H where:

K_o = at-rest earth pressure coefficient of the applicable retained soil, 0.5
γ = unit weight of fill of the applicable retained soil (kN/m3)
H = height of the wall (m)

An additional pressure having a magnitude equal to $K_o \cdot q$ and acting on the entire wall height should be incorporated into the 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 calculated 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 stay at least 0.3 m away 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}) could be calculated using $0.375 \cdot ac \cdot \gamma \cdot H^2/g$ where:

a_c = (1.45-amax/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 Ottawa area is 0.32g according to OBC 2012. The vertical seismic coefficient is assumed to be zero.

The earth force component (P_o) under seismic conditions could be calculated using:

$P_o = 0.5\ K_o\ \gamma\ H^2$, where $K_o = 0.5$ for the soil conditions presented above.

The total earth force (PAE) 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 2012.

5.7 Pavement Design

Pavement Structure Recommendations

Car only parking areas, heavy truck parking areas and access lanes are anticipated at this site. The proposed pavement structures are presented in Tables 4 and 5 below.

Table 4 – Recommended Pavement Structure – Parking Areas

Thickness (mm)	Material Description
50	**Wear Course –** HL-3 or Superpave 12.5 Asphaltic Concrete
150	**BASE –** OPSS Granular A Crushed Stone
300	**SUBBASE –** OPSS Granular B Type II
SUBGRADE – Either fill, in-situ soil, or OPSS Granular B Type I or II material over in-situ soil or LWF (see below).	

Table 5 – Recommended Pavement Structure – Access Lanes and Heavy Truck Parking Areas

Thickness (mm)	Material Description
40	**Wear Course –** HL-3 or Superpave 12.5 Asphaltic Concrete
50	**Binder Course –** HL-8 or Superpave 19.0 Asphaltic Concrete
150	**BASE –** OPSS Granular A Crushed Stone
450	**SUBBASE –** OPSS Granular B Type II
SUBGRADE – Either fill, in-situ soil, or OPSS Granular B Type I or II material over in-situ soil or LWF (see below).	

Minimum Performance Graded (PG) 58-34 asphalt cement should be used for this project.

The pavement granular base and subbase should be placed in maximum 300 mm thick lifts and compacted to a minimum of 99% of the material's SPMDD using suitable vibratory equipment.

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.

Pavement Structure Drainage

The pavement structure performance is dependent on the moisture condition at the contact zone between the subgrade material and granular base. Failure to provide adequate drainage under conditions of heavy wheel loading could result in the subgrade fines pumped into the stone subbase voids, thereby reducing the load bearing capacity.

Due to the low permeability of the subgrade materials at this site, consideration should be provided to installing subdrains during the pavement construction as per City of Ottawa standards. The subdrains should be provided for catch basins and extend at least 3 m in four orthogonal directions. The clear crushed stone surrounding the drainage lines should be wrapped with suitable filter cloth. The subdrain inverts should be approximately 300 mm below subgrade level. The subgrade surface should be shaped to promote water flow to the drainage lines.

6.0 Design and Construction Precautions

6.1 Foundation Drainage and Backfill

Perimeter Drainage

It is recommended that a perimeter foundation drainage system be provided for the Buildings A and B, which will have occupied below-grade space. The system should consist of a 150 mm diameter perforated and corrugated plastic pipe which is surrounded on all sides by 150 mm of 19 mm clear crushed stone and placed at the footing level around the exterior perimeter of each structure. The pipe should have a positive outlet, such as a gravity connection to a catch basin.

Underslab Drainage

Underslab drainage is recommended to control water infiltration below the lowest level floor slabs of Buildings A and B, which will have below-grade space. For preliminary design purposes, we recommend that 150 mm diameter perforated pipes be placed at approximate 6 m centers underlying the lowest level floor slabs. The spacing of the underslab drainage system should be confirmed at the time of completing the excavation when water infiltration can be better assessed.

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 placement as backfill against the foundation walls unless used in conjunction with a composite drainage board, such as Delta Drain 6000 or Miradrain G100N. Imported granular materials, such as clean sand or OPSS Granular B Type I granular material, should be placed for this purpose.

In order to avoid differential settlements within walkways adjacent to the proposed buildings (if present), it is recommended that the upper 600 mm of backfill placed below any walkways adjacent to the building footprints consist of free draining, non-frost susceptible material such as OPSS Granular A or Granular B Type II. The granular material should be placed in maximum 300 mm loose lifts and compacted to 98% of the material’s SPMDD using suitable compaction equipment.

Consideration could also be given to placing a rigid insulation layer below the granular fill layer to minimize differential frost heave issues at the building entrances.

6.2 Protection of Footings Against Frost Action

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

Footings for unheated structures should be provided with a minimum 2.1 m thick soil cover, or an equivalent thickness of soil cover and foundation insulation.

Frost Protection for Unheated Structures

In order to adequately protect the founding soils from the migration of frost throughout the footprint of any proposed unheated structures, it is recommended that the sub-slab fill layer be underlain by a 100 mm thick layer of HI-40 XPS (extruded polystyrene) or Styrorail SR.P 400 EPS rigid insulation, or an approved alternative below the entire footprint of the structure.

It is recommended that the rigid insulation layer be placed below, and not above, the sub-slab fill layer throughout the footprint of unheated storage structures. Placing the insulation layer directly below the concrete slab structure will diminish the ability for the underlying layer of soil to retain subsurface heat. Provided the above-noted insulation product is considered for this project, the insulation layer is not anticipated to be crushed by the compaction of the overlying fill layer using conventional compaction equipment (plate compactors and mid-sized rollers).

The insulation layer should be installed upon a relatively smooth and level subgrade surface. The contractor may consider the use of a maximum 50 mm thick layer of bedding sand or stone dust to provide a level surface upon which to place the insulation layers.

Where multiple layers of insulation boards are required, the orientation of the longer insulation board dimension should be alternated between each lift to provide additional rigidity to the overall layer of insulation. Placement of the above-noted insulation layer is recommended to be reviewed at the time of construction by the geotechnical consultant personnel.

Frost Taper Recommendations

A frost taper is recommended in areas where hard surfaces (asphaltic parking and access lanes) are placed adjacent to the concrete pad structure. It is recommended to sub-excavate at least 300 mm below the subgrade level of the pavement structure along the outside edge of the rigid insulation to provide a suitable frost taper. The sub-excavated area should extend horizontally at least 600 mm beyond the exterior face of the rigid insulation layer. A minimum 5H:1V slope profile can be used to raise the sub-excavated area back to subgrade level. The frost taper area should be backfilled with a free draining, non-frost susceptible engineered fill, such as OPSS Granular A or OPSS Granular B Type II compacted to a minimum of 98% of the materials SPMDD.

6.3 Excavation Side Slopes

The side slopes of excavations in the soil and fill overburden materials should be either cut back at acceptable slopes or should be retained by shoring systems from the start of the excavation until the structure is backfilled. It is anticipated that sufficient room will be available for the greater part of the excavation to be undertaken by open-cut methods (i.e., unsupported excavations).

The excavation side slopes above the groundwater level extending to a maximum depth of 3 m should be cut back at 1H:1V or flatter. The flatter slope is required for excavation below groundwater level. The subsoil at this site is considered to be mainly a Type 2 and 3 soil according to 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 be kept away from the excavation sides.
Slopes in excess of 3 m in height should be periodically inspected by the geotechnical consultant in order to detect if the slopes are exhibiting signs of distress.

It is recommended that a trench box be used at all times to protect personnel working in trenches with steep or vertical sides. It is expected that services will be installed by “cut and cover” methods and excavations will not be left open for extended periods of time.

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. Where the bedding is located within the very stiff to stiff silty clay, the thickness of the bedding should be increased to a minimum of 300 mm.

The bedding and cover materials should be placed in maximum 300 mm thick lifts compacted to 95% of the material's standard Proctor maximum dry density. The bedding material should extend at least 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 at least 300 mm above the obvert of the pipe. The material should be placed in maximum 300 mm thick loose lifts and compacted to a minimum of 95% of its SPMDD.

It should generally be possible to re-use the upper portion of the dry to moist (not wet) brown silty clay above the cover material if the excavation and filling operations are carried out in dry 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.

The backfill material within the frost zone (about 1.8 m below finished grade) should match the soils exposed at the trench walls to reduce potential differential frost heaving. The backfill should be placed in maximum 225 mm thick loose lifts and compacted to a minimum of 95% of the material's SPMDD.

Clay Seals

To reduce long-term lowering of the groundwater level at this 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, sub-bedding and cover material.

The barriers should consist of relatively dry and compactable brown silty clay 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.

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 disturbances to the founding medium.

Permit to Take Water

A temporary Ministry of the Environment, Conservation and Parks (MECP) permit to take water (PTTW) may be required for this project if more than 400,000 L/day of ground and/or surface water is to be pumped during the construction phase. A minimum 4 to 5 months should be allowed for completion of the PTTW application package and issuance of the permit by the MECP.

For typical ground or surface water volumes being pumped during the construction phase, typically between 50,000 to 400,000 L/day, it is required to register on the Environmental Activity and Sector Registry (EASR). A minimum of two 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. If a project qualifies for a PTTW based upon anticipated conditions, an EASR will not be allowed as a temporary dewatering measure while awaiting the MECP review of the PTTW application.

Impacts on Neighbouring Properties

Due to the depth of the groundwater level encountered at the subject site, groundwater lowering is not anticipated during construction or the permanent condition.

Therefore, it should be noted that no issues are expected that would cause long term adverse effects to adjacent structures in the vicinity of the proposed building.

6.6 Winter Construction

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

The subsoil conditions at this site 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 the event of construction during below zero temperatures, the founding stratum should be protected from freezing temperatures by the use of straw, propane heaters and tarpaulins or other suitable means. In this regard, 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 footings are protected with sufficient soil cover to prevent freezing at founding level.

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

6.7 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 sample 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 non-aggressive to slightly aggressive corrosive environment.

6.8 Landscaping 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. Atterberg limits testing was completed for a recovered silty clay sample from the subject site. The soil sample was recovered from an elevation below the anticipated design underside of footing elevation and approximately 3.5 m depth below anticipated finished grade. The results of our testing are presented in Table 1 in Section 4.2 and in Appendix 1.

Based on the results of the Atterberg limit testing mentioned above, the plasticity index was found to exceed 40% in the tested silty clay sample.

The following tree planting setbacks are therefore recommended for the high sensitivity silty clay deposit throughout the subject site.

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 are **7.5 m** for small (mature tree height up to

7.5 m) and medium size trees (mature tree height 7.5 m to 14 m) provided that the conditions noted below are met.

- ☐ The underside of footing (USF) is 2.1 m or greater below the lowest finished grade for footings within 10 m from the tree, as measured from the center of the tree trunk and verified by means of the Grading Plan.

- ☐ 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.

- ☐ The foundation walls are to be reinforced at least nominally (minimum of two upper and two lower 15M bars in the foundation wall).

- ☐ 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 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.

6.9 Slope Stability Assessment

The current slope stability analysis was completed using topographical survey information obtained in the field by Paterson, as well as topographic mapping from the City of Ottawa. Two (2) slope cross-sections (1-1’ and 2-2’) were studied as the worst-case scenarios. The cross section locations are presented on Drawing PG6498-1 - Test Hole Location Plan in Appendix 2.

The slope conditions were reviewed on-site by Paterson on March 27, 2023. At that time, the slope east of the subject site was observed to be heavily vegetated with no sign significant signs of erosion observed along the western bank of the ravine (nearest to the site). It should be noted at the time of our site visit, the slopes were largely snow covered.

The slope stability analysis of the proposed site conditions was conducted using SLIDE, a computer program which permits a two-dimensional stability analysis using several methods including the Bishop's method, which is a widely used and accepted analysis method. A horizontal acceleration of 0.16 g (50% of PGA = 0.32g) was utilized for the seismic analysis.

The program calculates a factor of safety, which represents the ratio of the forces resisting failure to those favoring failure. Theoretically, a factor of safety (F.o.S.) of 1.0 represents a condition where the slope is stable. However, due to intrinsic limitations of the calculation methods and the variability of the subsoil and groundwater conditions, a F.o.S. greater than one is usually required to ascertain that the risks of failure are acceptable. A minimum F.o.S. of 1.5 is generally recommended for static analysis conditions and a minimum F.o.S. of 1.1 is generally recommended for seismic analysis conditions, where the failure of the slope would endanger permanent structures.

The effective strength soil parameters used for static analysis were chosen based on the subsoil information recovered from the test holes. The effective strength soil parameters used for static analysis are presented in Table 6 below.

Table 6 - Effective Strength Soil and Material Parameters (Static Analysis)

Soil Layer	Unit Weight (kN/m^3)	Friction Angle (degrees)	Cohesion (kPa)
Brown Silty Clay	17	33	5
Grey Silty Clay	16	33	10

The total strength soil parameters used for seismic analysis were also chosen based on the subsoil information recovered within the test pits. The strength parameters used for seismic analysis at the slope cross-sections are presented in Table 7 below:

Table 7 - Total Strength Soil and Material Parameters (Seismic Analysis)			
Soil Layer	**Unit Weight (kN/m^3)**	**Friction Angle (degrees)**	**Cohesion (kPa)**
Brown Silty Clay	17	0	90
Grey Silty Clay	16	0	50

The analyses were completed by conservatively assuming fully-saturated groundwater conditions extending up to the ground surface.

Limit of Hazard Lands Setbacks

The results for the slope stability analyses under static and seismic conditions at cross-sections 1-1' and 2-2' are shown on Figures 2 to 5, which are attached to the current report in Appendix 2. The results of the slope stability analyses indicate that the factor of safety under seismic conditions exceeds 1.1 for both slope cross-sections.

The results of the slope stability analysis under static conditions at cross-section 1-1' indicate a suitable factor of safety exceeding 1.5. The results of the slope stability analysis under static conditions at slope cross-section 2-2' indicates that a Limit of Hazard Lands setback of 13 m from the top of slope is required. This 13 m Limit of Hazard Lands setback consists of a 5 m stable slope allowance, plus a 2 m toe erosion allowance, and 6 m erosion access allowance. This Limit of Hazard Lands setback is shown on the attached Drawing PG6498-3 – Slope Setback Plan. The setbacks are also shown in cross-section on Drawings PG6498-4, PG6498-5, and PG6498-6. As the subject site boundary and proposed self-storage facility is located approximately 13 m from the top of slope, at its nearest point, the Limit of Hazard Lands does not extend onto the subject site and does not impact the proposed development.

Accordingly, the location of the proposed self-storage facility is considered acceptable, from a slope stability and geotechnical perspective. However, it should be noted that additional slope and/or watercourse setbacks may be required from the various regulating authorities, such as the 25 m Top of Valley Slope setback, and which may exceed the Limit of Hazard Lands setback developed based on the slope stability analysis.

Further, as requested by City of Ottawa staff, a "Top of Stable Slope" line has been added to Drawing PG6498-3 – Slope Setback Plan. This line is indicative of the stable slope allowance of up to 5 m plus the toe erosion allowance of 2 m, but does not include the 6 m erosion access allwoance. This line has been added because it is understood that some setbacks by others should be referenced to the “Top of Stable Slope” and not the “Top of Slope”.

It is recommended that the existing vegetation on the slope faces not be removed as it contributes to the stability of the slope and reduces erosion.

7.0 Recommendations

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

- Review detailed grading plan(s) from a geotechnical perspective, once available.
- Review of architectural and structural drawings to ensure adequate frost protection is provided to the subsoil.
- 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.
- Field density tests to determine the level of compaction achieved.
- Sampling and testing of the bituminous concrete including mix design reviews.

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

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.

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 TSL-DAIRY 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.

LICENSED PROFESSIONAL ENGINEER
June 10, 2024
S. S. DENNIS
100519516
PROVINCE OF ONTARIO

Fernanda Carozzi, PhD. Geoph.

Scott Dennis

Scott S. Dennis, P.Eng.

