Geotechnical Investigation Report – 1675 & 1695 Bayly Street, Pickering

January 20, 2026

Prepared for:
Kirby Structures Ltd

Cambium Reference: 22852-001

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1.0 Introduction

Cambium Inc. (Cambium) was retained by Kirby Structures Ltd. (Client) to conduct a geotechnical investigation concurrently with a Phase II Environmental Site Assessment (ESA) for the two proposed construction at 1675 & 1695 Bayly Street in Pickering, Ontario (Site). A Site Location Plan is appended as Figure 1 of this report.

The site is located on the southwest corner of the Bayly Street and Brock Road intersection. The west half of the site currently has a one-storey Kia Dealership building with associated parking area and driveways, and the east side of the site is currently a gravel parking lot that is serving as overflow parking for the Kia dealership. It is understood that the proposed development includes two new building additions to the existing dealership building; one on the east side and the other on the west side of the existing building, as well as reinstatement of any pavement around the building additions and paving of the east gravel parking lot. It is understood that the building additions will be slab on grade construction with no basement levels.

The purpose of the field work and testing was to obtain information on the general subsurface soil and groundwater conditions at the site by means of a limited number of boreholes and laboratory tests. Based on an interpretation of the data available for this site, this report provides engineering comments, recommendations, and parameters for the geotechnical design aspects of the project, including selected construction considerations which could influence design decisions. It should be noted that this report addresses only the geotechnical (physical) aspects of the subsurface conditions at the site. The geo-environmental (chemical) aspects, including the consequences of possible surface and/or subsurface contamination resulting from previous activities or uses of the site and/or resulting from the introduction onto the site of materials from off-site sources, are beyond the terms of reference for this report and are not addressed herein. The findings of the Phase II ESA are compiled under a separate cover.

2.0 Methodology

2.1 Previous Borehole Investigation

A Phase Two Environmental Site Assessment (ESA) was previously conducted at the Site by Terrapex Environmental Ltd. in February 2019 for the purposes of filing a Record of Site Condition (RSC). The previous report is noted below:

Phase Two Environmental Site Assessment Final Report – 1695 Bayly Street, Pickering, Ontario, Project No.: CB1053.00 dated February 13, 2019.

The previous report was reviewed by Cambium prior to completing the current geotechnical investigation. Twelve boreholes were advanced during this investigation to depths ranging from 4.5 to 9.8 metres below ground surface (mbgs). In general, the soil conditions described in the above noted report are consistent with those noted in the current investigation. The boreholes from the Terrapex Investigation are shown alongside the current boreholes on Figure 2, and the borehole logs are included with the current logs in Appendix A.

2.2 Borehole Investigation

A borehole investigation was conducted at the site on July 21 and 22, 2025 to assess subsurface conditions. Ten boreholes, designated as BH101-25 through BH110-25, were advanced in the relative locations shown on Figure 2. Three of the boreholes, BH101-25 through BH103-25, were advanced within or adjacent to the proposed building footprints, and the remaining boreholes, BH104-25 through BH110-25, were advanced in the proposed parking area. All boreholes were terminated at depths ranging from 2.1 mbgs to 9.2 mbgs.

The locations of all boreholes as shown on Figure 2 were surveyed using a Realtime Kinematic (RTK) unit in the field and the elevations were measured based on information derived from the TopNET Live real-time GNSS correction service with a vertical geodetic accuracy of 3 cm. It should be noted that the ground surface elevations at the boreholes are referenced for describing the soil stratigraphy only and should not be used or relied upon for any other purpose.

Drilling and sampling of the boreholes was completed using a truck-mounted drill rig operating under the supervision of a Cambium technician. The borehole was advanced to the sampling depths by means of continuous flight solid stem augers with 50 mm O.D. split spoon samplers. Standard Penetration Test (SPT) N values were recorded for the sampled intervals as the number of blows required to drive a split spoon sampler 305 mm into the soil, using a 63.5 kg drop hammer falling 750 mm, as per ASTM D1586 procedures.

The SPT N values are used in this report to assess consistency of cohesive soils and relative density of non-cohesive materials. Soil samples were collected from the split spoon samplers at approximately 0.75 m intervals in the upper 3.0 m depth and in 1.5 m intervals below 3.0 m depth. Grab samples were collected off the auger in the interim intervals for environmental sampling purposes.

The encountered soil units were logged in the field using visual and tactile methods, and samples were placed in labelled plastic bags for transport, future reference, possible laboratory testing, and storage. Open boreholes were checked for groundwater and general stability prior to backfilling.

Boreholes BH108-25, BH109-25, and BH110-25 were outfitted with monitoring wells to measure stabilized groundwater levels and complete groundwater sampling for the Phase II ESA. The remaining boreholes were backfilled in accordance with O.Reg. 903, as amended, and the property was reinstated to pre-existing conditions.

Borehole logs are provided in Appendix A. Site soil and groundwater conditions are described, and geotechnical recommendations are discussed in the following sections of this report.

2.3 Laboratory Testing

Physical laboratory testing, including one particle size distribution analyses (LS-702,705) and three Atterberg Limits Determination Analysis (LS 703/704), was completed on selected soil samples to confirm textural classification, and to assess geotechnical parameters. Moisture content testing was completed on all soil samples. Results are presented in Appendix B and are summarized on the borehole logs and described in the subsequent sections of this report.

3.0 Subsurface Conditions

The detailed soil profiles encountered in the boreholes are indicated on the attached borehole logs in Appendix A. It should be noted that the conditions indicated on the borehole logs are for specific locations only and can vary between and beyond the borehole locations.

Based on the results of the borehole investigation, the subsurface conditions at the Site generally consist of a pavement structure of asphalt and/or granular fill material generally overlying a cohesive deposit of clayey silt, with intermittent layers of non-cohesive silt and/or sandy silt material, further overlying shale bedrock.

3.1 Pavement Structure

A layer of asphalt was encountered at the surface of all boreholes except, BH104-25, BH105-25 and BH107-25. The asphalt thickness ranged between 50 mm to 125 mm with an average thickness of approximately 105 mm.

Beneath the asphalt and at surface in boreholes BH104-25, BH105-25 and BH107-25, a brown granular fill described as gravelly sand, gravelly silty sand, to silty sand with some gravel was encountered, forming the granular base/subbase material in each of the boreholes. There was no distinguished boundary between the granular base and subbase within the boreholes except in borehole BH107-25. The combined total thickness of the granular base and subbase layers ranged from approximately 80 mm to 690 mm.

Table 1 summarizes the observed conditions of the pavement structure at each of the borehole locations.

Table 1 Pavement Structure Summary

Borehole ID	Asphalt Thickness (mm)	Base/Subbase Thickness (mm)	Subgrade
BH101-25	125	170	Clayey Silt
BH102-25	125	410	Clayey Silt
BH103-25	125	250	Clayey Silt
BH104-25	-	380	Clayey Silt
BH105-25	-	130	Sandy Silt

Borehole ID	Asphalt Thickness (mm)	Base/Subbase Thickness (mm)	Subgrade
BH106-25	50	80	Clayey Silt
BH107-25	-	690	Clayey Silt
BH108-25	100	230	Sandy Clayey Silt
BH109-25	100	330	Sandy Clayey Silt
BH110-25	100	400	Sandy Clayey Silt

Laboratory particle size distribution analyses were completed for one sample of the granular fill material. The analysis results are summarized in Table 2 and provided in Appendix B.

Table 2 Particle Size Distribution Analysis Results – Granular Fill

Borehole	Depth (mbgs)	Soil	% Gravel	% Sand	% Silt & Clay	% Moisture Content
BH106-25 SS1A	0 – 0.2	Gravelly Silty Sand	32	52	16	2.5

The results of the laboratory testing indicate that the sample did not satisfy the current requirements for an OPSS 1010 Granular A material. However, the sample largely met the requirements for an OPSS 1010 Granular B material but with a higher percentage of fines (material passing the No.200 (75 µm) sieve) than is acceptable. This may be due to the grinding of the augers during drilling and the difficulty of separating the granular material from the finer grained material below. Consideration may be given to resampling the granular material and completing additional particle size distribution analyses at the construction stage to confirm the potential for reuse as Granular B material if required.

3.2 Cohesive Deposits

Cohesive deposits described as clayey silt and sandy clayey silt were observed in all ten boreholes underlying the pavement structure, except in borehole BH105-25 where it was found underlying a shallow sandy silt deposit. The cohesive deposit extended to depths ranging from approximately 7.2 mbgs to borehole termination depths. Some organics were observed within the cohesive deposits near the surface extending to depths ranging from 0.7 to 1.5 mbgs in

BH104-25, and BH107-25, and in BH102-25 and BH108-25 through BH110-25 a thin layer of organic containing clayey silt approximately 0.2 to 0.5 m thick was observed at depths ranging from 1.7 to 2.5 mbgs.

The cohesive soil was described as drier than the plastic limit to wetter than the plastic limit at the time of the investigation, with natural moisture contents ranging from 10% to 60%. SPT N values ranged from 1 to 17 indicating a very soft to very stiff consistency, however on average the SPT N values in these cohesive deposits were between 5 and 13 indicating a firm to stiff consistency, with the very soft to soft cohesive deposits only being encountered at depth.

An Atterberg Limits Determination was also completed on three samples of the cohesive material. The analysis results are summarized in Table 3 with details provided in Appendix B.

Table 3 Atterberg Limits Results – Cohesive Deposits

Borehole	Depth	Material	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)
BH103-25 SS3	1.5 – 2.1	Low Plasticity Clay	27.9	16.8	11.2
BH102-25 SS4	2.3 – 2.9	Low Plasticity Clay	33.2	18.1	15.1
BH109-25 SS5	3.0 – 3.7	Low Plasticity Clay	34.7	19.9	14.8

Field vane shear tests (FVT)s were also carried out in boreholes BH101-25, BH102-25 and BH104-25 in order to determine the undrained shear strength of the cohesive deposit. The results are outlined in Table 4 below.

Table 4 Field Shear Vane Test Results

Borehole	Depth (mbgs)	Peak Shear Strength (kPa)	Remoulded Shear Strength (kPa)
BH101-25	6.9	70	-*
BH102-25	6.0	29	10
BH104-25	4.6	43	19

**A remoulded shear test could not be completed due to a change in soil conditions.*

3.3 Sandy Silt

Thin layers of sandy silt were encountered in three boreholes, BH101-25, BH102-25 and BH105-25, at varying depths ranging between 0.1 mbgs to 1.7 mbgs. The sandy silt layer was brown in colour and contained trace to some gravel. This deposit was described as moist at the time of the investigation with a natural moisture content ranging between 8% to 10%. The SPT N value observed in this sandy silt soil ranged between 6 to greater than 50, indicating a loose to very dense relative density.

3.4 Bedrock

Weathered shale and presumed shale bedrock was encountered in boreholes BH101-25, BH102-25, BH103-25 and BH104-25 at depths ranging between 7.2 mbgs and 7.7 mbgs. Shale was also observed during the Phase Two ESA previously completed by Terrapex in MW106 at approximately 7.5 mbgs.