Report Distribution:

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- Paterson Group (1 copy)

APPENDIX 1

SOIL PROFILE AND TEST DATA SHEETS

SYMBOLS AND TERMS

BOREHOLE LOGS BY OTHERS

ATTERBERG LIMITS RESULTS

GRAIN SIZE ANALYSIS RESULTS

SHRINKAGE ANALYSIS RESULTS

ANALYTICAL TESTING RESULTS

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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Proposed Self-Storage Facility - 1045 Dairy Drive
Ottawa, Ontario

DATUM Geodetic

REMARKS

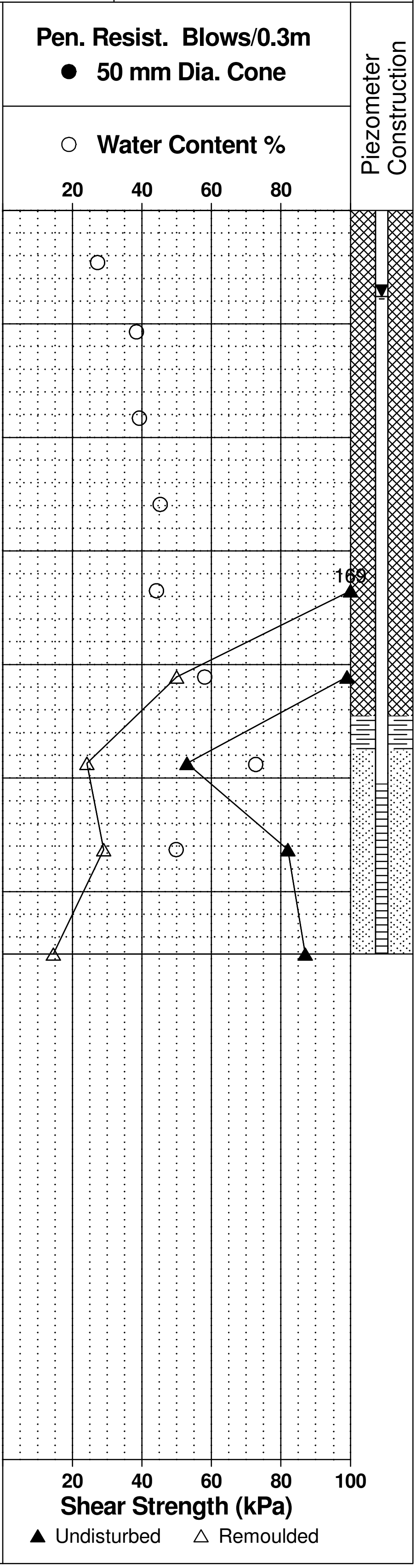
BORINGS BY CME-55 Low Clearance Drill

DATE December 8, 2022

FILE NO. PG6498

HOLE NO. BH 1-22

SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	% RECOVERY	N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE					0	58.74
TOPSOIL 0.28						
	AU	1				
					1	57.74
	SS	2	75	12		
	SS	3	83	14		
					2	56.74
Hard to very stiff, brown **SILTY CLAY**	SS	4	75	7		
					3	55.74
	SS	5	88	P		
					4	54.74
	SS	6	83	P		
- stiff and grey by 4.5m depth						
	SS	7	83	P		
					5	53.74
	G	8				
					6	52.74
6.55						
End of Borehole						
(GWL @ 0.76m - Dec. 14, 2022)						



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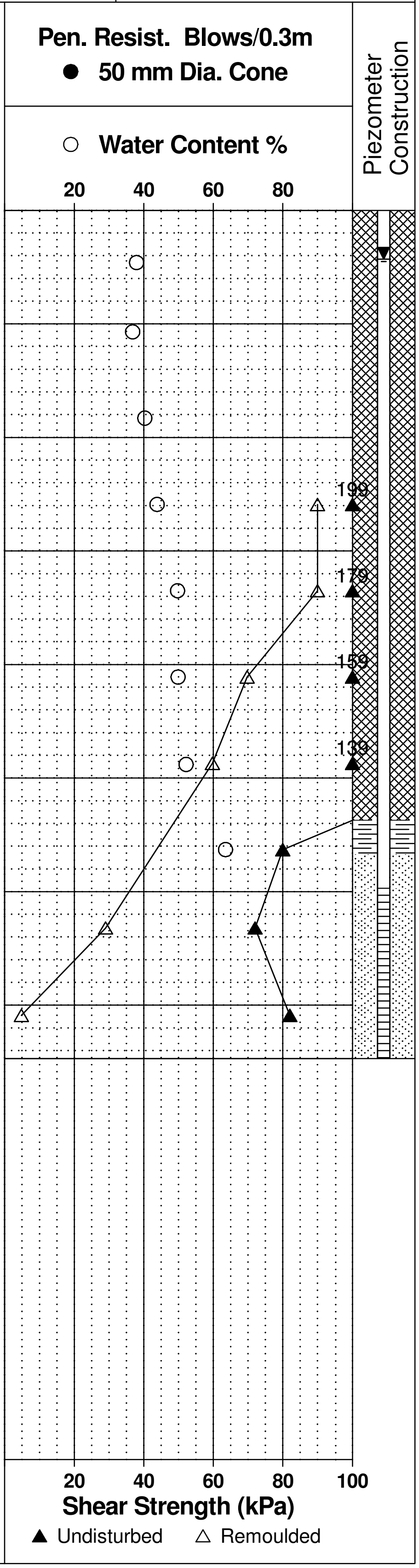
DATE December 8, 2022

FILE NO. **PG6498**

HOLE NO. **BH 2-22**

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	59.42
TOPSOIL 0.30	■						
Hard to very stiff, brown **SILTY CLAY**	▨	AU	1				
	▨	SS	2	75	12		
	▨					1	58.42
	▨	SS	3	83	11		
	▨					2	57.42
	▨	SS	4	67	P		
	▨					3	56.42
	▨	SS	5	75	P		
	▨					4	55.42
	▨	SS	6	71	P		
	▨	SS	7	79	P		
	▨					5	54.42
- stiff and grey by 5.3m depth	▨	G	8				
	▨					6	53.42
	▨					7	52.42
7.47							
End of Borehole							
(GWL @ 0.43m - Dec. 14, 2022)							



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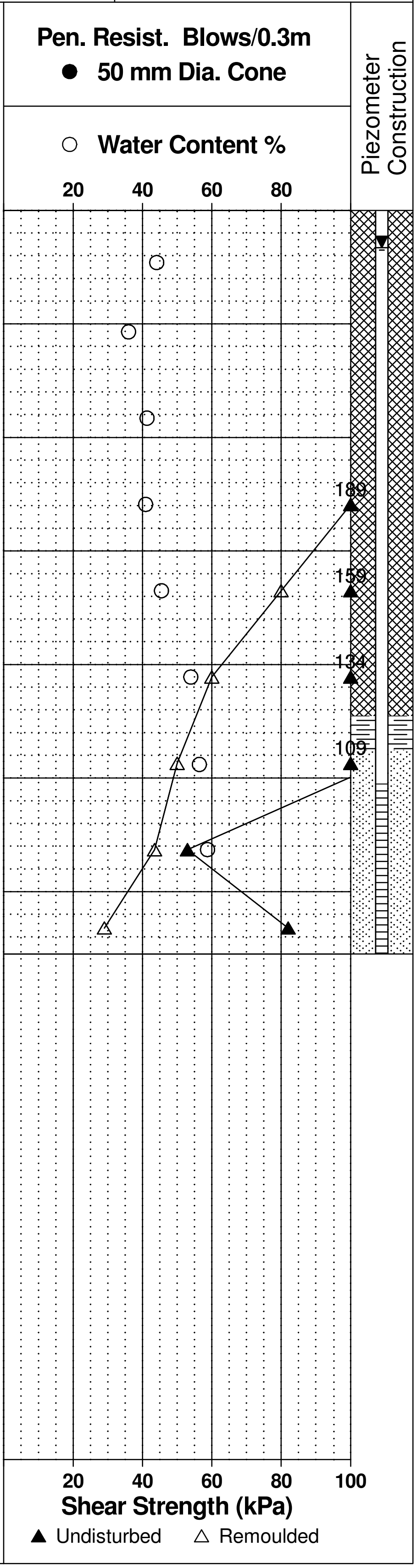
FILE NO. **PG6498**

HOLE NO. **BH 3-22**

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE							
TOPSOIL 0.25						0	62.41
Hard to very stiff, brown **SILTY CLAY**		AU	1				
		SS	2	100	13	1	61.41
		SS	3	100	12	2	60.41
		SS	4	100	P	3	59.41
		SS	5	100	P	4	58.41
		SS	6	100	P		
- very stiff to stiff and grey by 4.5m depth		SS	7	100	P	5	57.41
		G	8			6	56.41
6.55							
End of Borehole							
(GWL @ 0.33m - Dec. 14, 2022)							



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SOIL PROFILE AND TEST DATA

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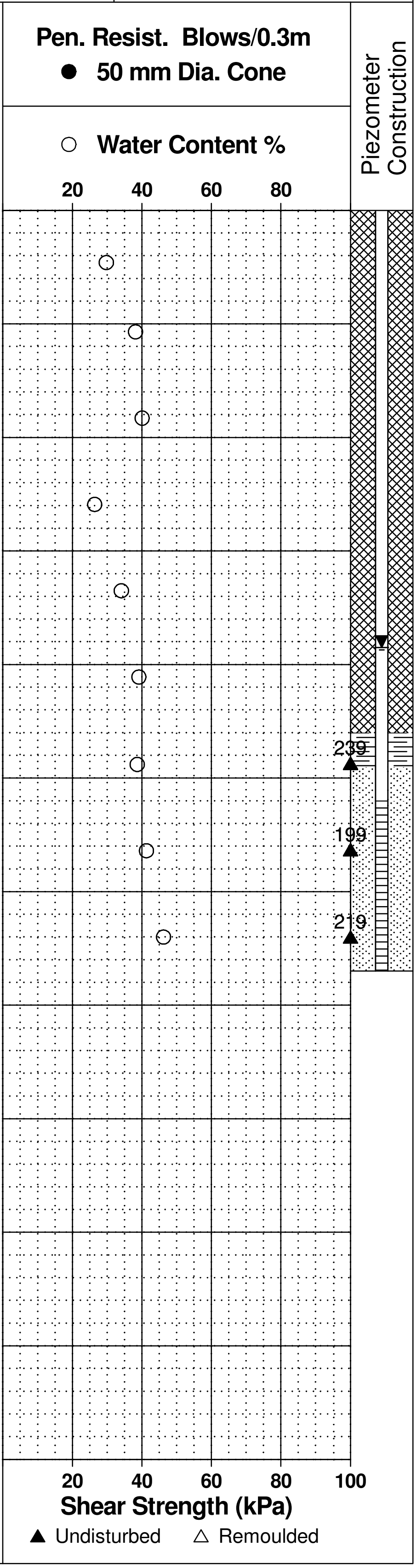
FILE NO. **PG6498**

HOLE NO. **BH 4-22**

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD
GROUND SURFACE					
TOPSOIL 0.20					
FILL: Brown to grey silty clay, some organics, trace sand		AU	1		
		SS	2	17	4
		SS	3	25	4
2.97		SS	4	54	9
Hard, brown **SILTY CLAY**		SS	5	75	12
		SS	6	67	15
		SS	7	75	P
		SS	8	83	P
6.71		SS	9	75	P
Dynamic Cone Penetration Test commenced at 6.71m depth. Cone pushed to 28.65m depth.					

DEPTH (m)	ELEV. (m)
0	63.66
1	62.66
2	61.66
3	60.66
4	59.66
5	58.66
6	57.66
7	56.66
8	55.66
9	54.66
10	53.66
11	52.66



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HOLE NO. BH 4-22

SOIL DESCRIPTION	STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content % 20 40 60 80	Piezometer Construction
GROUND SURFACE		TYPE	NUMBER	% RECOVERY	N VALUE or RQD				
Dynamic Cone Penetration Test commenced at 6.71m depth. Cone pushed to 28.65m depth.						11	52.66		
						12	51.66		
						13	50.66		
						14	49.66		
						15	48.66		
						16	47.66		
						17	46.66		
						18	45.66		
						19	44.66		
						20	43.66		
						21	42.66		
						22	41.66		

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

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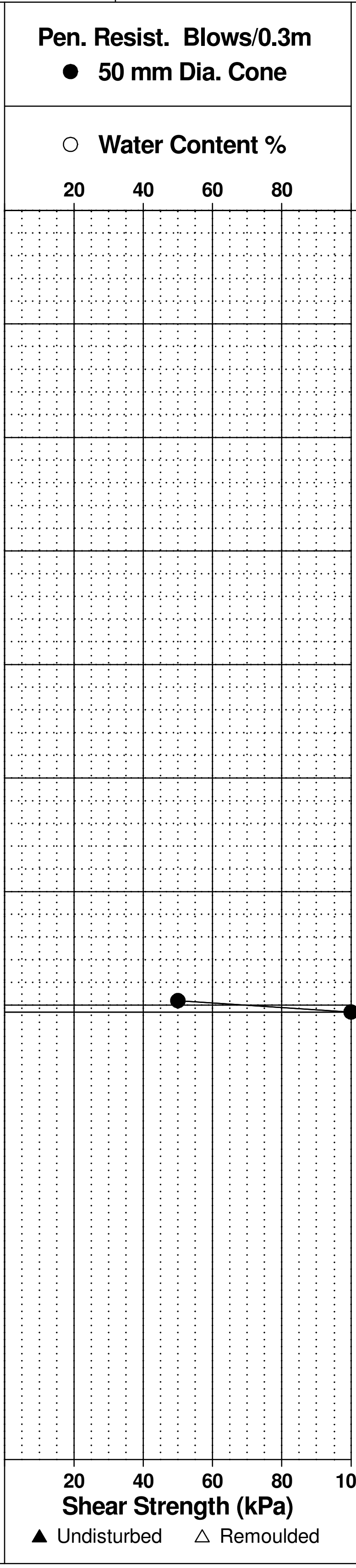
DATE December 8, 2022

FILE NO. PG6498

HOLE NO. BH 4-22

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE							
Dynamic Cone Penetration Test commenced at 6.71m depth. Cone pushed to 28.65m depth.						22	41.66
						23	40.66
						24	39.66
						25	38.66
						26	37.66
						27	36.66
						28	35.66
29.06						29	34.66
End of Borehole Practical DCPT refusal at 29.06m depth. (GWL @ 3.85m - Dec. 14, 2022)							



Piezometer Construction

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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Proposed Self-Storage Facility - 1015-1045 Dairy Drive
Ottawa, Ontario

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BORINGS BY Backhoe
DATE December 9, 2022
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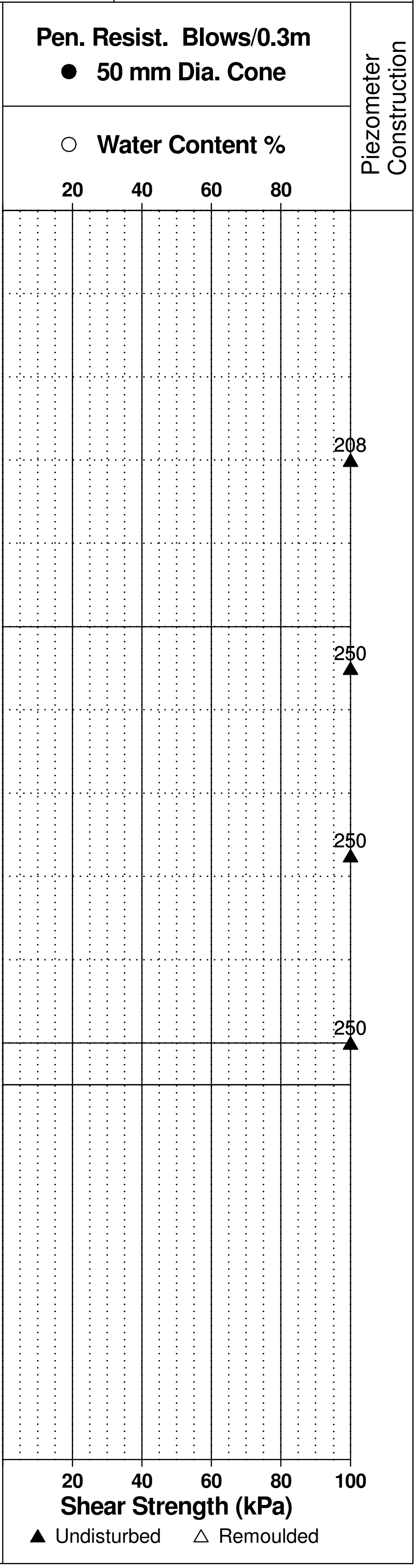
SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	59.41
TOPSOIL 0.08	■						
FILL: Brown silty clay, trace to some organics, trace gravel 0.32	▨	G	1				
Hard, brown **SILTY CLAY**	▨	G	2				
		G	3			1	58.41
2.10		G	4			2	57.41
End of Test Pit (Groundwater infiltration at 0.4m depth)							



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SOIL PROFILE AND TEST DATA

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HOLE NO. TP 2-22

SOIL DESCRIPTION	STRATA PLOT	SAMPLE				DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
		TYPE	NUMBER	% RECOVERY	N VALUE or RQD			20 40 60 80	
GROUND SURFACE						0	61.70		
TOPSOIL 0.10									
FILL: Brown silty clay, trace organics		G	1						
0.60									
FILL: Brown silty clay, trace to some organics, trace gravel		G	2			1	60.70		
		G	3						
1.27									
FILL: Grey silty clay, some topsoil		G	4						
		G	5			2	59.70		
2.10									
End of Test Pit (TP dry upon completion)									