3.5 Groundwater

Upon completion of drilling, groundwater was observed at depths ranging from 1.8 mbgs to 5.4 mbgs in all boreholes except BH105-25, BH106-25, and BH107-25. Caving was observed in boreholes BH103-25, BH104-25 and BH109-25 at depths ranging from 4.0 mbgs to 7.3 mbgs.

Monitoring wells were installed in boreholes BH108-25, BH109-25, and BH110-25, and the stabilized groundwater levels were measured on July 24, 2025. Stabilized groundwater levels are outlined in Table 5 below. It should be noted that groundwater levels at the site may fluctuate seasonally and in response to climatic events.

Table 5 Groundwater Level in Monitoring Wells

Borehole	Date	Water Level (mbgs)	Groundwater Elevation (masl)
BH108-25	July 24, 2025	2.50	83.61
BH109-25	July 24, 2025	2.58	83.68
BH110-25	July 24, 2025	2.23	83.93

4.0 Geotechnical Design Considerations

The following recommendations are based on borehole information and are intended to assist designers. Recommendations should not be construed as providing instructions to contractors, who should form their own opinions about site conditions. It is possible that subsurface conditions beyond the borehole locations may vary from those observed. If significant variations are found before or during construction, Cambium should be contacted so that we can reassess our findings, if necessary.

4.1 Site Preparation

All topsoil, organics and deleterious material should be removed from below the development areas prior to construction. For site grading, in areas of cut or minor fill where the proof roll and/ or inspection has identified unsuitable subgrade conditions, whether too soft or too wet, material is to be removed and replaced with an approved engineered fill, which should be selected clean material, free of topsoil, organics or other foreign and unsuitable matters.

Materials for the use of engineered fill must be approved by Cambium prior to placement. When the fill is treated as an engineered fill to support structural elements or pavement, general guidelines for the placement and preparation are presented below:

- Remove any and all existing vegetation, surficial topsoil/ organics, organic fills or fills and any loose soils to a competent subgrade for a suitable envelope.
- The area of the engineered fill should extend horizontally 1 m beyond the outside edge of the foundations/structure footprint then extend downward at an imaginary 1H:1V slope to the competent approved native soil at the elevations noted in Section 4.6.1. The exposed edges of the engineered fill should be sloped at a maximum of 3H:1V to avoid weakening of the engineered fill edges due to slope movement. If fill is required adjacent to sloped banks (i.e., slope steeper than 3H:1V), the fill shall be placed in stepped planes to avoid a plane weakness.
- The subgrade or base of the engineered fill area must be approved by Cambium prior to placement of any new fill, to ensure that suitability of subgrade condition.

- Place approved OPSS 1010.MUNI Granular B Type I material at a moisture content at or near optimum moisture (±2%) in suitable maximum 200 mm thick lifts, compacted to a minimum 98% of standard Proctor maximum dry density (SPMDD). If native soils from the site are not used as engineered fill, imported material for engineered fill should consist of clean, non-organic soils, free of chemical contamination or deleterious material. Any frost penetration into the fill material must be removed prior to placement of subsequent lifts of fill and reviewed by Cambium.
- Reinforcing steel bars should be included and placed within the footings and the top of the foundation walls. All tie reinforcing steel bars should be included and placed within the top of the foundation walls. All tie reinforcing steel bars should have at least 600 mm of overlap. The actual steel reinforcement design should be confirmed / designed by the project structural engineer.
- Full time testing and inspection of the engineered fill will be required for it to be used as a founding material, as outlined in Section 4.2.2.2 of the Ontario Building Code.

4.2 Excavations

All excavations must be carried out in accordance with the latest edition of the Occupational Health and Safety Act (OHSA). The non-organic fill, native sandy silt soils, and native cohesive deposits may be classified as Type 3 soils above the groundwater table in accordance with OHSA, with unsupported side slopes no steeper than 1H:1V to the bottom of the excavation. Any organic containing soils and soils below the groundwater table may be classified as Type 4 soils which may be excavated with side slopes no steeper than 3H:1V.

Excavation side slopes should be protected from exposure to precipitation and associated ground surface runoff and should be inspected regularly for signs of instability. If localized instability is noted during excavation or if wet conditions are encountered, the side slopes should be flattened as required to maintain safe working conditions or the excavation sidewalls must be fully supported (shored).

4.3 Dewatering

The depth of the groundwater table ranges from approximately 2.2 to 2.6 m below ground surface (83.6 to 83.9 masl), however it should be noted that these groundwater measurements were taken in July and do not represent a seasonal high groundwater level. Based on the proposed development and the anticipated excavation depths, it is anticipated that any groundwater will be below anticipated excavation depths, and any surface run off or groundwater encountered should be controllable with conventional filtered sumps and pumps.

Additionally, if any over excavation into the water table is required, significant water seepage is unlikely where the fine-grained clayey deposits are found with typical excavation depth, and water can likely be managed by pumping from filtered sumps and/or perimeter ditch drains. This should be the case for most of the project Site, though may change depending on the time of construction and seasonal weather events. Close spaced filtered sumps may be needed in areas where sand-rich materials are prevalent. In most of cases, gravity drainage and pumping from deep filtered sumps should suffice. Otherwise, an eductor dewatering system may be necessary to effectively lower the water table to at least 0.5 m below the bottom of construction trenches.

It should be noted that if it is expected that more than 50,000 L/day per day may be pumped from any construction excavation, registering under Environmental Activity and Sector Registry (EASR) under Ontario Ministry of the Environment (MOE) will be required. It is envisaged that the MOE permit to take water (PTTW) will not be required unless daily dewatering rate is upwards of 400,000 L/day per day. The amount of groundwater taking would depend on the shoring design, groundwater levels and the sequence of construction and excavation work and should be reviewed and estimated by dewatering specialist prior to EASR registration.

4.4 Backfill and Compaction

Excavated granular fill material, non-organic native sandy silt materials from the site may be appropriate for use as fill below grading areas, provided that the actual or adjusted moisture content at the time of construction is within a range that permits compaction to required

densities. Some moisture content adjustments may be required depending on seasonal conditions.

It should be noted that the above noted on-site materials should be re-used only where non-free draining fill is required. The native cohesive soils containing a high fines content are not recommended for backfill purposes. Engineered fill for foundations should consist of free-draining granular material meeting the specifications of OPSS 1010 Granular B or an approved equivalent and should be placed in maximum 200 mm thick lifts compacted to a minimum 98% standard Proctor maximum dry density (SPMDD) as confirmed by nuclear densometer testing.

4.5 Frost Penetration

Based on the Ontario Provincial Standard Drawing (OPSD) 3090.101, the typical frost penetration depth is expected to be approximately 1.2 mbgs. All footings exposed to seasonal freezing conditions must have at least 1.2 metres of soil cover for frost protection.

4.6 Foundation Design

4.6.1 Conventional Spread/Strip Footings

The undisturbed native sub-soils that are free of organics are competent to support the proposed structures on conventional strip / spread footings. Subject to the composition of the soils and groundwater conditions at the actual foundation locations, the values of factored geotechnical bearing resistance at ultimate limit states (ULS) and a geotechnical reaction at serviceability limit states (SLS) corresponding to founding levels for conventional footings are provided in Table 6 for the boreholes located in or adjacent to the proposed building addition footprints. The geotechnical resistance at Serviceability Limit States (SLS) is assuming 25 mm total and 19 mm differential of settlement.

Table 6 Founding Level and Bearing Resistance on Native Soils

Borehole No.	Borehole Surface Elevation (masl)	Proposed Founding Depth Range (mbgs)	Proposed Founding Elevation Range (masl)*	Bearing Resistance	
				Factored ULS (kPa)	SLS (kPa)
BH101-25	86.22	0.3 – 1.2	85.9 – 85.0	100	75
BH102-25	86.03	2.2	83.8	100	75
BH103-25	86.07	0.4 – 1.2	85.7 – 84.9	100	75
BH104-25	85.87	0.7 – 1.2	85.2 – 84.7	100	75

**Founding depth range noted is based on minimum depth to competent native soils. It should be noted that per Section 4.5, footings should have a minimum of 1.2 m of soil cover from finished grade or alternatively be thermally insulated.*

Considering the weak soil stratum encountered at depths and the fact that the water table is expected to be at approximately 2.2 mbgs, over excavation past the proposed founding elevation ranges provided in Table 6 is not recommended to avoid disturbing the clayey soils and requiring excessive dewatering.

Due to the organics present from 1.7 to 2.2 mbgs in BH102-25, engineered fill placed on the undisturbed competent native soils may be required some locations to bring the elevation back up to the proposed founding elevation. If the proposed foundations will have less than 1.2 m of soil cover for frost protection, the footings should be appropriately thermally insulated.

Engineered fill placement should follow the guidelines outlined in Section 4.1. Footings placed on approved engineered fill may be designed using a factored geotechnical resistance at ULS of 100 kPa and a geotechnical reaction at SLS of 75 kPa (for a total settlement of 25 mm).

The above recommended geotechnical resistances are assumed for strip footings in the range of 500 mm to 1,000 mm in width and for spread footings in the range of 1,000 mm to 2,000 mm. It should be noted that all footings should have a minimum of 1.2 m of ground cover from the final grade for frost protection or have equivalent high density Styrofoam insulation. A higher bearing capacity than that outlined above at SLS may be achievable at a greater depth. It should be noted that the recommended bearing capacities have been calculated from the borehole information for the design stage only. The quality of the subgrade should be inspected by Cambium during construction, prior to constructing the footings, to confirm bearing capacity estimates

The quality of the subgrade should be inspected by Cambium during construction, prior to constructing the footings, to confirm bearing capacity estimates.

The founding materials are susceptible to disturbance by construction activity especially during wet weather and care should be taken to preserve the integrity of the bearing material. Consideration may be given to a layer of mud slab (lean mix concrete) placed underneath the footing to prevent the subgrade from degradation. It is the contractor's responsibility to decide whether a mud slab is required based on the construction schedule as part of the contractor's means and methods. Therefore, a construction contingency is advisable to be carried by the Client.

4.6.2 Helical Piles

Helical piles founded in the shale bedrock present at depths of approximately 7.2 mbgs and 7.7 mbgs could be used at the Site as a foundation alternative on the Site. Helical piles can be used to achieve both uplift and compressive resistance. The piles are usually installed to a specified torque, measured with equipment at the ground surface. The supporting grade beam system for the structure would bear upon the helical piles. The helical pile systems are typically proprietary, designed and installed by the specialized contractor / supplier. To verify that the piles are installed in accordance with design assumptions, monitoring of the pile installations by an experienced inspector is recommended. The monitoring should include recording the depth of the piles and measuring and recording of the torque used in the pile installation as a minimum.

Should helical piles be the preferred foundation option, Cambium can provide soil parameters for helical pile design.

4.7 Subdrains

As the proposed building expansion does not include a basement, groundwater seepage is not anticipated at a footing depth of 1.2 m below ground surface. Foundation subdrains are not required around the perimeter of the foundation.

4.8 Seismic Site Classification

For the purpose of seismic design, geotechnical information shall be used to determine the "Site Class". The average properties in the top 30 m (below the lowest founding level) are to be used. The site classification recommendation would be based on the available information as well as our interpretation of conditions below the boreholes based on our knowledge of the soil conditions in the area

The Site has been given a conditional Site Class of "D" based on the findings of the investigation as they compare to the 2024 Ontario Building Code Table 4.1.8.4.A.