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

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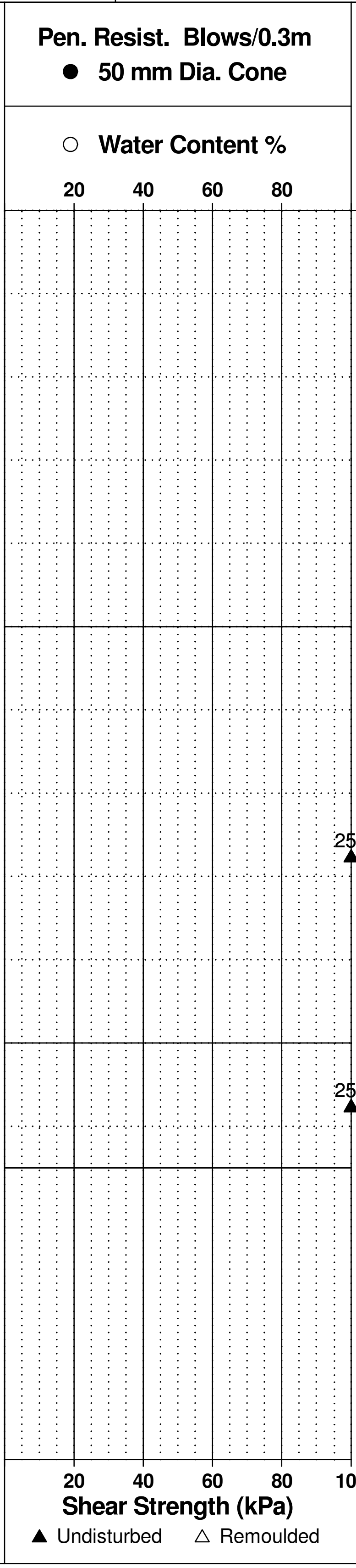
HOLE NO. TP 3-22

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	61.34
TOPSOIL 0.09							
FILL: Brown silty clay, trace organics 0.40		G	1				
FILL: Grey silty clay with crushed stone, trace topsoil 1.00		G	2			1	60.34
FILL: Brown silty clay, some gravel, trace gravel 1.30		G	3				
Hard, brown **SILTY CLAY** 2.30		G G	4 5			2	59.34
End of Test Pit (Groundwater infiltration at 1.3m depth)							



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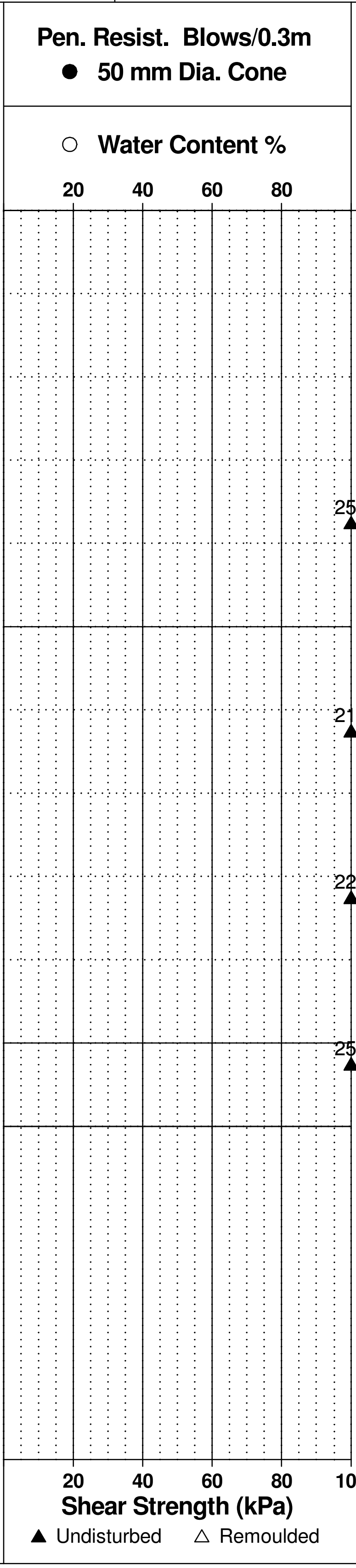
HOLE NO. TP 4-22

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Piezometer Construction
GROUND SURFACE						0	62.24	
TOPSOIL 0.13	■							
FILL: Crushed stone, some organics 0.60	⊠	G	1					
	▨	G	2					
						1	61.24	
Hard, brown **SILTY CLAY,** trace organics	▨							
	▨	G	3					
2.20	▨					2	60.24	
End of Test Pit (Groundwater infiltration at 1.5m depth)								



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SOIL PROFILE AND TEST DATA

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Proposed Self-Storage Facility - 1015-1045 Dairy Drive
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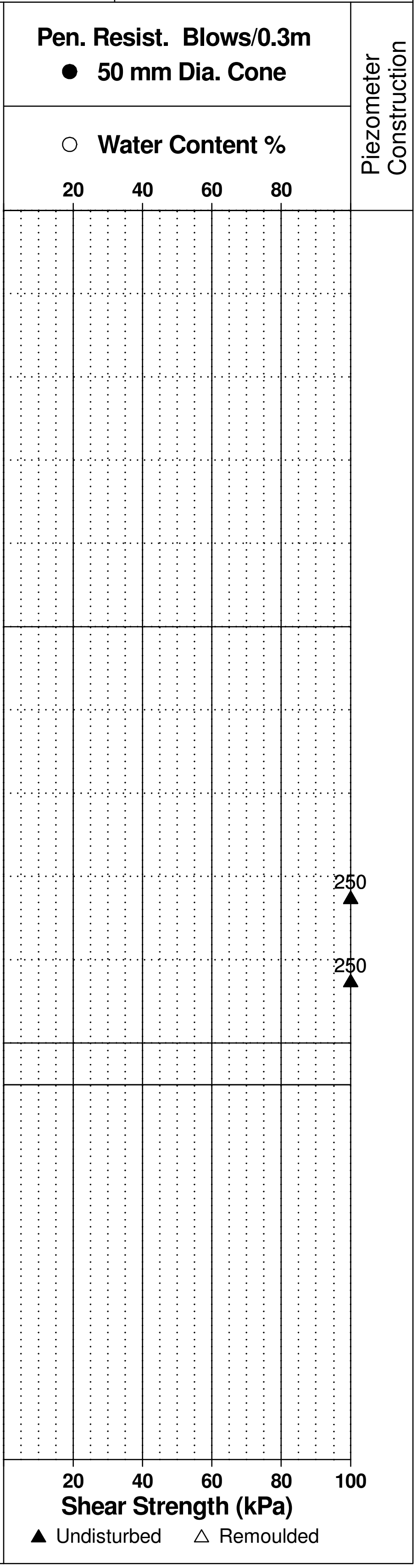
FILE NO. PG6498

HOLE NO. TP 5-22

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	62.73
TOPSOIL 0.10							
FILL: Brown silty clay, some organics		G	1				
		G	2				
		G	3			1	61.73
1.50							
Hard, brown **SILTY CLAY**		G	4			2	60.73
2.10							
End of Test Pit (TP dry upon completion)							



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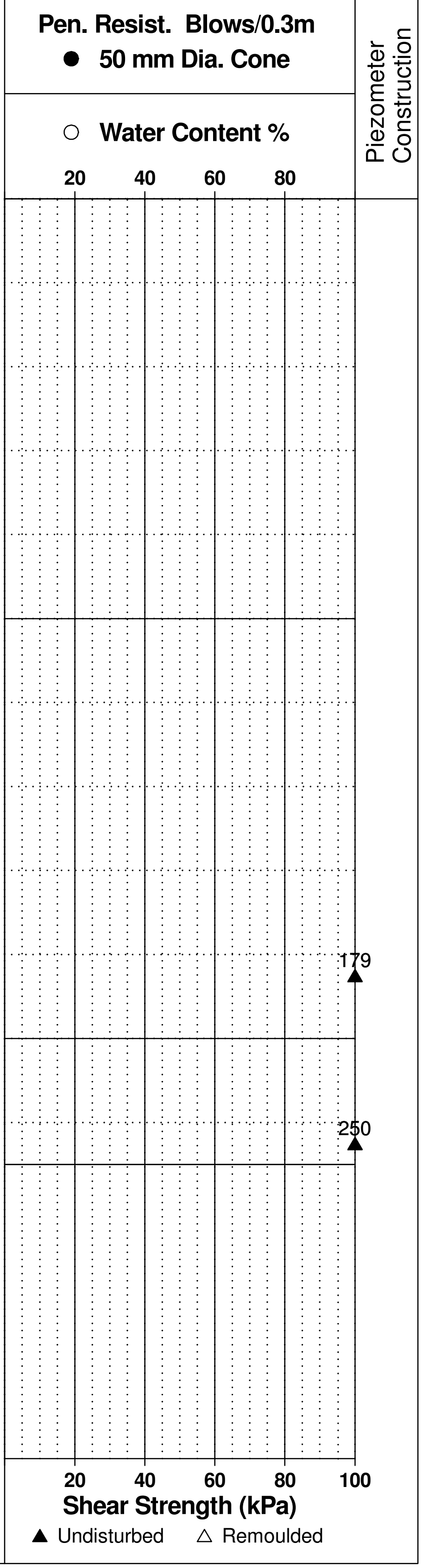
FILE NO. PG6498

HOLE NO. TP 6-22

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	% RECOVERY	N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	63.30
TOPSOIL 0.10	■						
FILL: Brown silty clay, trace organics	☒	G G	1 2			1	62.30
1.60							
Hard to very stiff, brown **SILTY CLAY**	▨	G G	3 4			2	61.30
2.30							
End of Test Pit (Groundwater infiltration at 1.7m depth)							



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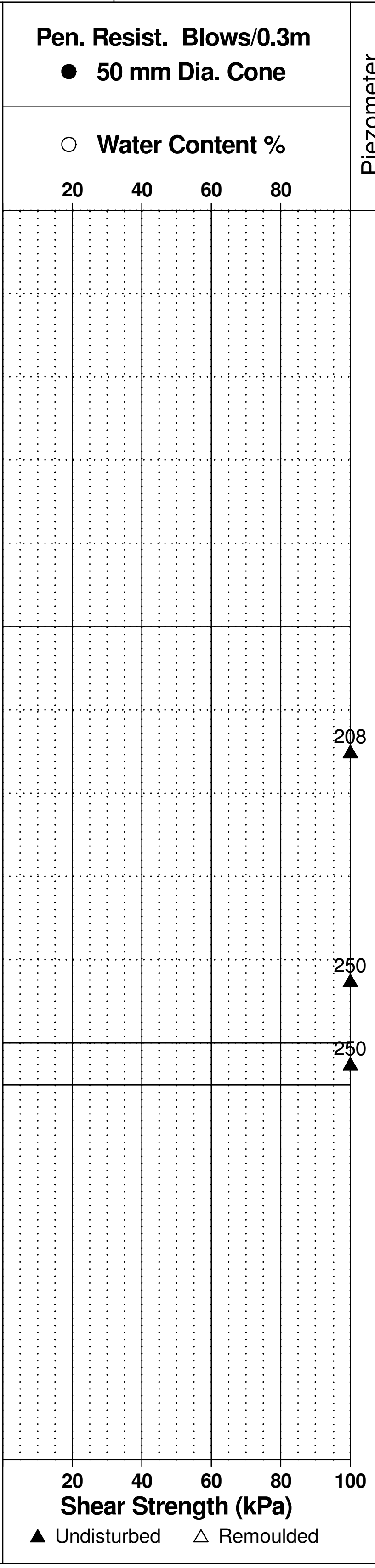
FILE NO. PG6498

HOLE NO. TP 7-22

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Piezometer Construction
GROUND SURFACE						0	62.88	
TOPSOIL 0.09								
FILL: Brown silty clay, trace to some topsoil 0.90		G G	1 2					
Very stiff to hard, brown **SILTY CLAY** 2.10		G G	3 4			1 2	61.88 60.88	
End of Test Pit (TP dry upon completion)								



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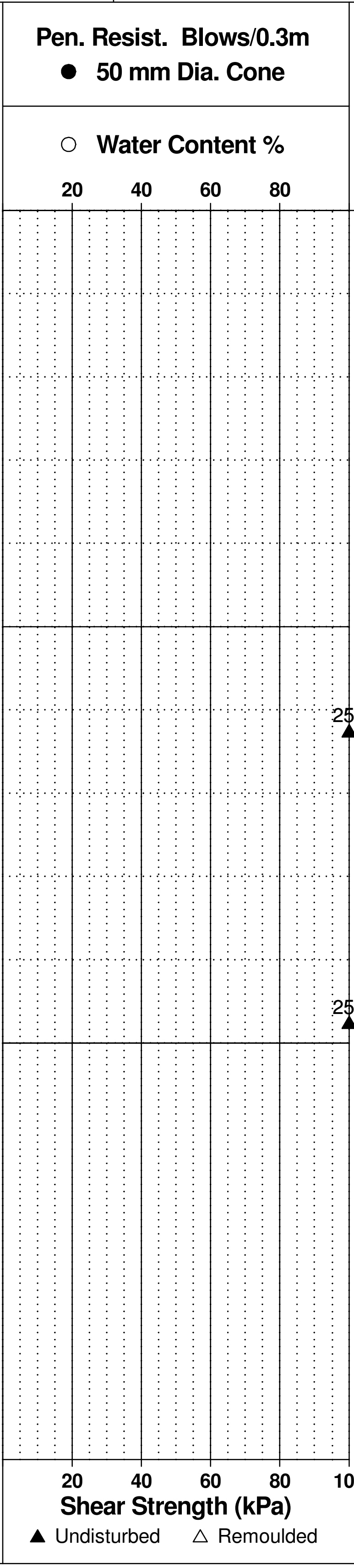
HOLE NO. TP 8-22

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Piezometer Construction
GROUND SURFACE						0	61.51	
TOPSOIL 0.10								
FILL: Brown to grey silty clay, trace organics		G	1					
		G	2					
1.10		G	3			1	60.51	
Hard, brown **SILTY CLAY**		G	4					
2.00						2	59.51	
End of Test Pit (TP dry upon completion)								



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

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 = $(D30)^2 / (D10 \text{ x } D60)$
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)

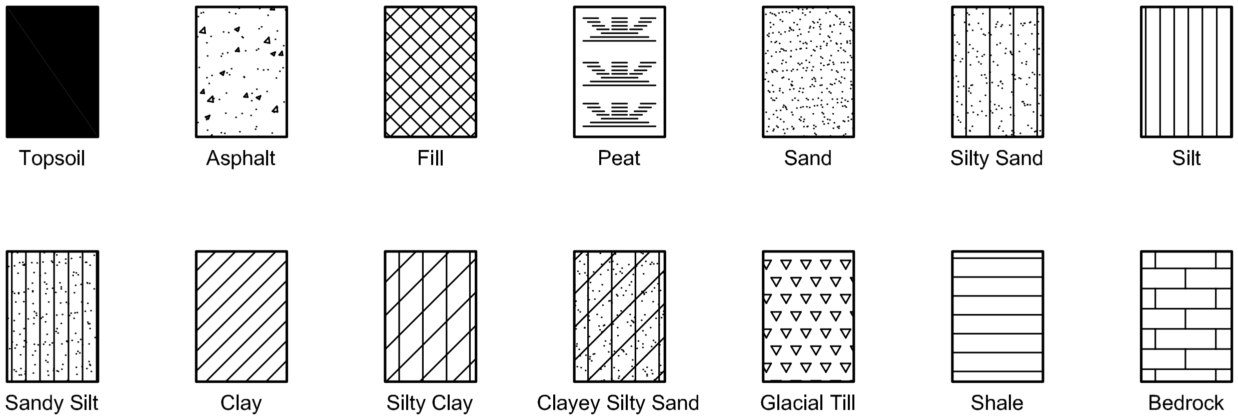
OC Ratio Overconsolidaton ratio = p'_c / p'_o
Void Ratio Initial sample void ratio = volume of voids / volume of solids
Wo - Initial water content (at start of consolidation test)

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.