In situ geophysical testing may be completed to confirm this classification if necessary. It is possible that the site class could be improved by in situ geophysical testing. Should optimization of the site class be recommended by the structural engineer, shear wave velocity testing can be carried out at the Site, although a higher site class is not guaranteed.

4.9 Lateral Earth Pressure

Lateral earth pressure coefficients (K) for retaining wall design are provided below. It is assumed potential lateral loads will result from cohesionless, frictional materials, such as granular backfill.

Ko (at rest)	0.42
Ka (active)	0.27
Kp (passive)	3.7

The following formula may be used to calculate active lateral thrust (Pa) on yielding retaining structures:

$$Pa = (H/2)\,(Ka)(\gamma H + 2q)$$

where,

H = Height of retaining structure (m)

γ = unit weight of retained soil (kN/m^3)

q = surcharge (kPa)

A unit weight of 22 kN/m^3 may be assumed for compacted granular backfill.

4.10 Slabs-on-grade

The existing native subgrade is adequate to support a slab-on-grade construction, following removal of loose or deleterious soils and preparation of the subgrade. The exposed subgrade should be proof rolled in conjunction with an inspection by Cambium to confirm suitability. Remedial work should be carried out on any loose, softened, disturbed, wet or poorly performing zones as directed by Cambium. Any low areas may then be brought up to within at least 200 mm of the underside of the floor slabs, as required, using OPSS Granular B, Type I material or other approved material, placed in maximum 200 mm loose lifts and uniformly compacted to at least 100% of SPMDD.

It is recommended that any floor slabs be constructed on a minimum of 200 mm of 19 mm diameter clear crushed stone compacted to 100% of its SPMDD. Additional 19 mm diameter clear crushed stone material may be needed to provide adequate pipe bedding and cover, depending on the requirements for an under-slab drainage system. Provided the subgrade, under-floor fill and granular base are prepared in accordance with the above recommendations, from a preliminary perspective, the Modulus of Subgrade Reaction for floor slab design can be using 15 MPa/m.

Within any interior areas that may be exposed to freezing conditions for extended periods of time, the floor slab may be susceptible to frost heaving depending on the composition of the subgrade. The subgrade underlying these areas should be adequately insulated to prevent frost penetration.

The floor slabs should be structurally separate from the foundation walls and columns. Sawcut control joints should be provided at regular intervals and along column lines to minimize shrinkage cracking and to allow for any differential settlement of the floor slabs.

4.11 Pavement Design

The performance of the pavement is dependent upon proper subgrade preparation. All topsoil and organic materials should be removed down to native material and backfilled with approved

engineered fill or native material, compacted to 95% SPMDD. The subgrade should be proof rolled and inspected by a Geotechnical Engineer. Any areas where rutting or appreciable deflection is noted should be sub-excavated and replaced with suitable fill. The fill should be compacted to at least 98% SPMDD. Due to the soft cohesive soils that may be present at subgrade elevation in some areas of the site, consideration may be given to placement of a non-woven geotextile and a biaxial geogrid to stabilize the subgrade prior to placement of granular base/subbase material.

The recommended minimum pavement structure design has been developed for two traffic loading scenarios, light duty and heavy duty. The heavy-duty design is appropriate for areas where heavy trucks and maintenance vehicles are anticipated to drive while the light duty design is appropriate for areas where no heavy traffic is anticipated. The recommended minimum pavement structure is provided in Table 7.

Table 7 Pavement Structure

Pavement Layer	Compaction Requirements	Light Duty	Heavy Duty
Surface Course Asphalt	OPSS 310	40 mm HL3	40 mm HL3
Binder Course Asphalt	OPSS 310	50 mm HL8	90 mm HL8 (2 lifts)
Granular Base	100% SPMDD	150 mm Granular A	150 mm Granular A
Granular Subbase	98% SPMDD	300 mm Granular B	450 mm Granular B

Material and thickness substitutions must be approved by the Design Engineer.

The thickness of the subbase layer could be increased at the discretion of the Engineer, to accommodate site conditions at the time of construction, including soft or weak subgrade soil replacement.

Compaction of the subgrade should be verified by the Engineer prior to placing the granular fill. Granular layers should be placed in 150 mm maximum loose lifts and compacted to at least 98 percent of SPMDD (ASTM D698) standard. The granular materials specified should conform to OPSS standards, as confirmed by appropriate materials testing.

The final asphalt surface should be sloped at a minimum of 2 percent to shed runoff. Abutting pavements should be sawcut to provide clean vertical joints with new pavement areas.

4.12 Buried Utilities

Trench excavations should generally consider Type 3 soil conditions which can be excavated with unsupported side slopes no steeper than 1H:1V. Any excavations below the groundwater level will encounter Type 4 soils with unsupported excavation side slopes no steeper than 3H:1V.

Bedding and cover material for any services should consist of OPSS 1010-3 Granular A or B Type II, placed in accordance with pertinent Ontario Provincial Standard Drawings (OPSD 802.010). The bedding and cover material shall be placed in maximum 200 mm thick lifts and should be compacted to at least 98% of SPMDD. The cover material shall be a minimum of 300 mm over the top of the pipe and compacted to 98% SPMDD, taking care not to damage the utility pipes during compaction.

4.13 Design Review and Inspections

Testing and inspections should be carried out during construction operations to test concrete and to examine and approve subgrade conditions, placement and compaction of fill materials, granular base courses, and asphaltic concrete.

We should be contacted to review and approve design drawings, prior to tendering or commencing construction, to ensure that all pertinent geotechnical-related factors have been addressed. It is important that onsite geotechnical supervision be provided at this site for excavation and backfill procedures, deleterious soil removal, subgrade inspections and compaction testing.

5.0 Closing

Please note that this work program and report are governed by the attached Qualifications and Limitations. If you have questions or comments regarding this document, please do not hesitate to contact the undersigned at (705) 742-7900.

Respectfully submitted,

Cambium Inc.

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6.0 Standard Limitations

Limited Warranty

In performing work on behalf of a client, Cambium relies on its client to provide instructions on the scope of its retainer and, on that basis, Cambium determines the precise nature of the work to be performed. Cambium undertakes all work in accordance with applicable accepted industry practices and standards. Unless required under local laws, other than as expressly stated herein, no other warranties or conditions, either expressed or implied, are made regarding the services, work or reports provided.

Reliance on Materials and Information

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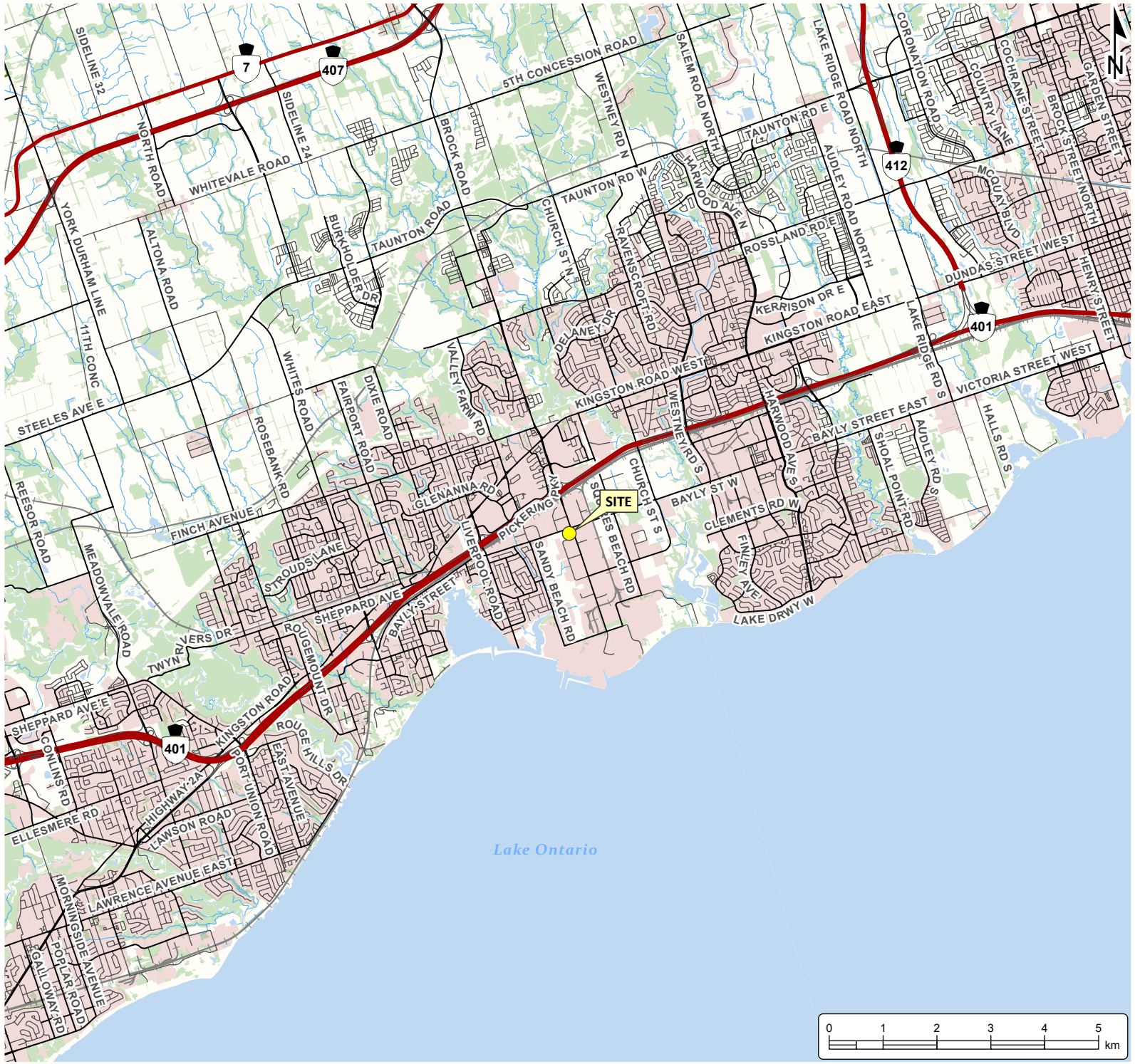
Appended Figures



GEOTECHNICAL INVESTIGATION

KIRBY STRUCTURES LTD.
1695 Bayly Street
Pickering, Ontario

LEGEND

- Highway
- Major Road
- Minor Road
- Railway
- Watercourse
- Federal Protected Areas
- Water Area
- Wooded Area
- Built Up Area

Notes:
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CAMBIUM
194 Sophia Street
Peterborough, Ontario, K9H 1E5
Tel: (705) 742.7900 Fax: (705) 742.7907
www.cambium-inc.com

SITE LOCATION PLAN

Project No.:	Date:
22852-001	August 2025
Scale: 1:100,000	Projection: NAD 1983 UTM Zone 17N
Created by: DS	Checked by: KL
Figure: 1	

O:\GIS\MXDs\22800-22899\22852-001 Kirby Structures -MSP- 1695 Bayly St\2025-07-05 Geotech.aprx

GEOTECHNICAL INVESTIGATION

KIRBY STRUCTURES LTD.
1695 Bayly Street
Pickering, Ontario

LEGEND

- Benchmark
- Borehole
- Monitoring Well
- Borehole (Terrapex 2018)
- Monitoring Well (Terrapex 2018)
- Site (approximate)

Notes:
- Benchmark is a catch basin.
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CAMBIUM
194 Sophia Street
Peterborough, Ontario, K9H 1E5
Tel: (705) 742.7900 Fax: (705) 742.7907
www.cambium-inc.com

BOREHOLE LOCATION PLAN

Project No.:	Date:
22852-001	August 2025
Scale: 1:1,000	Projection: NAD 1983 UTM Zone 17N
Created by: DS	Checked by: KL
Figure: 2	

O:\GIS\MXDs\22800-22899\22852-001 Kirby Structures -MSP- 1695 Bayly St\2025-07-05 Geotech.aprx

Appendix A

Borehole Logs

CAMBIUM

Client: Kirby Structures Ltd.
Contractor: DrillTech Drilling Ltd
Project No.: 22852-001
Location: 1695 Bayly Street, Pickering ON

Project Name: 1695 Bayly Street
Method: Truck Mounted Solid Stem Auger
Elevation: 86.22 mASL
UTM: 17T **N:** 4855040.00 **E:** 655248.00

Log of Borehole: BH101-25
Page: 1 of 2
Date Completed: July 21, 2025

Elevation (m)	Depth	Description	Elevation / Depth	Number	Type	% Recovery	SPT (N)	Atterberg Limits (%) LL PL PI 25 50 75 / % Moisture 25 50 75	Shear Strength Cu, kPa nat V. rem V. 20 40 60 80 / SPT (N) 20 40 60 80	Well Installation	Log Notes
86.2	0	**ASPHALT:** ~ 125 mm thick	86.09 / 0.13	1A	SS			8.3%			
		(SP) gravelly SAND: some fines; brown; non-cohesive, moist, loose [Granular FILL]	85.92 / 0.30	1B	SS	75	8	15.4%	8		
85.7	0.5	**(ML) CLAYEY SILT:** some sand, trace gravel; grey; cohesive, DTPL, stiff	85.47 / 0.75	2	SS	100	71 /250mm	8.8%	71		Auger grinding
85.2	1	**(ML) sandy SILT:** some gravel; grey; non-cohesive, moist, very dense	84.86 / 1.36								
84.7	1.5	**(ML) sandy CLAYEY SILT:** trace gravel; grey; cohesive, APL, stiff		3	SS	8	9	10.7%	9		
84.2	2		84.01 / 2.21								Groundwater level measured in borehole at a depth of ~ 2.1 mbgs upon completion of drilling.
83.7	2.5	**(ML) CLAYEY SILT:** some sand; grey; cohesive, DTPL to WTPL, very stiff to soft		4	SS	100	6	28.5%	6		
83.2	3										
82.7	3.5			5	SS	75	17	24.9%	17		
82.2	4										
81.7	4.5			6	SS	79	6	14.9%	6		
81.2	5										
80.7	5.5										
80.2	6			7	SS	100	3	14.7%	3		
79.7	6.5										
79.2	7		79.06 / 7.16						72		At ~ 6.9 mbgs, Natural Shear Strength: 72 kPa. Remoulded shear strength not achievable due to dense soil conditions.
78.7		**Shale:** pieces of weathered shale with some sand and silt	78.72 / 7.50								

GRAINSIZE DISTRIBUTION: SAMPLE | GRAVEL | SAND | SILT | CLAY

Logged By: AE **Input By:** AE

CAMBIUM

Client: Kirby Structures Ltd.
Contractor: DrillTech Drilling Ltd
Project No.: 22852-001
Location: 1695 Bayly Street, Pickering ON

Project Name: 1695 Bayly Street
Method: Truck Mounted Solid Stem Auger
Elevation: 86.22 mASL
UTM: 17T **N:** 4855040.00 **E:** 655248.00

Log of Borehole: BH101-25
Page: 2 of 2
Date Completed: July 21, 2025

Elevation (m) / Depth	Lithology	Description (Elevation / Depth)	Number	Type	% Recovery	SPT (N)	Atterberg Limits (%) LL PL PI — 25 50 75 / % Moisture 25 50 75	Shear Strength Cu, kPa (nat V., rem V.) 20 40 60 80 / SPT (N) 20 40 60 80	Well Installation	Log Notes
78.7 — 7.5		**Shale:** pieces of weathered shale with some sand and silt (78.32)	8	SS	72	50 /125mm	12.6%	50		Borehole caved to a depth of ~ 7.3 mbgs upon completion of drilling.
78.2 — 8		Borehole terminated @ 7.9 mbgs due to SPT refusal encountered. (7.90)								
77.7 — 8.5										
77.2 — 9										
76.7 — 9.5										
76.2 — 10										
75.7 — 10.5										
75.2 — 11										
74.7 — 11.5										
74.2 — 12										
73.7 — 12.5										
73.2 — 13										
72.7 — 13.5										
72.2 — 14										
71.7 — 14.5										
71.2										

GRAINSIZE DISTRIBUTION: SAMPLE | GRAVEL | SAND | SILT | CLAY

Logged By: AE **Input By:** AE

CAMBIUM

Client: Kirby Structures Ltd.
Contractor: DrillTech Drilling Ltd
Project No.: 22852-001
Location: 1695 Bayly Street, Pickering ON

Project Name: 1695 Bayly Street
Method: Truck Mounted Solid Stem Auger
Elevation: 86.03 mASL
UTM: 17T **N:** 4855017.00 **E:** 655253.00

Log of Borehole: BH102-25
Page: 1 of 2
Date Completed: July 22, 2025

Elevation (m)	Depth	Description	Elevation / Depth	Number	Type	% Recovery	SPT (N)	Atterberg Limits (%) LL PL PI 25 50 75 / % Moisture 25 50 75	Shear Strength Cu, kPa nat V. rem V. 20 40 60 80 / SPT (N) 20 40 60 80	Well Installation	Log Notes
86	0	**ASPHALT:** ~ 125 mm thick	85.93 / 0.10	1	SS	100	53 /150mm	8.4%	53		
85.5	0.5	**(SP) gravelly SAND:** some fines; brown; non-cohesive, moist, very dense [Granular FILL]	85.52 / 0.51								
85	1	**(ML) CLAYEY SILT:** some sand; brown; cohesive, DTPL, firm		2	SS	59	6	18.2%	6		
84.5	1.5	**(ML) sandy SILT:** trace gravel; brown; non-cohesive, moist, loose	84.58 / 1.45	3A	SS	83	6	10.8%	6		Groundwater level measured in borehole at a depth of ~ 1.8 mbgs upon completion of drilling.
84	2	**(ML) CLAYEY SILT:** trace sand; black, some organics; cohesive, DTPL, firm	84.30 / 1.73	3B	SS			36.6%	6		
83.5	2.5	**(ML) CLAYEY SILT:** trace to some sand; brown, oxidation staining; cohesive, WTPL, firm to very stiff	83.82 / 2.21	4	SS	100	6	15 18.1 33.2 27.6%	6		
83	3										
82.5	3.5			5	SS	92	16	22%	16		
82	4		81.92 / 4.11								
81.5	4.5	**(ML) sandy CLAYEY SILT:** brown; cohesive, WTPL to DTPL, firm to hard									
81	5			6	SS	100	5	15.5%	5		
80.5	5.5										
80	6								10 31		At ~ 6.1 mbgs, Natural Shear Strength: 31 kPa; Remoulded Shear Strength: 10 kPa.
79.5	6.5										
79	7										
78.5			78.53 / 7.50								

GRAINSIZE DISTRIBUTION: SAMPLE | GRAVEL | SAND | SILT | CLAY

Logged By: AE **Input By:** AE

CAMBIUM

Client: Kirby Structures Ltd.
Contractor: DrillTech Drilling Ltd
Project No.: 22852-001
Location: 1695 Bayly Street, Pickering ON

Project Name: 1695 Bayly Street
Method: Truck Mounted Solid Stem Auger
Elevation: 86.03 mASL
UTM: 17T **N:** 4855017.00 **E:** 655253.00

Log of Borehole: BH102-25
Page: 2 of 2
Date Completed: July 22, 2025

Elevation (m)	Depth	Lithology	Description	Elevation / Depth	Number	Type	% Recovery	SPT (N)	Atterberg Limits (%) LL PL PI — 25 50 75 / % Moisture 25 50 75	Shear Strength Cu, kPa (nat V., rem V.) 20 40 60 80 / SPT (N) 20 40 60 80	Well Installation	Log Notes
78.5	7.5		**(ML) sandy CLAYEY SILT:** brown; cohesive, WTPL to DTPL, firm to hard	78.36 / 7.67	8A	SS			15%			Borehole was open upon completion of drilling.
78	8		**Shale:** pieces of weathered shale	78.13 / 7.90	8B	SS	100	50 /125mm	9.2%	50		
77.5	8.5		Borehole terminated @ 7.9 mbgs due to SPT refusal encountered.									
77	9											
76.5	9.5											
76	10											
75.5	10.5											
75	11											
74.5	11.5											
74	12											
73.5	12.5											
73	13											
72.5	13.5											
72	14											
71.5	14.5											
71												

GRAINSIZE DISTRIBUTION: SAMPLE | GRAVEL | SAND | SILT | CLAY

Logged By: AE **Input By:** AE

CAMBIUM

Client: Kirby Structures Ltd.
Contractor: DrillTech Drilling Ltd
Project No.: 22852-001
Location: 1695 Bayly Street, Pickering ON

Project Name: 1695 Bayly Street
Method: Truck Mounted Solid Stem Auger
Elevation: 86.07 mASL
UTM: 17T **N:** 4855045.00 **E:** 655288.00

Log of Borehole: BH103-25
Page: 1 of 2
Date Completed: July 22, 2025

Elevation (m)	Depth	Description	Number	Type	% Recovery	SPT (N)	% Moisture (25 50 75)	SPT (N) (20 40 60 80)	Well Installation	Log Notes
86.1	0	**ASPHALT:** ~ 125 mm thick (85.94 / 0.13)								
		(SP) gravelly SAND: some fines; brown; non-cohesive, moist, compact [Granular FILL]. No odour, no staining. (85.69 / 0.38)	1A	SS	83	18	7.7%	18		
85.6	0.5		1B	SS			16.3%			
		(ML) CLAYEY SILT: some sand; grey to brown; cohesive, DTPL to WTPL, very stiff to firm. No odour, no staining.								
85.1	1		2	SS	83	14	17.2%	14		
84.6	1.5									
		No odour, no staining	3	SS	75	6	11 21 6.8 27.9 60.5%	6		
84.1	2									
83.6	2.5	Strong petroleum odour, no staining	4	SS	83	8	32.8%	8		Groundwater level measured in borehole at a depth of ~ 2.7 mbgs upon completion of drilling.
83.1	3									
		Faint petroleum odour, no staining	5	SS	100	7	31.6%	7		
82.6	3.5									
82.1	4	(81.96 / 4.11)								
		(ML) sandy CLAYEY SILT: brown to grey; cohesive, APL to WTPL, firm to very soft								
81.6	4.5									
		No odour, no staining	6	SS	100	4	20%	4		
81.1	5									
80.6	5.5									
80.1	6									
		No odour, no staining	7	SS	83	1	13.9%	1		
79.6	6.5									
79.1	7	(78.91 / 7.16)								Borehole caved to a depth of ~ 7.3 mbgs upon completion of drilling.
		Shale: pieces of weathered shale (78.57 / 7.50)								
78.6										