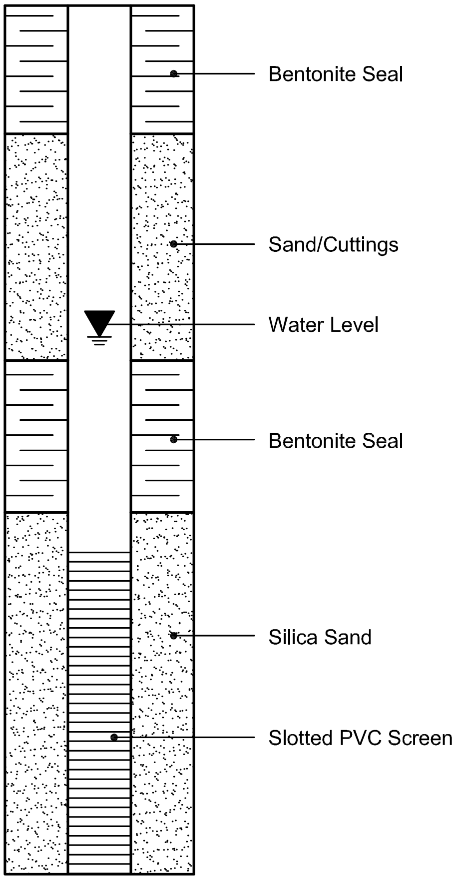
SYMBOLS AND TERMS (continued)

STRATA PLOT

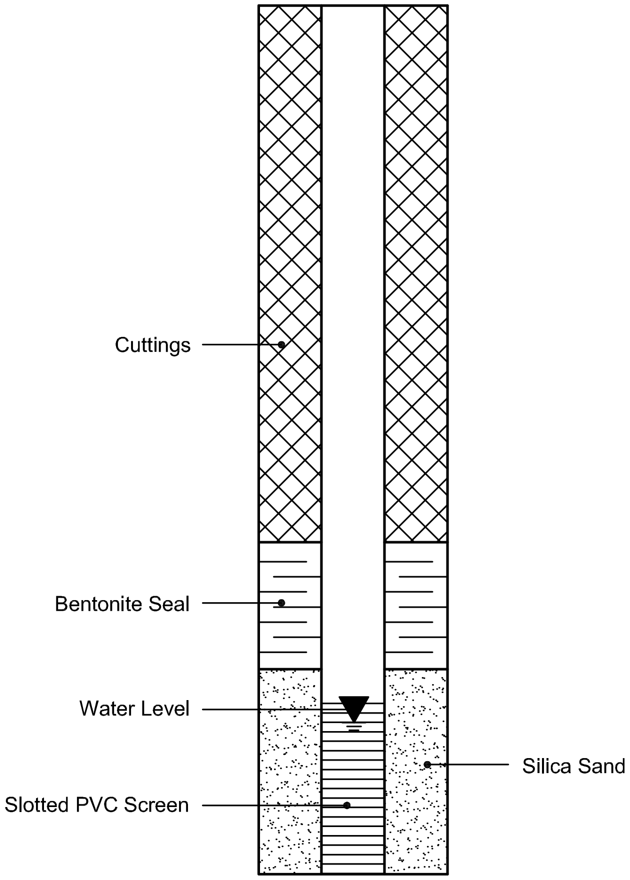


MONITORING WELL AND PIEZOMETER CONSTRUCTION

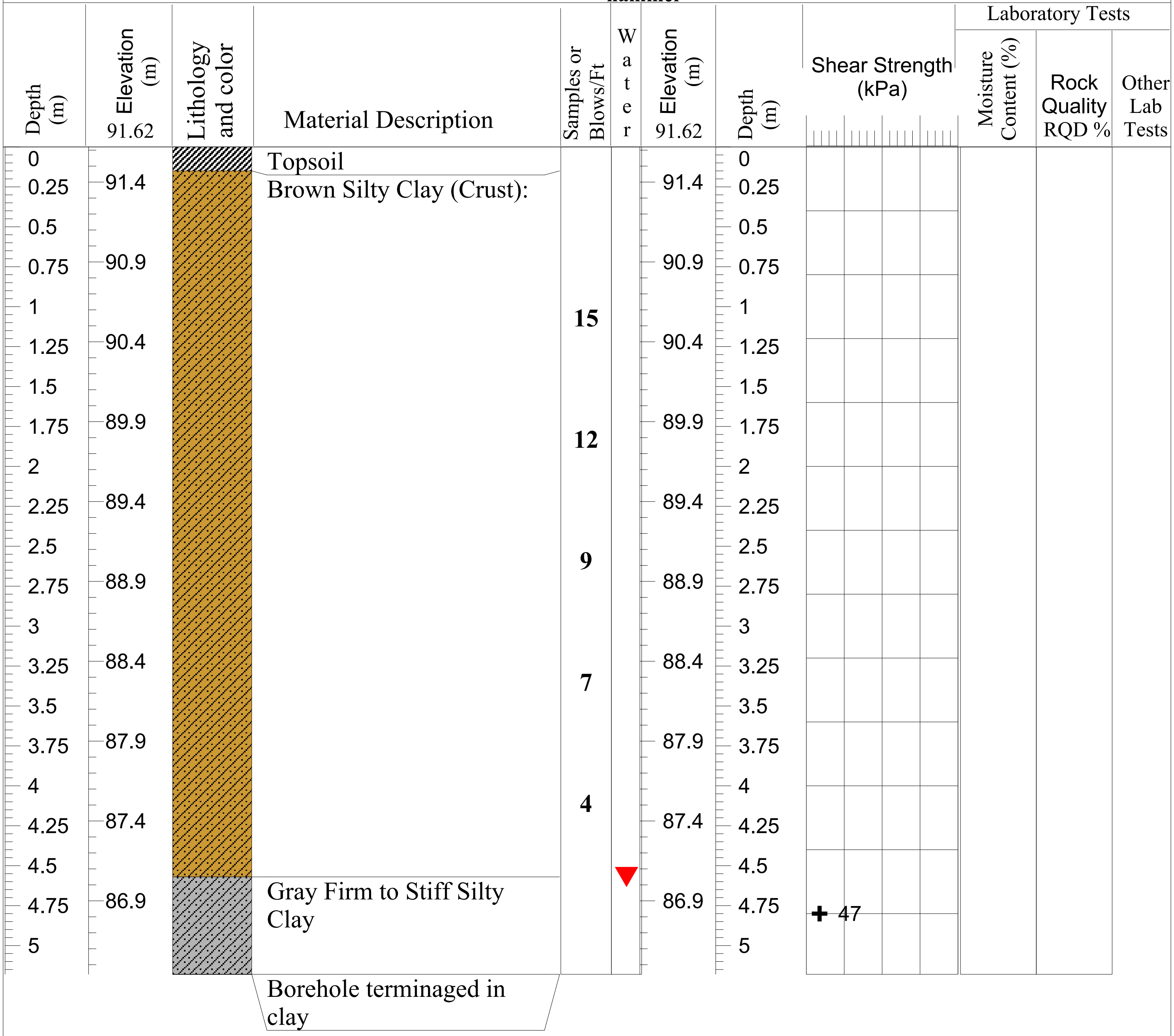
MONITORING WELL CONSTRUCTION



PIEZOMETER CONSTRUCTION



Project: **Proposed Industrial Building**		YME Yuri Mendez Engineering.
Location: **1045 Dairy Dr.**	Client: **Versatek Building Inc.**	**Test Hole No.: BH1 of 5**
Job No.: **42-BM**	Test Hole Type: **7" OD Auger.**	Date: **Feb. 11, 2019**
"7" OD Auger."	SPT Hammer Type: **Safety auto hammer**	Logged By: **Yuri Mendez**



Topsoil

Brown Silty Clay (Crust):

Gray Firm to Stiff Silty Clay

Borehole terminaged in clay

Yuri Mendez Engineering

S = Sample for lab review and moisture content

▼ Interpreted water level

Project: **Proposed Industrial Building**

YME Yuri Mendez Engineering.

Location: **1045 Dairy Dr.**

Client: **Versatek Building Inc.**

Test Hole No.: BH2 of 5

Job No.: **42-BM**

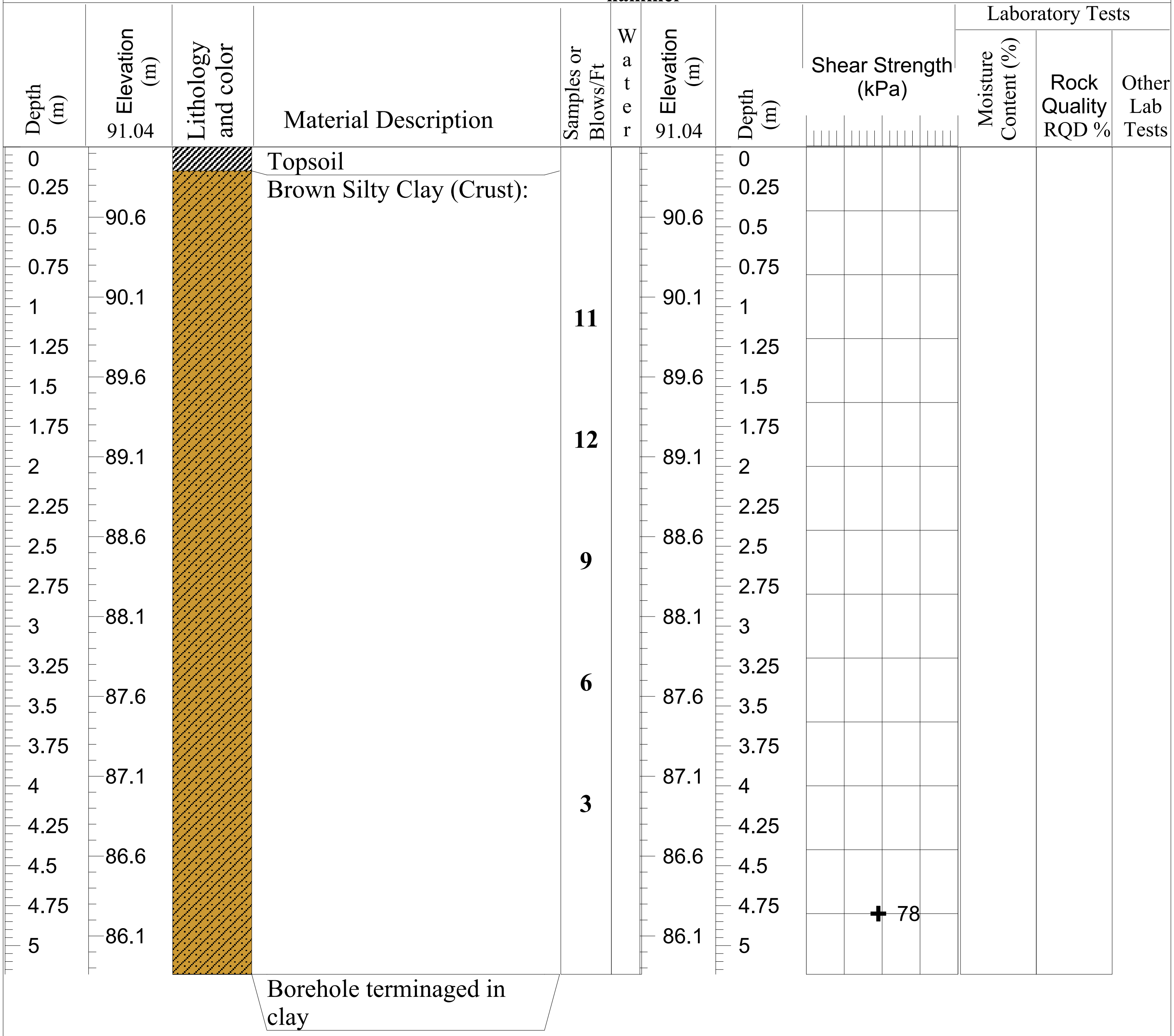
Test Hole Type: **7" OD Auger.**

Date: **Feb. 11, 2019**

"7" OD Auger."

SPT Hammer Type: **Safety auto hammer**

Logged By: **Yuri Mendez**



Yuri Mendez Engineering

S = Sample for lab review and moisture content

▼ Interpreted water level

Project: **Proposed Industrial Building**

YME Yuri Mendez Engineering.

Location: **1045 Dairy Dr.**

Client: **Versatek Building Inc.**

Test Hole No.: BH3 of 5

Job No.: **42-BM**

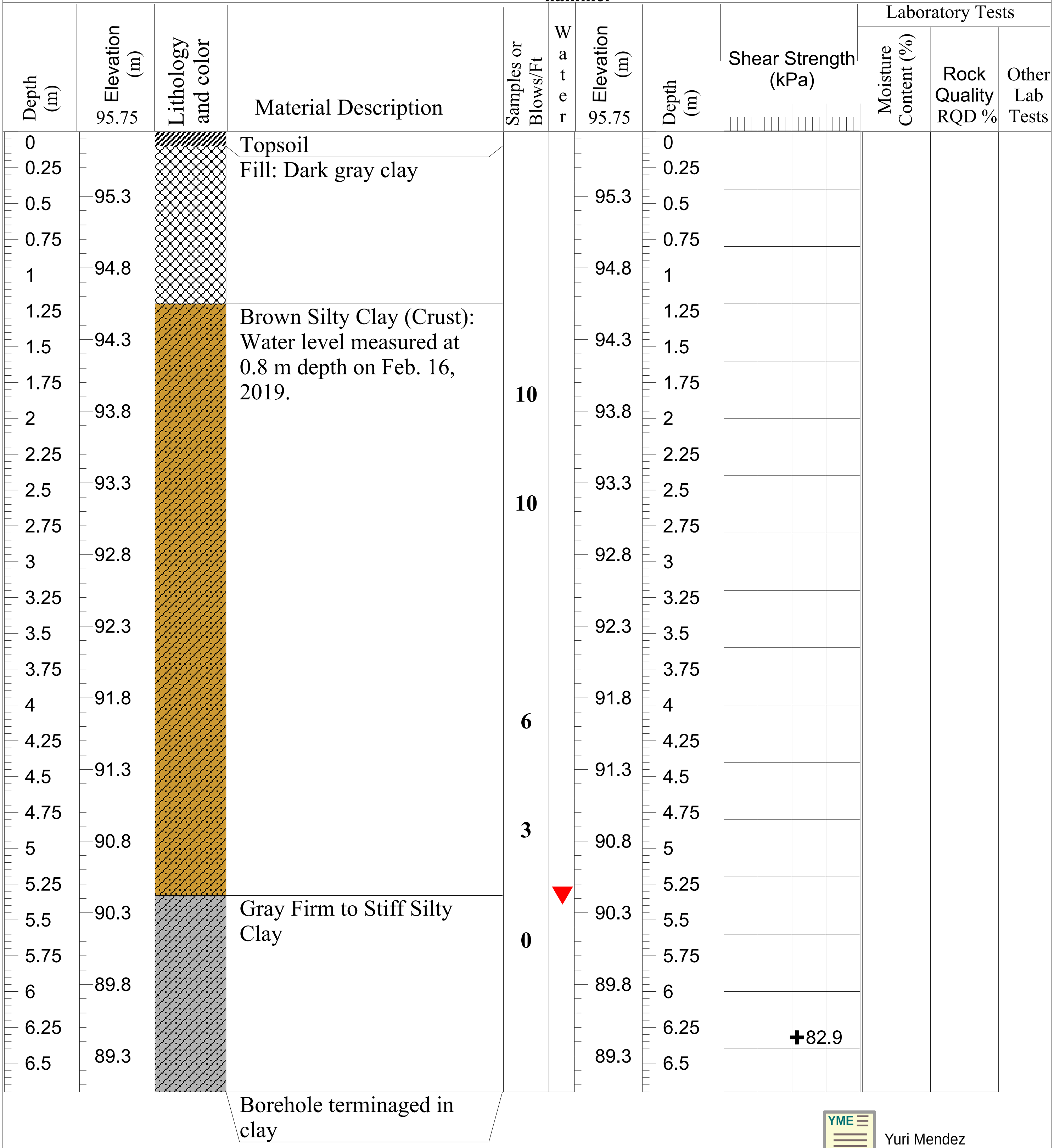
Test Hole Type: **7" OD Auger.**

Date: **Feb. 11, 2019**

"7" OD Auger."

SPT Hammer Type: **Safety auto hammer**

Logged By: **Yuri Mendez**



Topsoil

Fill: Dark gray clay

Brown Silty Clay (Crust): Water level measured at 0.8 m depth on Feb. 16, 2019.

Gray Firm to Stiff Silty Clay

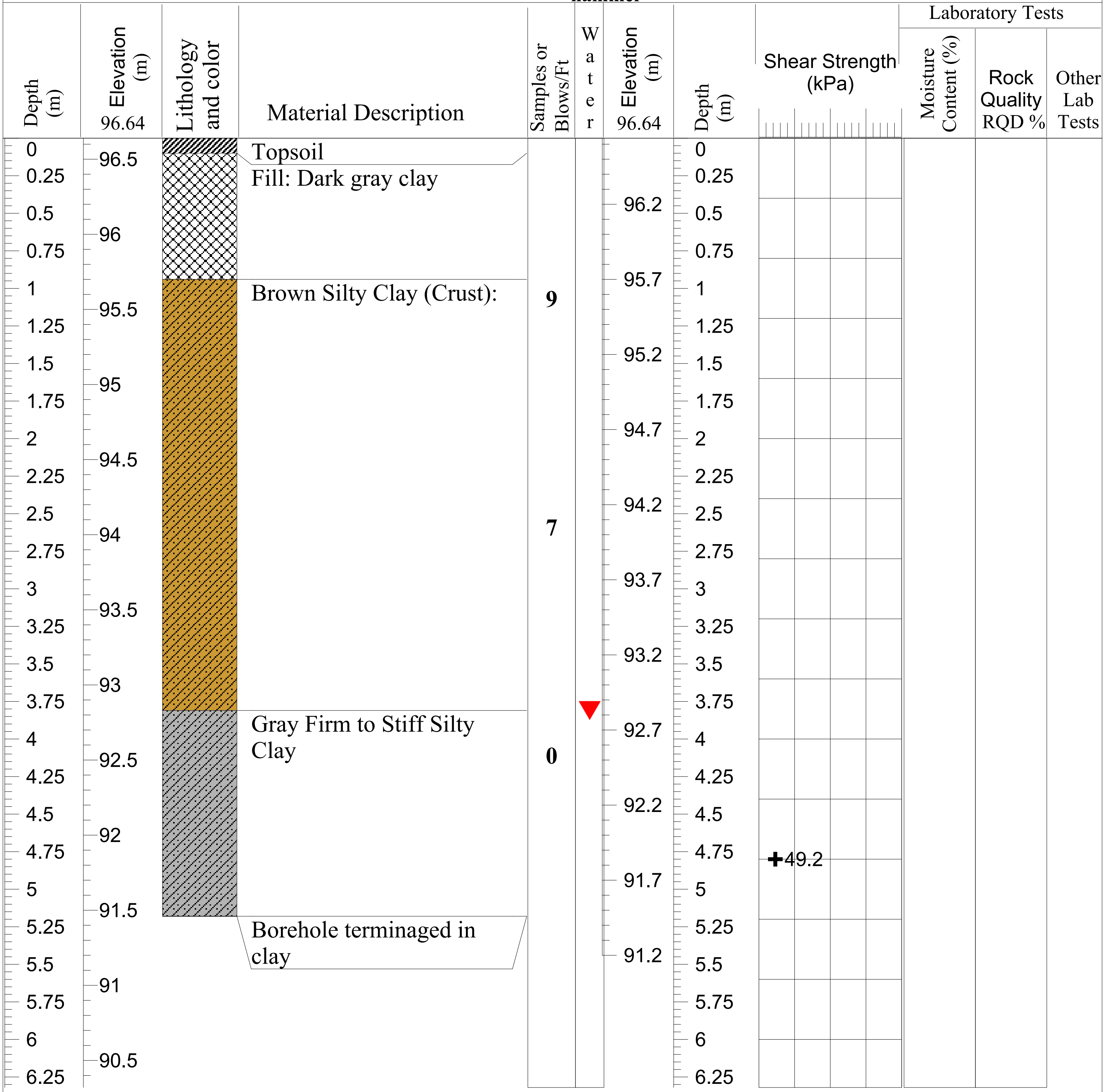
Borehole terminated in clay

Yuri Mendez Engineering

S = Sample for lab review and moisture content

▼ Interpreted water level

Project: **Proposed Industrial Building**		YME Yuri Mendez Engineering.
Location: **1045 Dairy Dr.**	Client: **Versatek Building Inc.**	**Test Hole No.: BH4 of 5**
Job No.: **42-BM**	Test Hole Type: **7" OD Auger.**	Date: **Feb. 11, 2019**
"7" OD Auger."	SPT Hammer Type: **Safety auto hammer**	Logged By: **Yuri Mendez**



Topsoil

Fill: Dark gray clay

Brown Silty Clay (Crust):

Gray Firm to Stiff Silty Clay

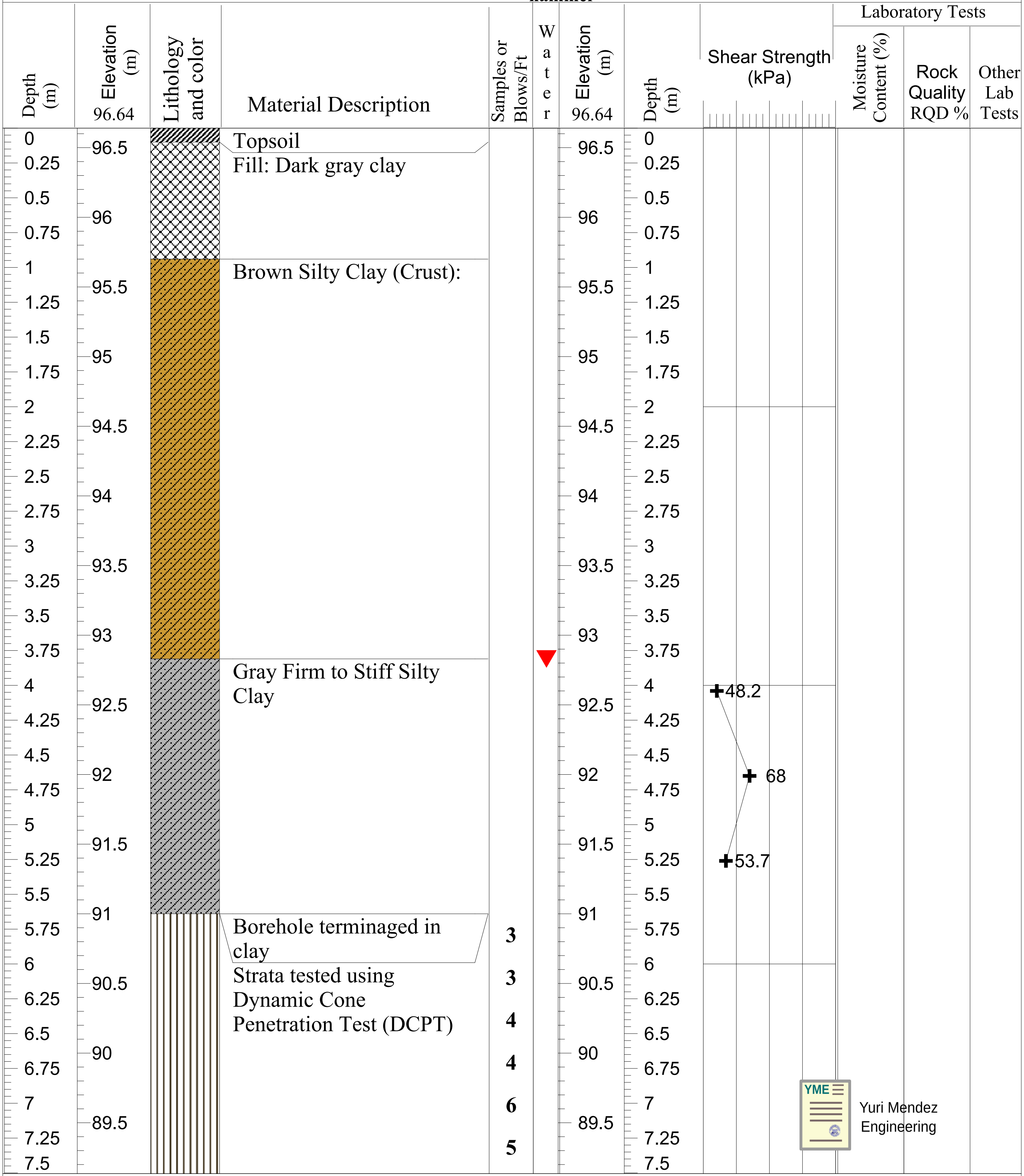
Borehole terminaged in clay

Yuri Mendez Engineering

S = Sample for lab review and moisture content

▼ Interpreted water level

Project: **Proposed Industrial Building**		YME Yuri Mendez Engineering.
Location: **1045 Dairy Dr.**	Client: **Versatek Building Inc.**	**Test Hole No.: BH4-B of 5**
Job No.: **42-BM**	Test Hole Type: **7" OD Auger.**	Date: **Feb. 11, 2019**
"7" OD Auger."	SPT Hammer Type: **Safety auto hammer**	Logged By: **Yuri Mendez**



Topsoil

Fill: Dark gray clay

Brown Silty Clay (Crust):

Gray Firm to Stiff Silty Clay

Borehole terminaged in clay

Strata tested using Dynamic Cone Penetration Test (DCPT)

3
3
4
4
6
5

S = Sample for lab review and moisture content

▼ Interpreted water level

Project: **Proposed Industrial Building**		YME Yuri Mendez Engineering.
Location: **1045 Dairy Dr.**	Client: **Versatek Building Inc.**	**Test Hole No.: BH4-B of 5**
Job No.: **42-BM**	Test Hole Type: **7" OD Auger.**	Date: **Feb. 11, 2019**
"7" OD Auger."	SPT Hammer Type: **Safety auto hammer**	Logged By: **Yuri Mendez**

Depth (m)	Elevation (m) 96.64	Lithology and color	Material Description	Samples or Blows/Ft	Water	Elevation (m) 96.64	Depth (m)	Shear Strength (kPa)	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Rock Quality RQD %	Laboratory Tests: Other Lab Tests
7.5 7.75 8 8.25 8.5 8.75 9 9.25 9.5 9.75 10 10.25 10.5 10.75 11 11.25 11.5 11.75 12 12.25 12.5 12.75 13 13.25 13.5 13.75 14 14.25 14.5 14.75 15	89 88.5 88 87.5 87 86.5 86 85.5 85 84.5 84 83.5 83 82.5 82		Strata tested using Dynamic Cone Penetration Test (DCPT)	**6** **6** **6** **9** **8** **13** **8** **7** **12** **12** **11** **12** **12** **16** **13** **14** **13** **13** **17** **16** **13** **15** **13** **18** **17**		89 88.5 88 87.5 87 86.5 86 85.5 85 84.5 84 83.5 83 82.5 82	7.5 7.75 8 8.25 8.5 8.75 9 9.25 9.5 9.75 10 10.25 10.5 10.75 11 11.25 11.5 11.75 12 12.25 12.5 12.75 13 13.25 13.5 13.75 14 14.25 14.5 14.75 15				

S = Sample for lab review and moisture content

▼ Interpreted water level

Project: **Proposed Industrial Building**		YME Yuri Mendez Engineering.
Location: **1045 Dairy Dr.**	Client: **Versatek Building Inc.**	**Test Hole No.: BH4-B of 5**
Job No.: **42-BM**	Test Hole Type: **7" OD Auger.**	Date: **Feb. 11, 2019**
"7" OD Auger."	SPT Hammer Type: **Safety auto hammer**	Logged By: **Yuri Mendez**

Depth (m)	Elevation (m) 96.64	Lithology and color	Material Description	Samples or Blows/Ft	Water	Elevation (m) 96.64	Depth (m)	Shear Strength (kPa)	Laboratory Tests: Moisture Content (%)	Laboratory Tests: Rock Quality RQD %	Laboratory Tests: Other Lab Tests
15.25 15.5 15.75 16 16.25 16.5 16.75 17 17.25 17.5 17.75 18 18.25 18.5 18.75 19 19.25 19.5 19.75 20 20.25 20.5 20.75 21 21.25 21.5 21.75 22 22.25 22.5	81.5 81 80.5 80 79.5 79 78.5 78 77.5 77 76.5 76 75.5 75 74.5		Strata tested using Dynamic Cone Penetration Test (DCPT)	**16** **15** **16** **19** **18** **18** **19** **18** **31** **28** **28** **25** **27** **29** **29** **30** **27** **27** **31** **30** **29** **29** **28** **32**		81.5 81 80.5 80 79.5 79 78.5 78 77.5 77 76.5 76 75.5 75 74.5	15.25 15.5 15.75 16 16.25 16.5 16.75 17 17.25 17.5 17.75 18 18.25 18.5 18.75 19 19.25 19.5 19.75 20 20.25 20.5 20.75 21 21.25 21.5 21.75 22 22.25 22.5				

S = Sample for lab review and moisture content

▼ Interpreted water level

Project: **Proposed Industrial Building**		YME Yuri Mendez Engineering.
Location: **1045 Dairy Dr.**	Client: **Versatek Building Inc.**	**Test Hole No.: BH4-B of 5**
Job No.: **42-BM**	Test Hole Type: **7" OD Auger.**	Date: **Feb. 11, 2019**
"7" OD Auger."	SPT Hammer Type: **Safety auto hammer**	Logged By: **Yuri Mendez**

Depth (m)	Elevation (m) 96.64	Lithology and color	Material Description	Samples or Blows/Ft	Water	Elevation (m) 96.64	Depth (m)	Shear Strength (kPa)	Laboratory Tests Moisture Content (%)	 Rock Quality RQD %	 Other Lab Tests
22.75 23 23.25 23.5 23.75 24 24.25 24.5 24.75 25 25.25 25.5 25.75 26 26.25 26.5 26.75 27 27.25 27.5 27.75 28 28.25 28.5 28.75 29 29.25 29.5 29.75 30	74 73.5 73 72.5 72 71.5 71 70.5 70 69.5 69 68.5 68 67.5 67		Strata tested using Dynamic Cone Penetration Test (DCPT)	**31** **30** **29** **30** **33** **32** **31** **32** **32** **41** **39** **39** **37** **37** **41** **37** **38** **37** **39** **44** **43** **42** **45** **42** **67**		74 73.5 73 72.5 72 71.5 71 70.5 70 69.5 69 68.5 68 67.5 67	22.75 23 23.25 23.5 23.75 24 24.25 24.5 24.75 25 25.25 25.5 25.75 26 26.25 26.5 26.75 27 27.25 27.5 27.75 28 28.25 28.5 28.75 29 29.25 29.5 29.75 30				

S = Sample for lab review and moisture content

▼ Interpreted water level

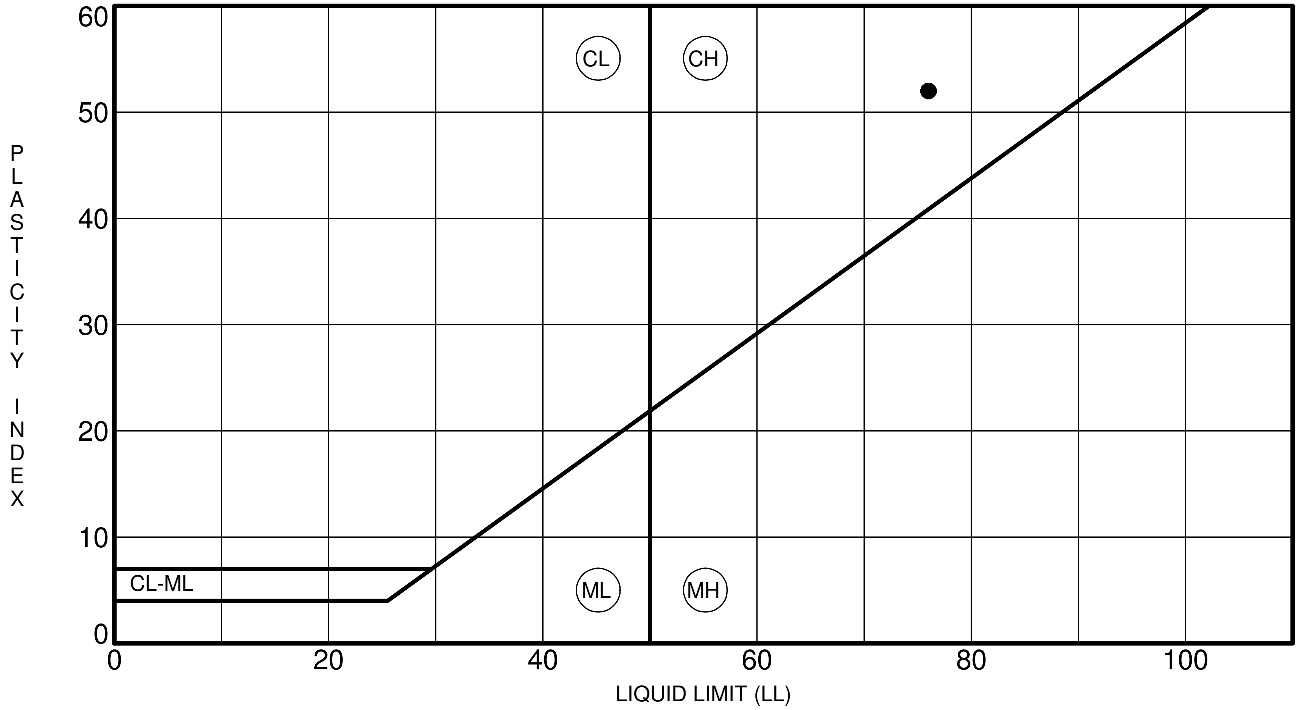
Project: **Proposed Industrial Building**		YME Yuri Mendez Engineering.
Location: **1045 Dairy Dr.**	Client: **Versatek Building Inc.**	**Test Hole No.: BH4-B of 5**
Job No.: **42-BM**	Test Hole Type: **7" OD Auger.**	Date: **Feb. 11, 2019**
"7" OD Auger."	SPT Hammer Type: **Safety auto hammer**	Logged By: **Yuri Mendez**

Depth (m)	Elevation (m) 96.64	Lithology and color	Material Description	Samples or Blows/Ft	Water	Elevation (m) 96.64	Depth (m)	Shear Strength (kPa)	Laboratory Tests		
									Moisture Content (%)	Rock Quality RQD %	Other Lab Tests
30.25 30.5 30.75 31	66.5 66	▥	Strata tested using Dynamic Cone Penetration Test (DCPT)	**60** **57** **53**		66.5 66	30.25 30.5 30.75 31				

End of Dynamic Cone Penetration Test at 31.09 m.