GRAINSIZE DISTRIBUTION: SAMPLE | GRAVEL | SAND | SILT | CLAY

Logged By: AE **Input By:** AE

CAMBIUM

Client: Kirby Structures Ltd.
Contractor: DrillTech Drilling Ltd
Project No.: 22852-001
Location: 1695 Bayly Street, Pickering ON

Project Name: 1695 Bayly Street
Method: Truck Mounted Solid Stem Auger
Elevation: 86.07 mASL
UTM: 17T **N:** 4855045.00 **E:** 655288.00

Log of Borehole: BH103-25
Page: 2 of 2
Date Completed: July 22, 2025

Elevation (m)	Depth	Lithology	Description	Number	Type	% Recovery	SPT (N)	Atterberg Limits (%) LL PL PI 25 50 75 / % Moisture 25 50 75	Shear Strength Cu, kPa nat V. rem V. 20 40 60 80 / SPT (N) 20 40 60 80	Well Installation	Log Notes
78.6	7.5		**Shale:** pieces of weathered shale No odour, no staining	8	SS	67	18	9.7%	18		
78.1	8										
			77.84								
77.6	8.5		Borehole terminated @ 8.2 mbgs due to target depth achieved. 8.23								
77.1	9										
76.6	9.5										
76.1	10										
75.6	10.5										
75.1	11										
74.6	11.5										
74.1	12										
73.6	12.5										
73.1	13										
72.6	13.5										
72.1	14										
71.6	14.5										
71.1											

GRAINSIZE DISTRIBUTION: SAMPLE | GRAVEL | SAND | SILT | CLAY

Logged By: AE **Input By:** AE

CAMBIUM

Client: Kirby Structures Ltd.
Contractor: DrillTech Drilling Ltd
Project No.: 22852-001
Location: 1695 Bayly Street, Pickering ON

Project Name: 1695 Bayly Street
Method: Truck Mounted Solid Stem Auger
Elevation: 85.87 mASL
UTM: 17T **N:** 4855031.00 **E:** 655306.00

Log of Borehole: BH104-25
Page: 1 of 2
Date Completed: July 22, 2025

Elevation (m)	Depth	Description	Number	Type	% Recovery	SPT (N)	Atterberg Limits (%) / % Moisture	Shear Strength Cu, kPa / SPT (N)	Well Installation	Log Notes
85.9	0	**(SP) gravelly SAND:** trace to some fines; brown; moist, compact [Granular FILL]	1A	SS	79	14	6.9%	14		
85.49	0.38		1B	SS			18.2%			
85.4	0.5	**(ML) CLAYEY SILT:** some sand; mottled brown - dark brown, trace organics; cohesive, DTPL, stiff								
85.18	0.69		2	SS	100	10	15.8%	10		
84.9	1	**(ML) CLAYEY SILT:** some sand, trace gravel; brown to grey; cohesive, DTPL to APL, stiff to firm								
84.4	1.5		3	SS	21	7	15.3%	7		
83.9	2	Rock ~ 25 mm thick in bottom of spoon								
83.4	2.5		4	SS	92	6	32.7%	6		
82.9	3									
82.4	3.5		5	SS	83	8	17.5%	8		Groundwater level measured in borehole at a depth of ~ 5.4 mbgs upon completion of drilling.
81.9	4									
81.4	4.5		6	GB			27.4%	20 46		At ~ 4.6 mbgs, Natural Shear Strength: 46 kPa; Remoulded Shear Strength: 20 kPa.
80.9	5									
80.54	5.33	**(ML) sandy CLAYEY SILT:** trace gravel; grey; cohesive, WTPL, firm								Borehole caved to a depth of ~ 5.8 mbgs upon completion of drilling.
80.4	5.5									
79.9	6									
79.4	6.5		7	SS	79	5	14%	5		
78.9	7									
78.71	7.16	**(GP) GRAVEL:** weathered pieces of shale								
78.4										
	7.50									

GRAINSIZE DISTRIBUTION: SAMPLE | GRAVEL | SAND | SILT | CLAY

Logged By: AE **Input By:** AE

Peterborough, Barrie, Whitby, Kingston, Ottawa

CAMBIUM

Client: Kirby Structures Ltd.
Contractor: DrillTech Drilling Ltd
Project No.: 22852-001
Location: 1695 Bayly Street, Pickering ON

Project Name: 1695 Bayly Street
Method: Truck Mounted Solid Stem Auger
Elevation: 85.87 mASL
UTM: 17T **N:** 4855031.00 **E:** 655306.00

Log of Borehole: BH104-25
Page: 2 of 2
Date Completed: July 22, 2025

Elevation (m)	Depth	Lithology	Description	Number	Type	% Recovery	SPT (N)	Atterberg Limits (%) / % Moisture (25 50 75)	Shear Strength Cu, kPa (nat V., rem V.) / SPT (N) (20 40 60 80)	Well Installation	Log Notes
78.4	7.5										
77.9	8		**(GP) GRAVEL:** weathered pieces of shale	8	SS	50	8	13.8%	8		
77.4	8.5		77.18 / 8.69 **Shale:** weathered pieces of shale								
76.9	9		76.70 / 9.17 Borehole terminated @ 9.2 mbgs due to SPT refusal encountered.	9	SS	25	50 /25mm	10.6%	50		
76.4	9.5										
75.9	10										
75.4	10.5										
74.9	11										
74.4	11.5										
73.9	12										
73.4	12.5										
72.9	13										
72.4	13.5										
71.9	14										
71.4	14.5										
70.9											

GRAINSIZE DISTRIBUTION: SAMPLE | GRAVEL | SAND | SILT | CLAY

Logged By: AE **Input By:** AE

CAMBIUM

Client: Kirby Structures Ltd.
Contractor: DrillTech Drilling Ltd
Project No.: 22852-001
Location: 1695 Bayly Street, Pickering ON

Project Name: 1695 Bayly Street
Method: Truck Mounted Solid Stem Auger
Elevation: 86.01 mASL
UTM: 17T **N:** 4855082.00 **E:** 655310.00

Log of Borehole: BH105-25
Page: 1 of 1
Date Completed: July 21, 2025

Elevation (m)	Depth	Lithology	Description	Elevation / Depth	Number	Type	% Recovery	SPT (N)	Atterberg Limits (%) LL PL PI / % Moisture	Shear Strength Cu, kPa (nat V., rem V.) / SPT (N)	Well Installation	Log Notes
86	0		**(SP) gravelly SAND:** some fines; brown; non-cohesive, moist, compact [Granular FILL]	85.88 / 0.13	1A	SS			6.6%			
85.5	0.5		**(ML) sandy SILT:** trace gravel; brown; non-cohesive, moist, compact	85.32 / 0.69	1B	SS	100	10	8.8%	10		
85	1		**(ML) sandy CLAYEY SILT:** brown; cohesive, DTPL to APL, soft to firm		2	SS	42	3	14.1%	3		
84.5	1.5											
84	2				3	SS	25	4	13.4%	4		Borehole was open and dry upon completion of drilling.
83.5	2.5		Borehole terminated @ 2.1 mbgs due to target depth achieved.	83.88 / 2.13								
83	3											
82.5	3.5											
82	4											
81.5	4.5											
81	5											
80.5	5.5											
80	6											
79.5	6.5											
79	7											
78.5												

GRAINSIZE DISTRIBUTION: SAMPLE | GRAVEL | SAND | SILT | CLAY

Logged By: AE **Input By:** AE

CAMBIUM

Client: Kirby Structures Ltd.
Contractor: DrillTech Drilling Ltd
Project No.: 22852-001
Location: 1695 Bayly Street, Pickering ON

Project Name: 1695 Bayly Street
Method: Truck Mounted Solid Stem Auger
Elevation: 85.76 mASL
UTM: 17T **N:** 4855080.00 **E:** 655333.00

Log of Borehole: BH106-25
Page: 1 of 1
Date Completed: July 25, 2025

Elevation (m)	Depth	Lithology	Description	Elevation / Depth	Number	Type	% Recovery	SPT (N)	Atterberg Limits (%) LL PL PI 25 50 75 / % Moisture 25 50 75	Shear Strength Cu, kPa nat V. rem V. 20 40 60 80 / SPT (N) 20 40 60 80	Well Installation	Log Notes
85.8	0		**ASPHALT:** ~ 50 mm thick	85.71 / 0.05	1A	SS			2.5%			
85.3	0.5		**(SM) gravelly SILTY SAND:** brown; non-cohesive, moist, loose [Granular FILL]	85.63 / 0.13	1B	SS	100	8	15.7%	8		
84.8	1		**(ML) CLAYEY SILT:** some sand, trace gravel; to light brown grey; cohesive, DTPL to APL, stiff		2	SS	100	12	13.7%	12		
84.3	1.5											
83.8	2			83.63	3	SS	79	12	12%	12		Borehole was open and dry upon completion of drilling.
			Borehole terminated @ 2.1 mbgs due to target depth achieved.	2.13								
83.3	2.5											
82.8	3											
82.3	3.5											
81.8	4											
81.3	4.5											
80.8	5											
80.3	5.5											
79.8	6											
79.3	6.5											
78.8	7											
78.3												

GRAINSIZE DISTRIBUTION

SAMPLE	GRAVEL	SAND	SILT	CLAY
1A	32	52	16	

Logged By: AE
Input By: AE

CAMBIUM

Client: Kirby Structures Ltd.
Contractor: DrillTech Drilling Ltd
Project No.: 22852-001
Location: 1695 Bayly Street, Pickering ON

Project Name: 1695 Bayly Street
Method: Truck Mounted Solid Stem Auger
Elevation: 85.75 mASL
UTM: 17T **N:** 4855048.00 **E:** 655328.00

Log of Borehole: BH107-25
Page: 1 of 1
Date Completed: July 21, 2025

Elevation (m)	Depth	Description	Number	Type	% Recovery	SPT (N)	Atterberg Limits (%) / % Moisture	Shear Strength Cu, kPa / SPT (N)	Well Installation	Log Notes
85.8	0	**(SP) gravelly SAND:** some fines; brown; non-cohesive, moist, dense [Granular FILL]	1A	SS	71	31	2.5%	31		
85.55	0.20		1B	SS			7.4%			
85.2	0.5	**(SM) SILTY SAND:** some gravel; brown; non-cohesive, moist, dense [Granular FILL]								
85.06	0.69	**(ML) CLAYEY SILT:** some sand; black, some organics; cohesive, DTPL to APL, stiff	2	SS	88	9	21.3%	9		
84.8	1									
84.30	1.45	**(ML) CLAYEY SILT:** some sand; brown; cohesive, DTPL, stiff	3	SS	88	11	15.8%	11		
84.2	1.5									
83.8	2									Borehole was open and dry upon completion of drilling.
83.62	2.13	Borehole terminated @ 2.1 mbgs due to target depth achieved.								
83.2	2.5									
82.8	3									
82.2	3.5									
81.8	4									
81.2	4.5									
80.8	5									
80.2	5.5									
79.8	6									
79.2	6.5									
78.8	7									
78.2										