S = Sample for lab review and moisture content

▼ Interpreted water level



	Specimen Identification		LL	PL	PI	Fines	Classification
●	**BH 1-22**	**SS4**	**76**	**24**	**52**		**CH - Inorganic clay of high plasticity**

CLIENT

PROJECT **Geotechnical Investigation - Proposed**
Self-Storage Facility - 1015-1045 Dairy Drive

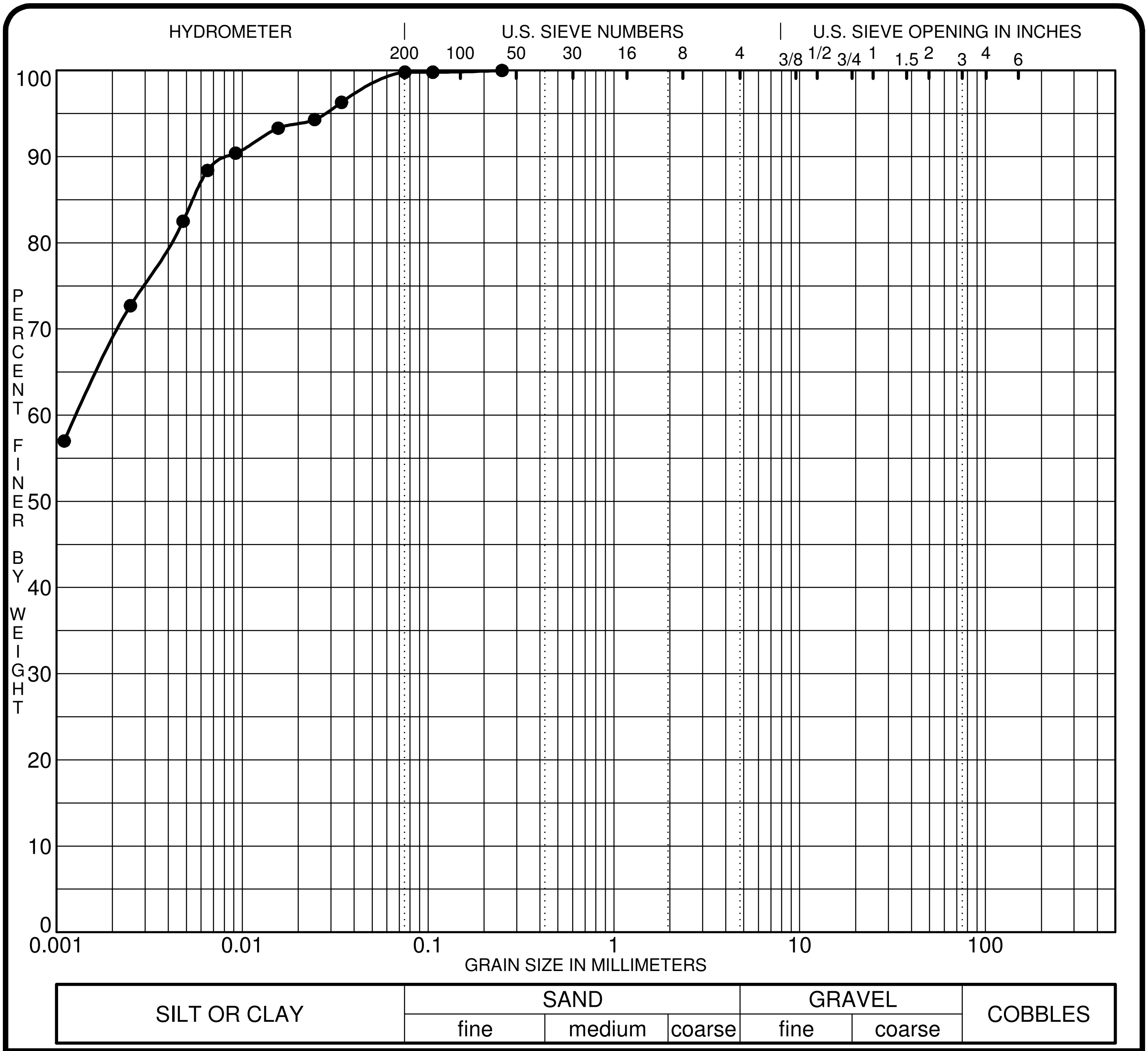
FILE NO. **PG6498**

DATE **8 Dec 22**

patersongroup **Consulting Engineers**

9 Auriga Drive, Ottawa, Ontario K2E 7T9

ATTERBERG LIMITS' RESULTS



Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
● **BH 2-22 SS3**							
☒							
▲							
★							

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● **BH 2-22 SS3**	**0.25**	**0.00**			**0.0**	**0.2**	**99.8**	
☒								
▲								
★								

CLIENT

FILE NO. **PG6498**

PROJECT **Geotechnical Investigation - Proposed**
Self-Storage Facility - 1015-1045 Dairy Drive

DATE **8 Dec 22**

patersongroup **Consulting Engineers**
9 Auriga Drive, Ottawa, Ontario K2E 7T9

GRAIN SIZE DISTRIBUTION

PATERSON GROUP

Linear Shrinkage
ASTM D4943-02

CLIENT:	Effort Trust Company	DEPTH	7-6" to 9'-6"	FILE NO.:	PG6498
PROJECT:	1015 Dairy Dr	BH OR TP No:	BH2-22 SS4	DATE SAMPLED	9-Dec
LAB No:	41550	TESTED BY:	CP / CS	DATE RECEIVED	12-Dec
SAMPLED BY:	DR	DATE REPORTED:	21-Dec-22	DATE TESTED	16-Dec

LABORATORY INFORMATION & TEST RESULTS

Moisture	No. of Blows(8)	Calibration (Two Trials)	Tin NO.(x33)	
Tare	4.72	Tin	4.48	4.48
Soil Pat Wet + Tare	61.71	Tin + Grease	4.71	4.71
Soil Pat Wet	56.99	Glass	48.97	48.97
Soil Pat Dry + Tare	36.54	Tin + Glass + Water	91.26	91.24
Soil Pat Dry	31.82	Volume	37.58	37.56
Moisture	**79.10**	**Average Volume**	**37.57**	

Soil Pat + String	32
Soil Pat + Wax + String in Air	36.58
Soil Pat + Wax + String in Water	12.56
Volume Of Pat (Vdx)	24.02

RESULTS:

Shrinkage Limit	**20.35**
Shrinkage Ratio	**1.686**
Volumetric Shrinkage	**99.058**
Linear Shrinkage	**20.503**

REVIEWED BY:	**Curtis Beadow**	**Joe Forsyth, P. Eng.**

PARACEL
LABORATORIES LTD.

Order #: 2251009

Certificate of Analysis

Report Date: 15-Dec-2022

Client: **Paterson Group Consulting Engineers**

Order Date: 9-Dec-2022

Client PO: 56422

Project Description: PG6498

	Client ID:	BH1-22 SS3	-	-	-	-	-
	Sample Date:	08-Dec-22 09:00	-	-	-		
	Sample ID:	2251009-01	-	-	-		
	Matrix:	Soil	-	-	-		
	MDL/Units						
Physical Characteristics							
% Solids	0.1 % by Wt.	72.8	-	-	-	-	-
General Inorganics							
pH	0.05 pH Units	7.71	-	-	-	-	-
Resistivity	0.1 Ohm.m	75.9	-	-	-	-	-
Anions							
Chloride	5 ug/g	24	-	-	-	-	-
Sulphate	5 ug/g	37	-	-	-	-	-

APPENDIX 2

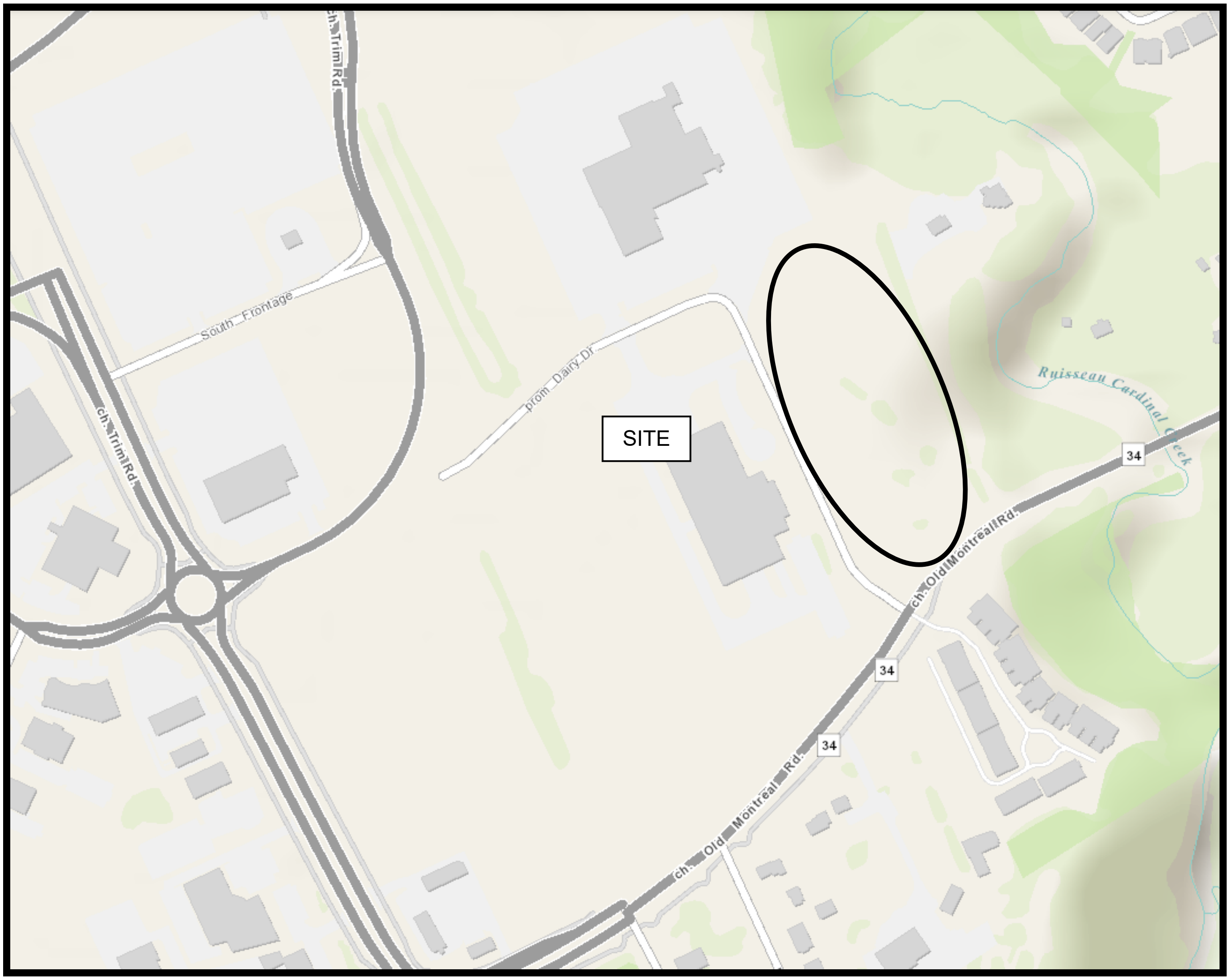


FIGURE 1

KEY PLAN

PATERSON GROUP

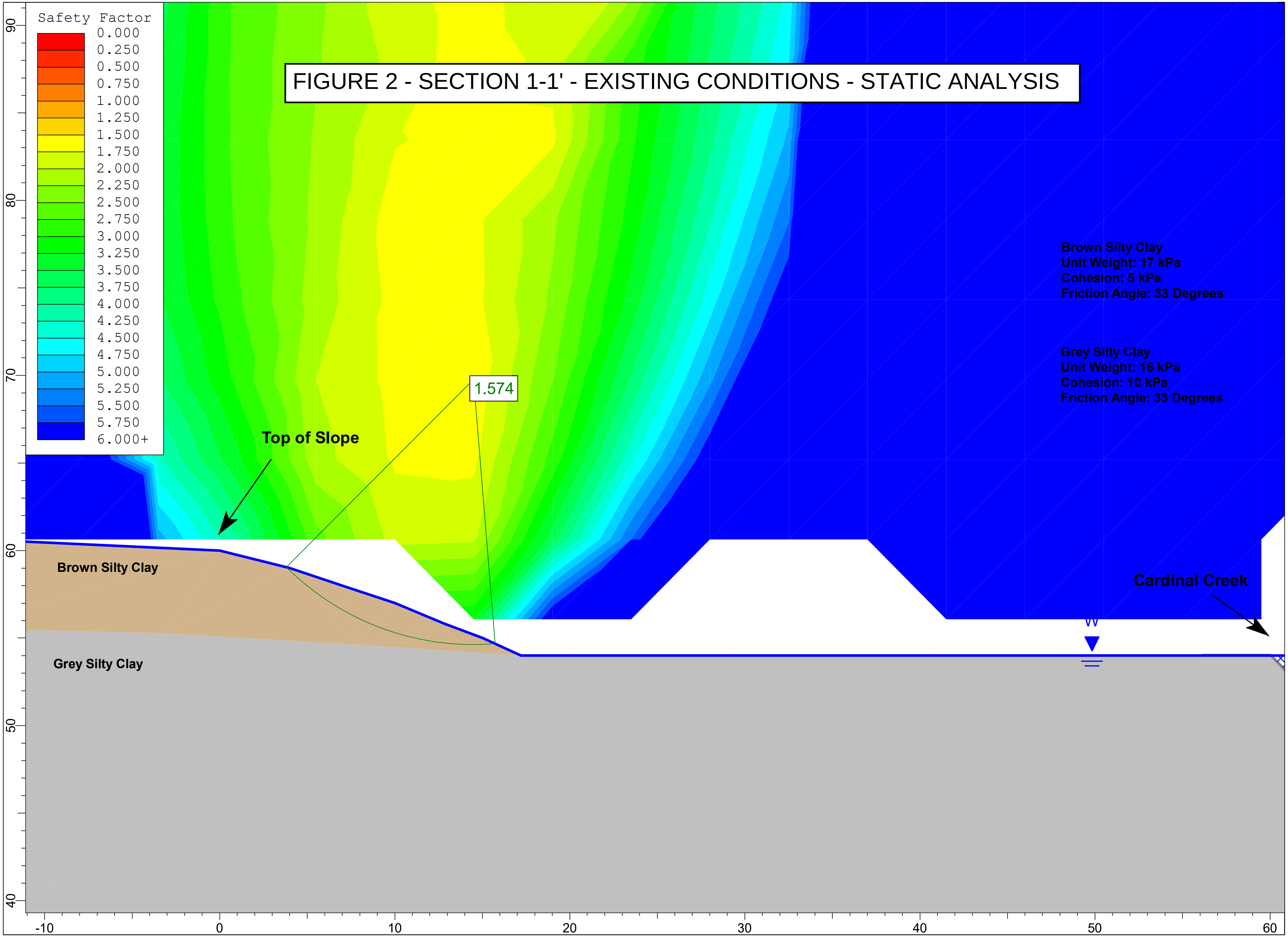
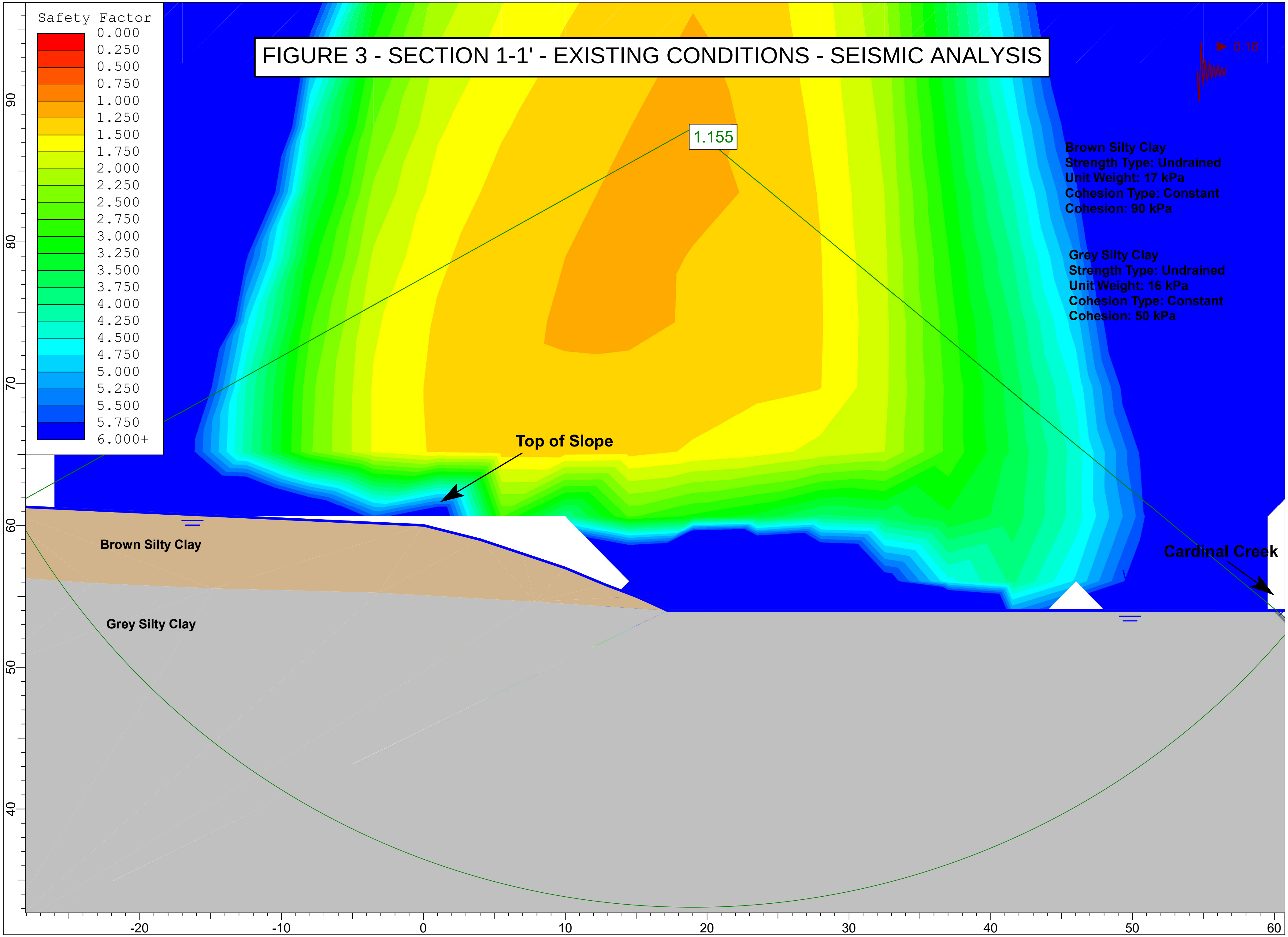