GRAINSIZE DISTRIBUTION: SAMPLE | GRAVEL | SAND | SILT | CLAY

Logged By: AE **Input By:** AE

CAMBIUM

Client: Kirby Structures Ltd.
Contractor: DrillTech Drilling Ltd
Project No.: 22852-001
Location: 1695 Bayly Street, Pickering ON

Project Name: 1695 Bayly Street
Method: Truck Mounted Solid Stem Auger
Elevation: 86.11 mASL
UTM: 17T **N:** 4855005.00 **E:** 655273.00

Log of Borehole: BH108-25
Page: 1 of 1
Date Completed: July 22, 2025

Elevation (m)	Depth	Description	Number	Type	% Recovery	SPT (N)	Atterberg Limits (%) / % Moisture	Shear Strength Cu, kPa / SPT (N)	Well Installation	Log Notes
86.1	0	**ASPHALT:** ~ 100 mm thick (86.01 / 0.10)							Cap	
		(SP) gravelly SAND: some fines; brown; non-cohesive, moist, compact [Granular FILL]. No odour, no staining. (85.78 / 0.33)	1A	SS	83	10	7.9%	10	Concrete Seal	
85.6	0.5		1B	SS			15.5%		Bentonite Plug	
		(ML) sandy CLAYEY SILT: brown; cohesive, DTPL, stiff to firm. No odour, no staining.							Riser	
85.1	1		2	SS	75	7	20.6%	7		
84.6	1.5									
		No odour, no staining.	3	SS	75	13	15.4%	13		
84.1	2	(83.90 / 2.21)								
		(ML) CLAYEY SILT: some sand; black, some organics; cohesive, DTPL, firm. No odour, no staining. (83.70 / 2.41)	4A	SS	88	5		5	Sand Pack	Groundwater level measured in well at a depth of ~ 2.50 mbgs on July 28, 2025.
83.6	2.5		4B	SS						
		(ML) CLAYEY SILT: some sand; brown, oxidation staining; cohesive, APL, firm. No odour, no staining.								
83.1	3	No odour, no staining.	5	SS	100	5	36.5%	5	PVC Screen	Groundwater level measured in borehole at a depth of ~ 3.4 mbgs upon completion of drilling.
82.6	3.5									
82.1	4									
81.6	4.5									
		No odour, no staining.	6	SS	92	7	31%	7		
81.1	5	(80.93 / 5.18)							Cap	
		Borehole terminated @ 5.2 mbgs due to target depth achieved.								Borehole was open upon completion of drilling.
80.6	5.5									
80.1	6									
79.6	6.5									
79.1	7									
78.6										

GRAINSIZE DISTRIBUTION: SAMPLE | GRAVEL | SAND | SILT | CLAY

Logged By: AE **Input By:** AE

Peterborough, Barrie, Whitby, Kingston, Ottawa

CAMBIUM

Client: Kirby Structures Ltd.
Contractor: DrillTech Drilling Ltd
Project No.: 22852-001
Location: 1695 Bayly Street, Pickering ON

Project Name: 1695 Bayly Street
Method: Truck Mounted Solid Stem Auger
Elevation: 86.26 mASL
UTM: 17T **N:** 4855021.00 **E:** 655278.00

Log of Borehole: BH109-25
Page: 1 of 1
Date Completed: July 21, 2025

Elevation (m)	Depth	Description	Number	Type	% Recovery	SPT (N)	Atterberg Limits (%) / % Moisture	Shear Strength Cu, kPa / SPT (N)	Well Installation
86.3	0	**ASPHALT:** ~ 100 mm thick (86.16 / 0.10)							Cap
85.8	0.5	**(SP) gravelly SAND:** some fines; brown; non-cohesive, moist, compact [Granular FILL]. No odour, no staining. (85.83 / 0.43)	1A	SS	92	28	9.5%	28	Concrete Seal
			1B	SS			12.4%		Bentonite Plug
85.3	1	**(ML) sandy CLAYEY SILT:** trace gravel; grey; cohesive, DTPL to APL, very stiff to firm. No odour, no staining.	2	SS	79	6	17.8%	6	Riser
84.8	1.5								
		No odour, no staining.	3	SS	71	14	9.7%	14	
84.3	2	(84.05 / 2.21)							
83.8	2.5	**(ML) CLAYEY SILT:** some sand; black, some organics; cohesive, DTPL, stiff. No odour, no staining. (83.75 / 2.51)	4A	SS	100	11	26.8%	11	Sand Pack
			4B	SS			28.7%		
83.3	3	**(ML) CLAYEY SILT:** some sand; brown; cohesive, APL, stiff to soft. No odour, no staining.							
		No odour, no staining.	5	SS	83	4	14.8 19.9 34.7 29.1%	4	PVC Screen
82.8	3.5								
82.3	4								
81.8	4.5								
		No odour, no staining.	6	SS	83	8	30.5%	8	
81.3	5	(81.08 / 5.18)							Cap
		Borehole terminated @ 5.2 mbgs due to target depth achieved.							
80.8	5.5								
80.3	6								
79.8	6.5								
79.3	7								
78.8									

Groundwater measured in well at a depth of ~ 2.58 mbgs on July 28, 2025.

Groundwater level measured in borehole at a depth of ~ 3.4 mbgs upon completion of drilling.

Borehole caved to a depth of ~ 4.0 mbgs upon completion of drilling.

GRAINSIZE DISTRIBUTION: SAMPLE | GRAVEL | SAND | SILT | CLAY

Logged By: AE **Input By:** AE

CAMBIUM

Client: Kirby Structures Ltd.
Contractor: DrillTech Drilling Ltd
Project No.: 22852-001
Location: 1695 Bayly Street, Pickering ON

Project Name: 1695 Bayly Street
Method: Truck Mounted Solid Stem Auger
Elevation: 86.16 mASL
UTM: 17T **N:** 4855062.00 **E:** 655290.00

Log of Borehole: BH110-25
Page: 1 of 1
Date Completed: July 21, 2025

Elevation (m)	Depth	Description	Elevation / Depth	Number	Type	% Recovery	SPT (N)	Atterberg Limits (%) 25 50 75 / % Moisture 25 50 75	Shear Strength Cu, kPa (nat V., rem V.) 20 40 60 80 / SPT (N) 20 40 60 80	Well Installation	Log Notes
86.2	0	**ASPHALT:** ~ 100 mm	86.06 / 0.10	1	SS	100	50 /125mm	7.2%	50	Cap, Concrete Seal	
85.7	0.5	**(SP) gravelly SAND:** some fines; brown; non-cohesive, moist, very dense [Granular FILL]. No odour, no staining.	85.66 / 0.50							Bentonite Plug, Riser	
85.2	1	**(ML) sandy CLAYEY SILT:** some gravel; brown; cohesive, DTPL, very stiff to stiff. No odour, no staining.		2	SS	75	24	14.2%	24		
84.7	1.5	No odour, no staining.	84.48	3A	SS			13.8%			
84.2	2	**(ML) CLAYEY SILT:** trace sand; black, some organics; cohesive, DTPL, stiff. No odour, no staining.	1.68 / 83.95	3B	SS	75	9	35.8%	9		
83.7	2.5	**(ML) CLAYEY SILT:** trace to some sand, trace gravel; brown; cohesive, APL to WTPL, firm. Strong petroleum odour, no staining.	2.21	4	SS	100	5	28.2%	5	Sand Pack	Groundwater level measured in well at a depth of ~ 2.23 mbgs on July 28, 2025.
83.2	3	Slight petroleum odour, no staining.		5	SS	100	7	34.4%	7	PVC Screen	
82.2	4										Groundwater level measured in borehole at a depth of ~ 4,0 mbgs upon completion of drilling.
81.7	4.5	No odour, no staining.		6	SS	67	6	14.7%	6	Cap	
81.2	5		80.98								Borehole was open upon completion of drilling.
80.7	5.5	Borehole terminated @ 5.2 mbgs due to target depth achieved.	5.18								
80.2	6										
79.7	6.5										
79.2	7										
78.7											

GRAINSIZE DISTRIBUTION: SAMPLE | GRAVEL | SAND | SILT | CLAY

Logged By: AE **Input By:** AE

RECORD OF: BH101

PROJECT NO: **CB1053.00**
CLIENT: **SUNCOR ENERGY PRODUCTS PARTNERSHIP**
ADDRESS LINE 1: **1695 BAYLY STREET**
CITY / PROVINCE: **PICKERING, ONTARIO**

BORING DATE: **JULY 5, 2018**
TYPE OF AUGER: **SOLIDS**
TYPE OF RIG: **TRUCK MOUNT CME 75**
CONTRACTOR: **PONTIL DRILLING**

TERRAPEX

VAPOUR MONITOR: **RKI EAGLE 2**
PIPE SCHEDULE: **-**
RISER LENGTH: **-**

BOREHOLE DIAMETER: **180 mm**
SCREEN SLOT #: **-**
SAND TYPE: **-**

WELL DIAMETER: **-**
SCREEN LENGTH: **-**
SEALANT TYPE: **MEDIUM BENTONITE**

SUBSURFACE PROFILE			SAMPLE							
Depth (ft / m)	Strataplot	Description	Elevation	Number	Type	% Recovery	SPT (n)	SV (ppm or %LEL- if applicable)	Laboratory Testing	Piezometer or Monitoring Well Installation
0 / 0		Ground Surface								
0–2 / 0		***SAND AND GRAVEL*** BROWN, MOIST, VERY LOOSE		1	SS	<5	5	<5 PPM		
3–4 / 1		***SANDY SILT, TRACE GRAVEL*** BROWN, MOIST, COMPACT		2	SS	80	11	<5 PPM		
5–7 / 2		WET, SOFT		3	SS	100	4	<5 PPM	BTEX, VOCs, PHCs	
8–9 / 2–3		***SAND LENSE*** TRACE CLAY, WET, STIFF		4	SS	100	13	<5 PPM	PAHs, METALS AND INORGANICS	
10–12 / 3		***FINE SAND*** BROWN, WET		5	SS	100	28	<5 PPM		
13–14 / 4		***SILT TRACE CLAY AND GRAVEL*** GREY, MOIST TO WET, HARD		6	SS	50	50	<5 PPM		
15–20 / 5–6		End of Borehole								

LOGGED BY: **PA** INPUT BY: **PA** CHECKED BY: **JS** INPUT DATE: **JULY 11, 2018**

RECORD OF: MW102

PROJECT NO: **CB1053.00**
CLIENT: **SUNCOR ENERGY PRODUCTS PARTNERSHIP**
ADDRESS LINE 1: **1695 BAYLY STREET**
CITY / PROVINCE: **PICKERING, ONTARIO**

BORING DATE: **JULY 5, 2018**
TYPE OF AUGER: **SOLIDS STEM**
TYPE OF RIG: **TRUCK MOUNT CME 75**
CONTRACTOR: **PONTIL DRILLING**