FIGURE 2 - SECTION 1-1' - EXISTING CONDITIONS - STATIC ANALYSIS

FIGURE 3 - SECTION 1-1' - EXISTING CONDITIONS - SEISMIC ANALYSIS



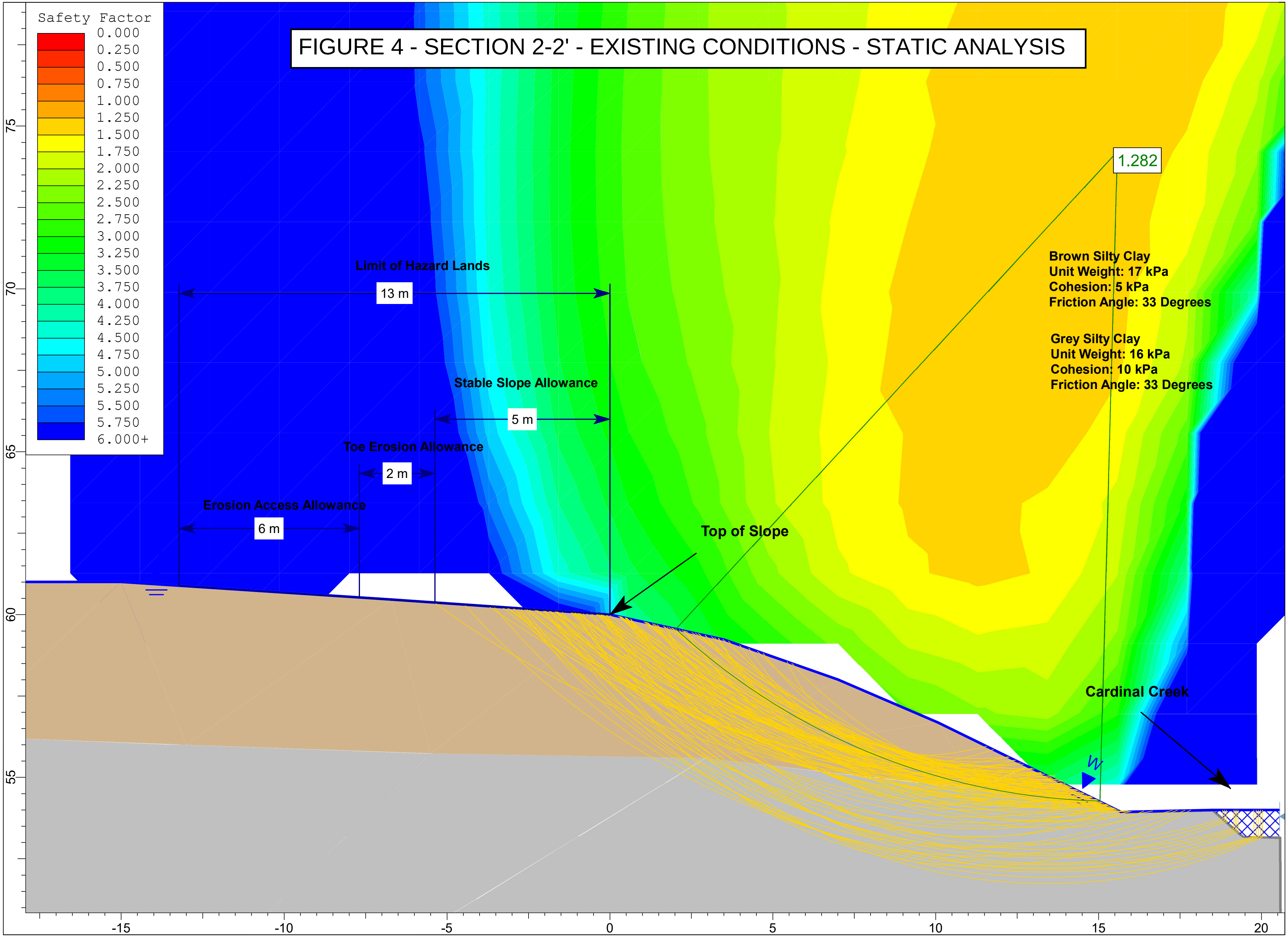


FIGURE 4 - SECTION 2-2' - EXISTING CONDITIONS - STATIC ANALYSIS

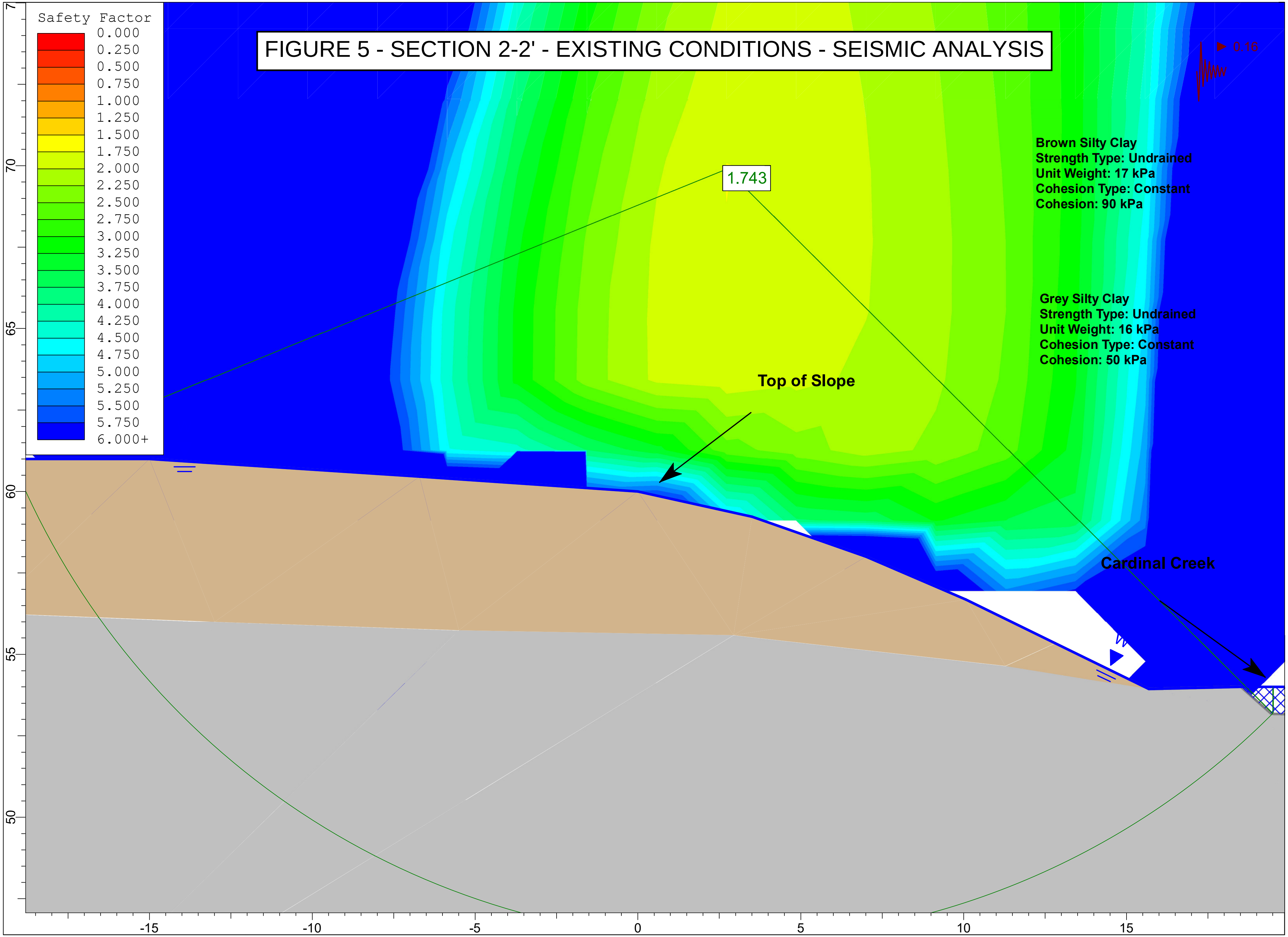
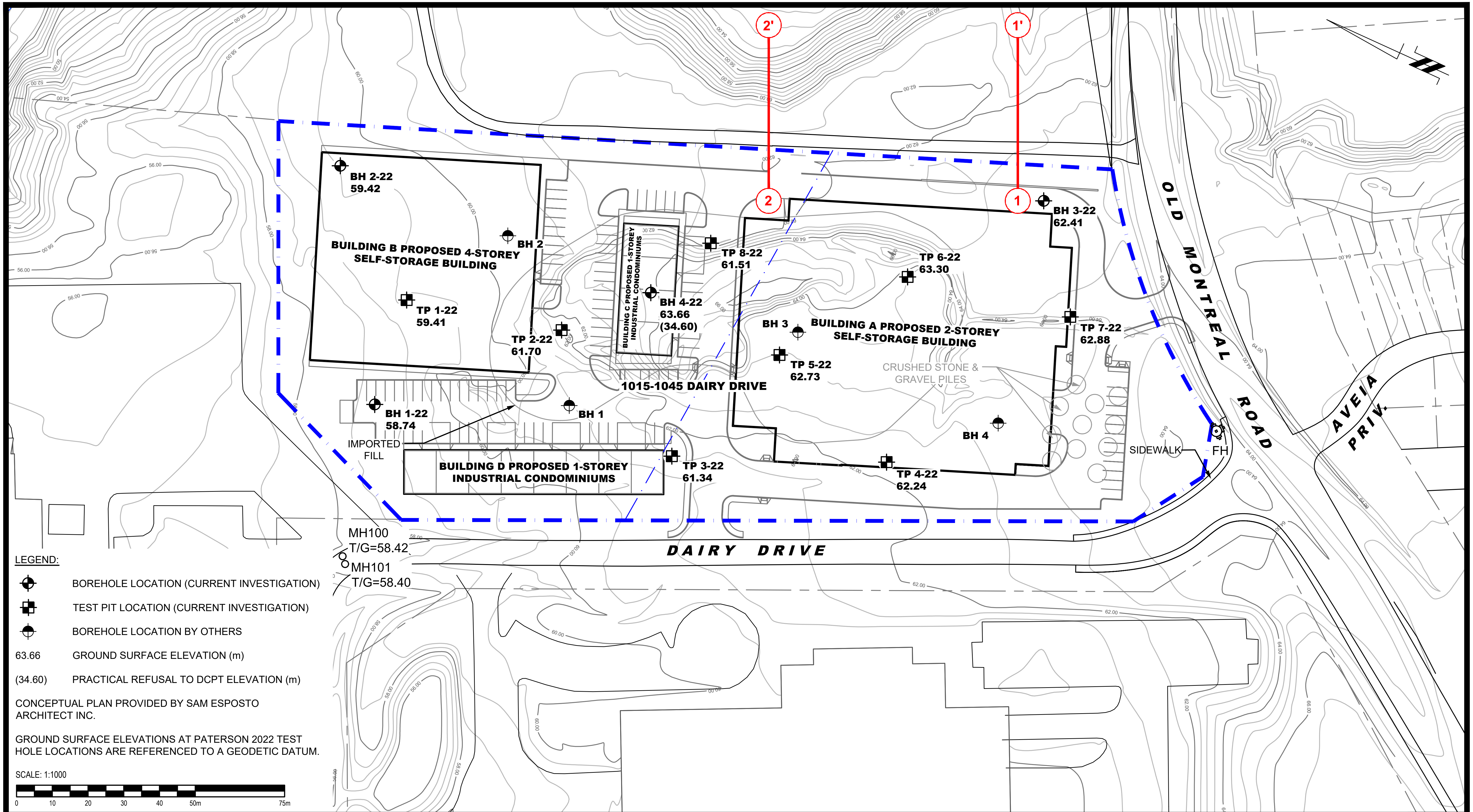


FIGURE 5 - SECTION 2-2' - EXISTING CONDITIONS - SEISMIC ANALYSIS



LEGEND:

⊕	BOREHOLE LOCATION (CURRENT INVESTIGATION)
▣	TEST PIT LOCATION (CURRENT INVESTIGATION)
⊕	BOREHOLE LOCATION BY OTHERS
63.66	GROUND SURFACE ELEVATION (m)
(34.60)	PRACTICAL REFUSAL TO DCPT ELEVATION (m)

CONCEPTUAL PLAN PROVIDED BY SAM ESPOSTO ARCHITECT INC.

GROUND SURFACE ELEVATIONS AT PATERSON 2022 TEST HOLE LOCATIONS ARE REFERENCED TO A GEODETIC DATUM.

SCALE: 1:1000

PATERSON GROUP

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

NO.	REVISIONS	DATE	INITIAL
3	UPDATED TO NEW CONCEPTUAL PLAN	06/06/2024	SD
2	UPDATED TO NEW CONCEPTUAL PLAN	11/01/2024	SD
1	UPDATED TO NEW CONCEPTUAL PLAN	15/09/2023	SD

TSL-DAIRY INC.
GEOTECHNICAL INVESTIGATION
PROPOSED SELF STORAGE FACILITY
1015 - 1045 DAIRY DRIVE

OTTAWA, ONTARIO

Title:

TEST HOLE LOCATION PLAN

Scale: 1:1000
Drawn by: YA
Checked by: FA
Approved by: SD
Date: 01/2023
Report No.: PG6498-1
Dwg. No.: PG6498-1
Revision No.: 3

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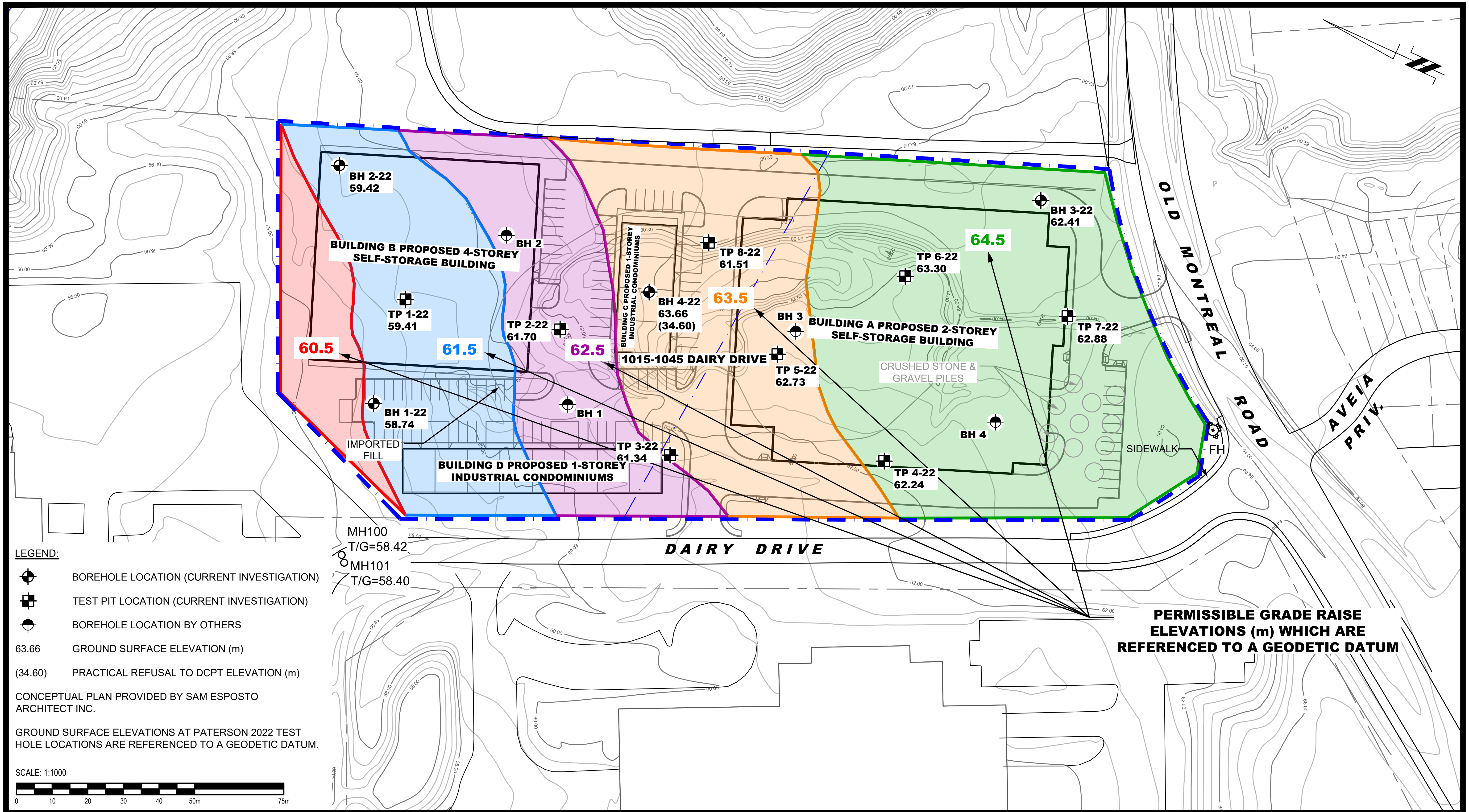
11x17



LEGEND:

⊕	BOREHOLE LOCATION (CURRENT INVESTIGATION)
⊞	TEST PIT LOCATION (CURRENT INVESTIGATION)
⊕	BOREHOLE LOCATION BY OTHERS
63.66	GROUND SURFACE ELEVATION (m)
(34.60)	PRACTICAL REFUSAL TO DCPT ELEVATION (m)

CONCEPTUAL PLAN PROVIDED BY SAM ESPOSTO ARCHITECT INC.

GROUND SURFACE ELEVATIONS AT PATERSON 2022 TEST HOLE LOCATIONS ARE REFERENCED TO A GEODETIC DATUM.

SCALE: 1:1000

0 10 20 30 40 50m 75m

PATERSON GROUP

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

NO.	REVISIONS	DATE	INITIAL
3	UPDATED TO NEW CONCEPTUAL PLAN	06/06/2024	SD
2	UPDATED TO NEW CONCEPTUAL PLAN	11/01/2024	SD
1	UPDATED TO NEW CONCEPTUAL PLAN	15/09/2023	SD

TSL-DAIRY INC.
GEOTECHNICAL INVESTIGATION
PROPOSED SELF STORAGE FACILITY
1015 - 1045 DAIRY DRIVE

OTTAWA, ONTARIO

Title:

PERMISSIBLE GRADE RAISE PLAN

Scale: 1:1000
Date: 01/2023
Drawn by: YA
Report No.: PG6498-1
Checked by: FA
Dwg. No.: PG6498-2
Approved by: SD
Revision No.: 3

11x17

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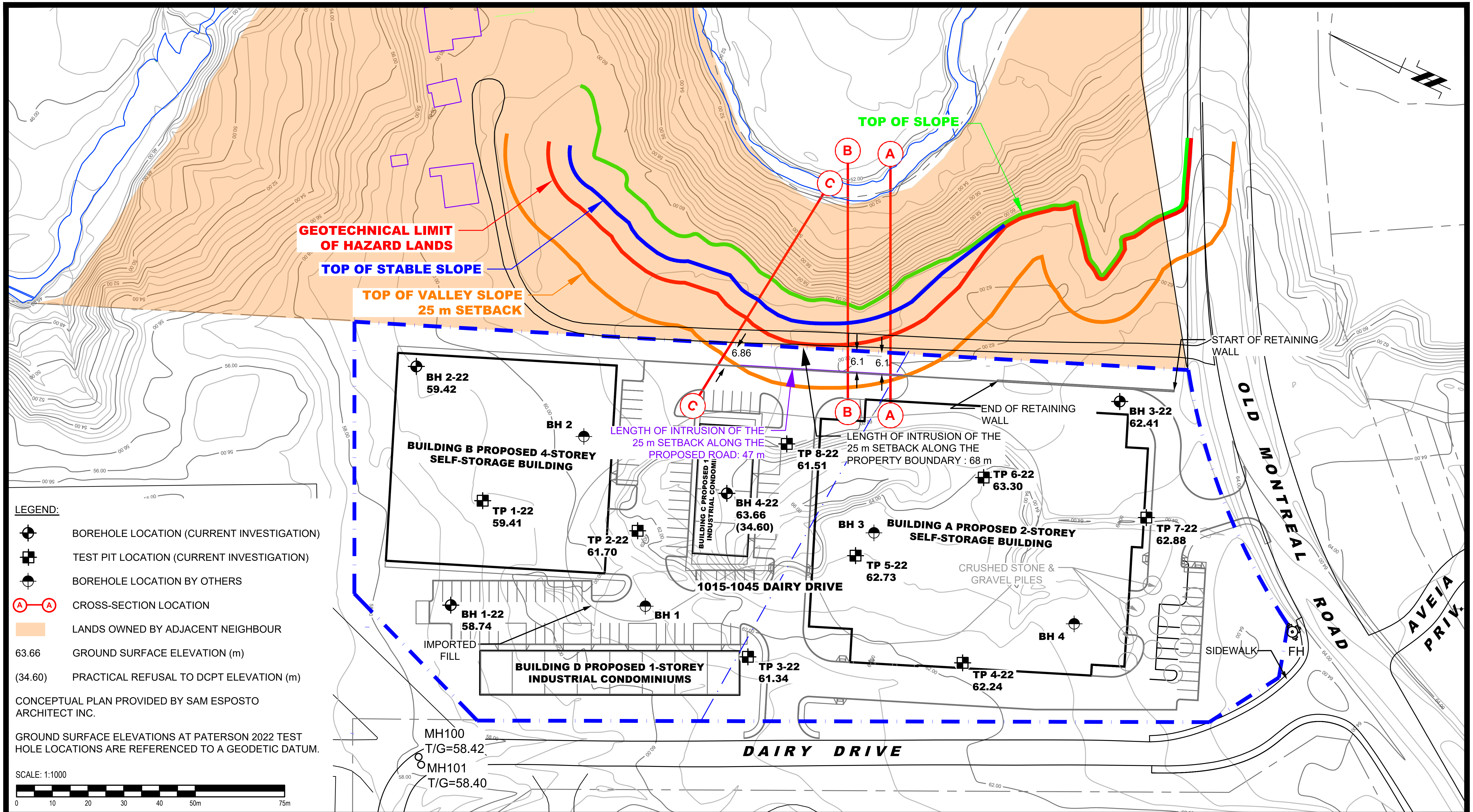

LEGEND:

⌖	BOREHOLE LOCATION (CURRENT INVESTIGATION)
■	TEST PIT LOCATION (CURRENT INVESTIGATION)
●	BOREHOLE LOCATION BY OTHERS
Ⓐ—Ⓐ	CROSS-SECTION LOCATION
▨	LANDS OWNED BY ADJACENT NEIGHBOUR
63.66	GROUND SURFACE ELEVATION (m)
(34.60)	PRACTICAL REFUSAL TO DCPT ELEVATION (m)

CONCEPTUAL PLAN PROVIDED BY SAM ESPOSTO ARCHITECT INC.

GROUND SURFACE ELEVATIONS AT PATERSON 2022 TEST HOLE LOCATIONS ARE REFERENCED TO A GEODETIC DATUM.

SCALE: 1:1000

PATERSON GROUP

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

NO.	REVISIONS	DATE	INITIAL
1	UPDATED TO NEW CONCEPTUAL PLAN	06/06/2024	SD

TSL-DAIRY INC.

PROPOSED SELF STORAGE FACILITY
1015 - 1045 DAIRY DRIVE

OTTAWA, ONTARIO

Title:

SLOPE SETBACK PLAN

Scale:	1:1000
Date:	12/2023
Drawn by:	ZS
Report No.:	PG6498-1
Checked by:	FA
Dwg. No.:	PG6498-3
Approved by:	SD
Revision No.:	1

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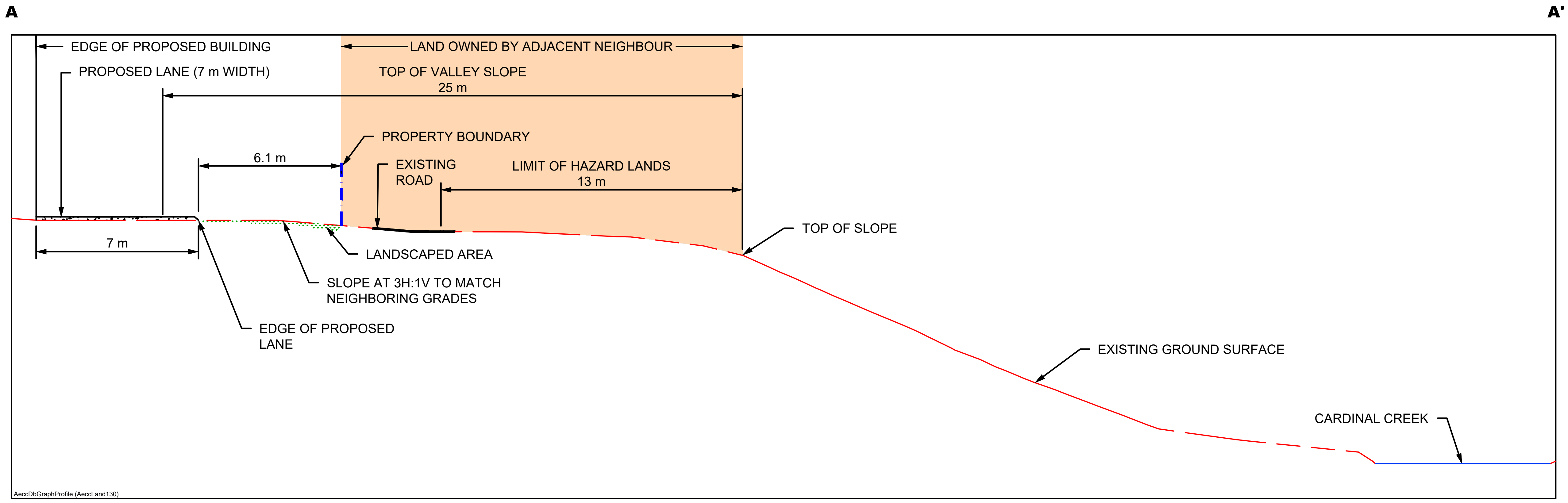
11x17



CROSS-SECTION A-A'

SCALE: 1:200

0 1 2 3 4 5 10m

PATERSON GROUP

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

NO.	REVISIONS	DATE	INITIAL
1	AS PER REVISED CONCEPTUAL PLAN	06/06/2024	SD

TSL-DAIRY INC.

PROPOSED SELF STORAGE FACILITY
1015 - 1045 DAIRY DRIVE

OTTAWA, ONTARIO

Title:

CROSS-SECTION A-A'

Scale: 1:200
Date: 12/2023
Drawn by: ZS
Report No.: PG6498-1
Checked by: FA
Dwg. No.: PG6498-4
Approved by: SD
Revision No.: 1

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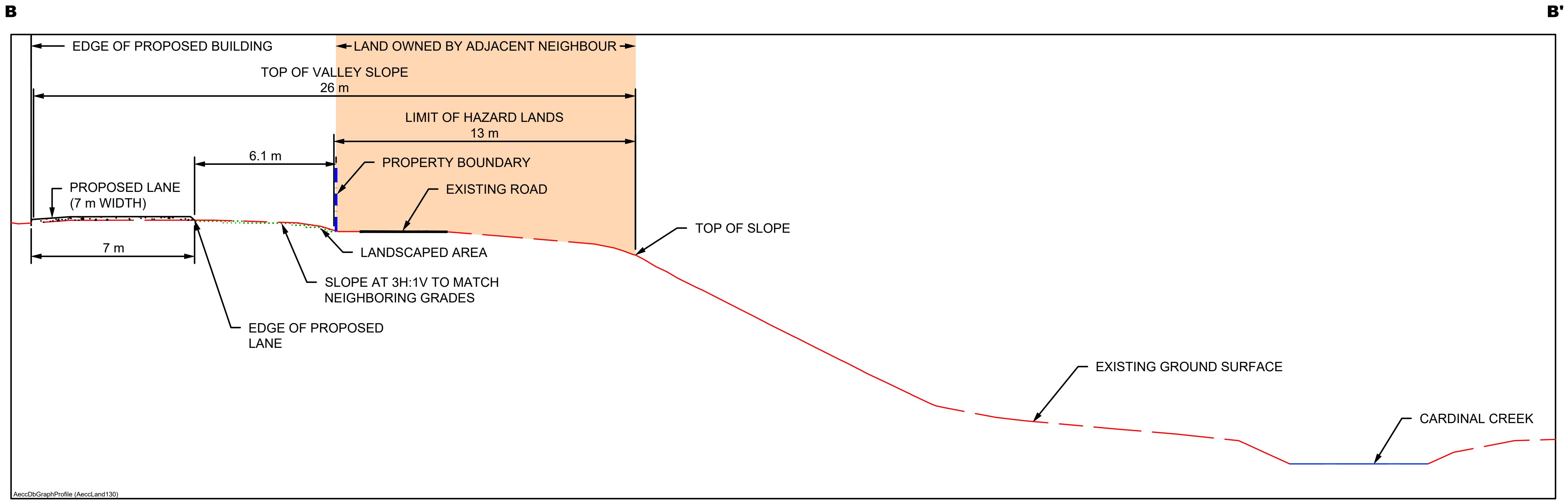

CROSS-SECTION B-B'

SCALE: 1:200

0 1 2 3 4 5 10m

PATERSON GROUP

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

1	AS PER REVISED CONCEPTUAL PLAN	06/06/2024	SD
NO.	REVISIONS	DATE	INITIAL

TSL-DAIRY INC.

PROPOSED SELF STORAGE FACILITY
1015 - 1045 DAIRY DRIVE

OTTAWA, ONTARIO

Title:

CROSS-SECTION B-B'

Scale: 1:200
Date: 12/2023
Drawn by: ZS
Report No.: PG6498-1
Checked by: FA
Dwg. No.: PG6498-5
Approved by: SD
Revision No.: 1

11x17

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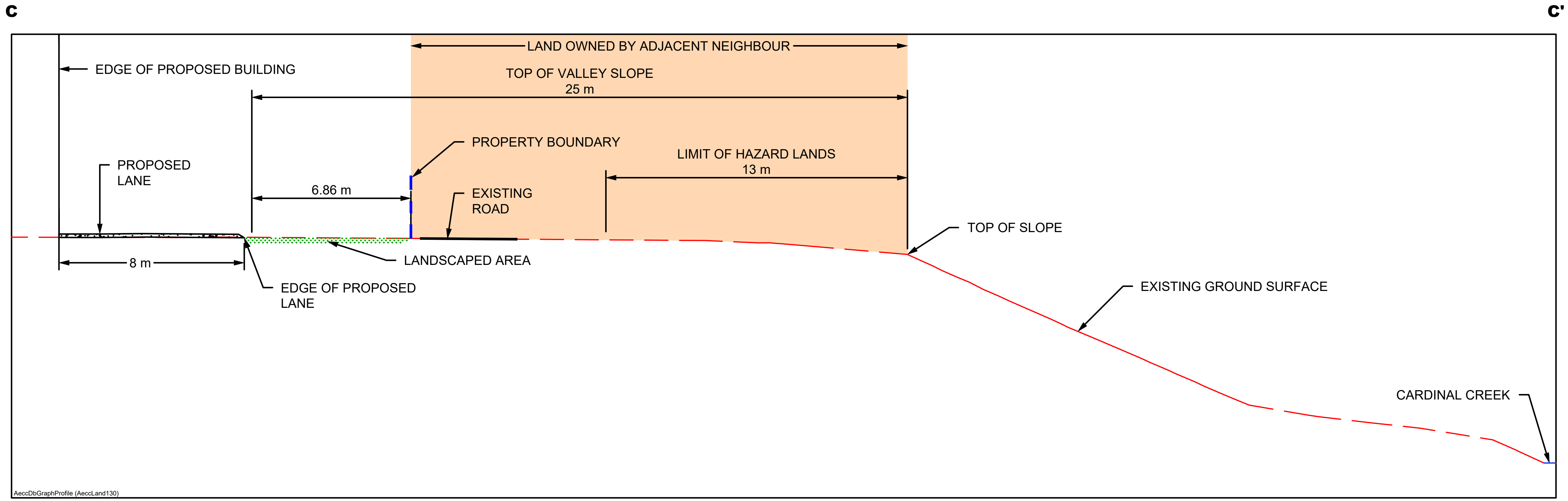

CROSS-SECTION C-C'

SCALE: 1:200

PATERSON GROUP

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

NO.	REVISIONS	DATE	INITIAL
1	AS PER REVISED CONCEPTUAL PLAN	06/06/2024	SD

TSL-DAIRY INC.

PROPOSED SELF STORAGE FACILITY
1015 - 1045 DAIRY DRIVE

OTTAWA, ONTARIO

Title:

CROSS-SECTION C-C'

Scale: 1:200
Date: 12/2023
Drawn by: ZS
Report No.: PG6498-1
Checked by: FA
Dwg. No.: PG6498-6
Approved by: SD
Revision No.: 1

11x17

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