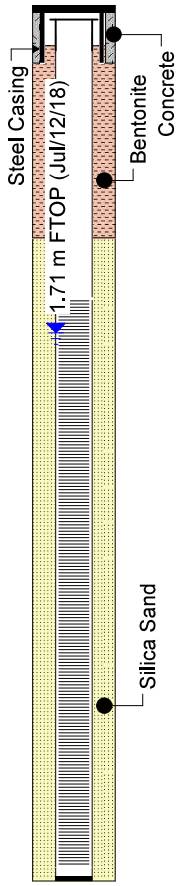
TERRAPEX

VAPOUR MONITOR: **RKI EAGLE 2**
PIPE SCHEDULE: **40**
RISER LENGTH: **1.5 m**

BOREHOLE DIAMETER: **180 mm**
SCREEN SLOT #: **10**
SAND TYPE: **SILICA SAND #2**

WELL DIAMETER: **60 mm**
SCREEN LENGTH: **3.0 m**
SEALANT TYPE: **MEDIUM BENTONITE**

SUBSURFACE PROFILE			SAMPLE							
Depth (ft / m)	Strataplot	Description	Elevation	Number	Type	% Recovery	SPT (n)	SV (ppm or %LEL- if applicable)	Laboratory Testing	Piezometer or Monitoring Well Installation
0 / 0		Ground Surface								
0 – 2 / 0 – 1		***SAND AND GRAVEL SOME TOP SOIL*** BROWN, MOIST, VERY LOOSE		1	SS	60	5	<5 PPM		
3 – 4 / 1		***TOP SOIL*** BLACK TO DARK GREY, MOIST, LOOSE		2	SS	80	5	<5 PPM		
5 – 7 / 2		***SANDY SILT, TRACE GRAVEL*** LIGHT BROWN, MOIST TO WET, LOOSE		3	SS	100	6	<5 PPM	BTEX, VOCs, PHCs	
8 – 9				4	SS	100	14	<5 PPM		
10 – 12 / 3		***FINE SAND, TRACE GRAVEL*** DARK BROWN, MOIST TO WET, VERY DENSE		5	SS	100	50-6	<5 PPM		
13 – 14 / 4		***SANDY SILT, TRACE GRAVEL*** GREY, MOIST TO WET, VERY DENSE		6	SS	100	50-5	<5 PPM		
15 – 16 / 5				7	SS	100	50-5	<5 PPM		
17 / 6		End of Borehole								



LOGGED BY: **PA** INPUT BY: **PA** CHECKED BY: **JS** INPUT DATE: **JULY 11, 2018**

RECORD OF: MW103

PROJECT NO: **CB1053.00**
CLIENT: **SUNCOR ENERGY PRODUCTS PARTNERSHIP**
ADDRESS LINE 1: **1695 BAYLY STREET**
CITY / PROVINCE: **PICKERING, ONTARIO**

BORING DATE: **JULY 5, 2018**
TYPE OF AUGER: **SOLIDS STEM**
TYPE OF RIG: **TRUCK MOUNT CME 75**
CONTRACTOR: **PONTIL DRILLING**

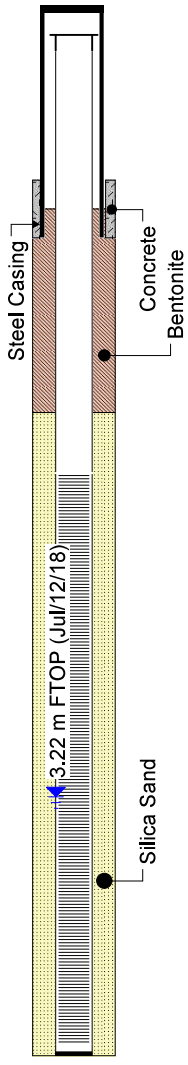
TERRAPEX

VAPOUR MONITOR: **RKI EAGLE 2**
PIPE SCHEDULE: **40**
RISER LENGTH: **1.5 m**

BOREHOLE DIAMETER: **180 mm**
SCREEN SLOT #: **10**
SAND TYPE: **SILICA SAND #2**

WELL DIAMETER: **60 mm**
SCREEN LENGTH: **3.0 m**
SEALANT TYPE: **MEDIUM BENTONITE**

SUBSURFACE PROFILE			SAMPLE							
Depth (ft / m)	Strataplot	Description	Elevation	Number	Type	% Recovery	SPT (n)	SV (ppm or %LEL- if applicable)	Laboratory Testing	Piezometer or Monitoring Well Installation
0		Ground Surface								
0 – 1 m		***FINE SAND*** BROWN, MOIST, COMPACT		1	SS	50	13	<5 PPM		
				2	SS	60	17	<5 PPM	METALS AND INORGANICS	
1 – 2 m		***SANDY SILT, TRACE GRAVEL*** LIGHT BROWN, MOIST TO WET, LOOSE		3	SS	100	7	<5 PPM	BTEX, PHCs	
2 – 3 m		SAND LENSE, WET, COMPACT		4	SS	100	20	<5 PPM		
3 – 4 m		VERY DENSE		5	SS	100	50-6	<5 PPM		
4 – 5 m		***TRACE CLAY*** VERY DENSE		6	SS	100	50-5	<5 PPM		
5 m				7	SS	100	50-5	<5 PPM	VOCs	



LOGGED BY: **PA** INPUT BY: **PA** CHECKED BY: **JS** INPUT DATE: **JULY 11, 2018**

RECORD OF: MW104

PROJECT NO: **CB1053.00**
CLIENT: **SUNCOR ENERGY PRODUCTS PARTNERSHIP**
ADDRESS LINE 1: **1695 BAYLY STREET**
CITY / PROVINCE: **PICKERING, ONTARIO**

BORING DATE: **JULY 5, 2018**
TYPE OF AUGER: **SOLIDS STEM**
TYPE OF RIG: **TRUCK MOUNT CME 75**
CONTRACTOR: **PONTIL DRILLING**

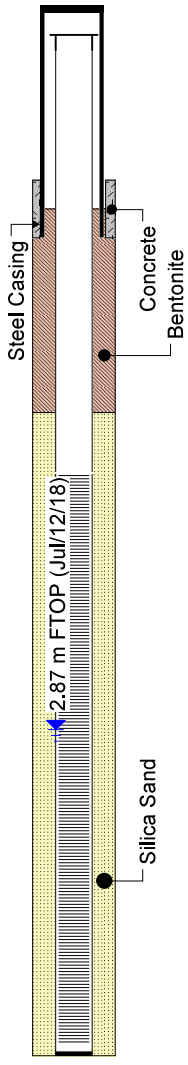
TERRAPEX

VAPOUR MONITOR: **RKI EAGLE 2**
PIPE SCHEDULE: **40**
RISER LENGTH: **1.5 m**

BOREHOLE DIAMETER: **180 mm**
SCREEN SLOT #: **10**
SAND TYPE: **SILICA SAND #2**

WELL DIAMETER: **60 mm**
SCREEN LENGTH: **3.0 m**
SEALANT TYPE: **MEDIUM BENTONITE**

SUBSURFACE PROFILE			SAMPLE							
Depth (ft / m)	Strataplot	Description	Elevation	Number	Type	% Recovery	SPT (n)	SV (ppm or %LEL- if applicable)	Laboratory Testing	Piezometer or Monitoring Well Installation
0		Ground Surface								
0 – 1		***TOP SOIL, TRACE ORGANICS AND GRAVEL*** BROWN, MOIST, LOOSE		1	SS	50	6	<5 PPM		
1 – 2		***CLAYEY SILT, TRACE GRAVEL*** BROWN, MOIST, FIRM		2	SS	80	6	<5 PPM		
2 – 3		***CLAY, SOME ORGANICS,*** BLACK, MOIST, SOFT		3	SS	60	3	<5 PPM	PAHs, METALS AND INORGANICS	
3 – 4		***CLAYEY SILT, TRACE GRAVEL*** BROWN, MOIST TO WET, FIRM		4	SS	100	5	<5 PPM	BTEX, VOCs, PHCs	
3 – 4		WET, SOFT		5	SS	100	4	<5 PPM		
4 – 5		***SANDY SILT, TRACE GRAVEL*** BROWN, WET		6	SS	100	4	<5 PPM		
5				7	SS	100	4	<5 PPM		



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RECORD OF: MW105

PROJECT NO: **CB1053.00**
CLIENT: **SUNCOR ENERGY PRODUCTS PARTNERSHIP**
ADDRESS LINE 1: **1695 BAYLY STREET**
CITY / PROVINCE: **PICKERING, ONTARIO**

BORING DATE: **JULY 5, 2018**
TYPE OF AUGER: **HOLLOW STEM**
TYPE OF RIG: **TRUCK MOUNT CME 75**
CONTRACTOR: **PONTIL DRILLING**

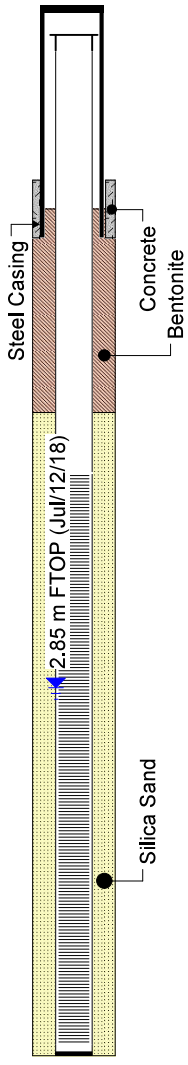
TERRAPEX

VAPOUR MONITOR: **RKI EAGLE 2**
PIPE SCHEDULE: **40**
RISER LENGTH: **1.5 m**

BOREHOLE DIAMETER: **180 mm**
SCREEN SLOT #: **10**
SAND TYPE: **SILICA SAND #2**

WELL DIAMETER: **60 mm**
SCREEN LENGTH: **3.0 m**
SEALANT TYPE: **MEDIUM BENTONITE**

SUBSURFACE PROFILE			SAMPLE							Piezometer or Monitoring Well Installation
Depth (ft / m)	Strataplot	Description	Elevation	Number	Type	% Recovery	SPT (n)	SV (ppm or %LEL- if applicable)	Laboratory Testing	
0		Ground Surface								
0		***SAND*** BROWN, MOIST		1	AU	-	-	-		
1		***PEA STONE, TRACE SAND*** BROWN, MOIST,WET								
15		***CLAYEY SILT*** GREY, WET		2	SS	<5	50-5	<5 PPM	BTEX, VOCs, PHCs	



LOGGED BY: **PA** INPUT BY: **PA** CHECKED BY: **JS** INPUT DATE: **JULY 11, 2018**

RECORD OF: MW106

PROJECT NO: **CB1053.00**
CLIENT: **SUNCOR ENERGY PRODUCTS PARTNERSHIP**
ADDRESS LINE 1: **1695 BAYLY STREET**
CITY / PROVINCE: **PICKERING, ONTARIO**

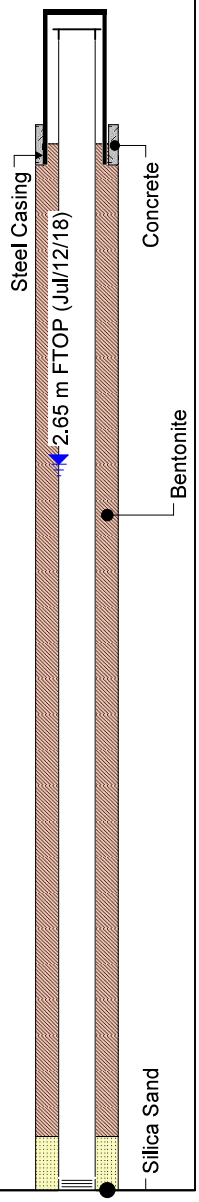
BORING DATE: **JULY 5, 2018**
TYPE OF AUGER: **HOLLOW STEM**
TYPE OF RIG: **TRUCK MOUNT CME 75**
CONTRACTOR: **PONTIL DRILLING**

VAPOUR MONITOR: **RKI EAGLE 2**
PIPE SCHEDULE: **40**
RISER LENGTH: **9.3 m**

BOREHOLE DIAMETER: **180 mm**
SCREEN SLOT #: **10**
SAND TYPE: **SILICA SAND #2**

WELL DIAMETER: **60 mm**
SCREEN LENGTH: **1.0 m**
SEALANT TYPE: **MEDIUM BENTONITE**

SUBSURFACE PROFILE			SAMPLE							
Depth (ft / m)	Strataplot	Description	Elevation	Number	Type	% Recovery	SPT (n)	SV (ppm or %LEL- if applicable)	Laboratory Testing	Piezometer or Monitoring Well Installation
0		Ground Surface								
0 – 4.5		***PEASTONE***								
4.5 – 6		***CLAYEY SILT*** BROWN, WET								
6 – 7.5		***SANDY SILT, TRACE GRAVEL*** BLACK TO DARK BROWN, MOIST TO WET, DENSE		1	SS	50	40	<5 PPM	BTEX, VOCs, PHCs	
7.5 – 8.5		***SHALE (ROCK)*** BLACK TO GREY		2	SS	10	>50	<5 PPM		



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RECORD OF: MW106

PROJECT NO: **CB1053.00**
CLIENT: **SUNCOR ENERGY PRODUCTS PARTNERSHIP**
ADDRESS LINE 1: **1695 BAYLY STREET**
CITY / PROVINCE: **PICKERING, ONTARIO**

BORING DATE: **JULY 5, 2018**
TYPE OF AUGER: **HOLLOW STEM**
TYPE OF RIG: **TRUCK MOUNT CME 75**
CONTRACTOR: **PONTIL DRILLING**

TERRAPEX

VAPOUR MONITOR: **RKI EAGLE 2**
PIPE SCHEDULE: **40**
RISER LENGTH: **9.3 m**

BOREHOLE DIAMETER: **180 mm**
SCREEN SLOT #: **10**
SAND TYPE: **SILICA SAND #2**

WELL DIAMETER: **60 mm**
SCREEN LENGTH: **1.0 m**
SEALANT TYPE: **MEDIUM BENTONITE**

SUBSURFACE PROFILE			SAMPLE							
Depth	Strataplot	Description	Elevation	Number	Type	% Recovery	SPT (n)	SV (ppm or %LEL- if applicable)	Laboratory Testing	Piezometer or Monitoring Well Installation
9										Silica Sand
				3	SS	10	50-5	25 PPM		
		End of Borehole								
10										
11										
12										
13										
14										
15										
16										
17										

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RECORD OF: MW107

PROJECT NO: **CB1053.00**
CLIENT: **SUNCOR ENERGY PRODUCTS PARTNERSHIP**
ADDRESS LINE 1: **1695 BAYLY STREET**
CITY / PROVINCE: **PICKERING, ONTARIO**

BORING DATE: **JULY 6, 2018**
TYPE OF AUGER: **SOLIDS STEM**
TYPE OF RIG: **TRUCK MOUNT CME 75**
CONTRACTOR: **PONTIL DRILLING**

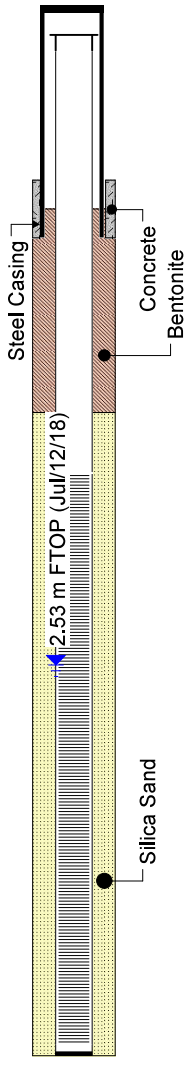
TERRAPEX

VAPOUR MONITOR: **RKI EAGLE 2**
PIPE SCHEDULE: **40**
RISER LENGTH: **1.5 m**

BOREHOLE DIAMETER: **180 mm**
SCREEN SLOT #: **10**
SAND TYPE: **SILICA SAND #2**

WELL DIAMETER: **60 mm**
SCREEN LENGTH: **3.0 m**
SEALANT TYPE: **MEDIUM BENTONITE**

SUBSURFACE PROFILE			SAMPLE							
Depth (ft / m)	Strataplot	Description	Elevation	Number	Type	% Recovery	SPT (n)	SV (ppm or %LEL- if applicable)	Laboratory Testing	Piezometer or Monitoring Well Installation
		Ground Surface								
0		***SAND TRACE GRAVEL*** BROWN, MOIST, COMPACT		1	SS	70	11	<5 PPM	METALS AND INORGANICS	
2				2	SS	50	7	<5 PPM		
5		***CLAYEY SILT, TRACE SAND AND GRAVEL*** BLACK, MOIST, HARD		3	SS	70	38	<5 PPM		
8		***SAND, TRACE SILT AND CLAY, TRACE COBBLES*** GREY, MOIST TO WET, VERY DENSE		4	SS	100	>50	<5 PPM	BTEX, VOCs, PHCs, PAHs, GRAIN SIZE, pH	
10				5	SS	20	50-6	<5 PPM		
13				6	SS	20	50-6	<5 PPM		
16				7	SS	10	50-5	<5 PPM		



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RECORD OF: BH108

PROJECT NO: **CB1053.00**
CLIENT: **SUNCOR ENERGY PRODUCTS PARTNERSHIP**
ADDRESS LINE 1: **1695 BAYLY STREET**
CITY / PROVINCE: **PICKERING, ONTARIO**

BORING DATE: **JULY 6, 2018**
TYPE OF AUGER: **SOLIDS**
TYPE OF RIG: **TRUCK MOUNT CME 75**
CONTRACTOR: **PONTIL DRILLING**

TERRAPEX

VAPOUR MONITOR: **RKI EAGLE 2**
PIPE SCHEDULE: **-**
RISER LENGTH: **-**

BOREHOLE DIAMETER: **180 mm**
SCREEN SLOT #: **-**
SAND TYPE: **-**

WELL DIAMETER: **-**
SCREEN LENGTH: **-**
SEALANT TYPE: **MEDIUM BENTONITE**

SUBSURFACE PROFILE			SAMPLE							
Depth (ft / m)	Strataplot	Description	Elevation	Number	Type	% Recovery	SPT (n)	SV (ppm or %LEL- if applicable)	Laboratory Testing	Piezometer or Monitoring Well Installation
0 / 0		Ground Surface								
0		***TOP SOIL, TRACE ROOTLETS*** BROWN, MOIST, LOOSE		1	SS	<5	5	<5 PPM	METALS AND INORGANICS, PAHs	
3 / 1		***SANDY SILT, TRACE GRAVEL*** BROWN, MOIST TO WET, COMPACT		2	SS	80	11	<5 PPM		
5		***TRACE CLAY*** BROWN, MOIST TO WET, COMPACT		3	SS	100	4	<5 PPM	BTEX, VOCs, AND PHCs	
8 / 2		BLACK TO DRAK GREY, COMPACT		4	SS	100	13	<5 PPM		
10 / 3		***TRACE GRAVEL AND COBBLES*** DARK BROWN, MOIST, HARD		5	SS	100	28	<5 PPM		
13 / 4				6	SS	50	50	<5 PPM		
15 / 5		End of Borehole								
20 / 6										

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RECORD OF: MW109

PROJECT NO: **CB1053.00**
CLIENT: **SUNCOR ENERGY PRODUCTS PARTNERSHIP**
ADDRESS LINE 1: **1695 BAYLY STREET**
CITY / PROVINCE: **PICKERING, ONTARIO**

BORING DATE: **JULY 6, 2018**
TYPE OF AUGER: **SOLIDS STEM**
TYPE OF RIG: **TRUCK MOUNT CME 75**
CONTRACTOR: **PONTIL DRILLING**

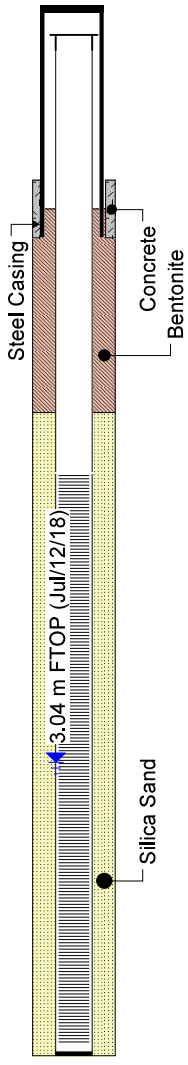
TERRAPEX

VAPOUR MONITOR: **RKI EAGLE 2**
PIPE SCHEDULE: **40**
RISER LENGTH: **1.5 m**

BOREHOLE DIAMETER: **180 mm**
SCREEN SLOT #: **10**
SAND TYPE: **SILICA SAND #2**

WELL DIAMETER: **60 mm**
SCREEN LENGTH: **3.0 m**
SEALANT TYPE: **MEDIUM BENTONITE**

SUBSURFACE PROFILE			SAMPLE							
Depth (ft / m)	Strataplot	Description	Elevation	Number	Type	% Recovery	SPT (n)	SV (ppm or %LEL- if applicable)	Laboratory Testing	Piezometer or Monitoring Well Installation
		Ground Surface								
0		***TOP SOIL TRACE COBBLES AND ORGANICS*** BROWN, MOIST, VERY STIFF		1	SS	40	16	<5 PPM		
3 / 1		***SANDY SILT, TRACE GRAVEL AND COBBLES*** LIGHT BROWN, MOIST TO WET, COMPACT		2	SS	100	11	<5 PPM	BTEX, PHCs	
6 / 2				3	SS	80	14	<5 PPM		
8		***SAND, TRACE GRAVEL*** BROWN, WET, COMPACT		4	SS	100	20	<5 PPM		
10 / 3		***TRACE SILT*** GREY, WET, VERY DENSE		5	SS	100	50-6	<5 PPM		
13 / 4		***SOME GRAVEL***		6	SS	100	50-6	<5 PPM		
16 / 5				7	SS	100	50-5	<5 PPM		
17										



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RECORD OF: MW110

PROJECT NO: **CB1053.00**
CLIENT: **SUNCOR ENERGY PRODUCTS PARTNERSHIP**
ADDRESS LINE 1: **1695 BAYLY STREET**
CITY / PROVINCE: **PICKERING, ONTARIO**

BORING DATE: **JULY 6, 2018**
TYPE OF AUGER: **SOLIDS STEM**
TYPE OF RIG: **TRUCK MOUNT CME 75**
CONTRACTOR: **PONTIL DRILLING**

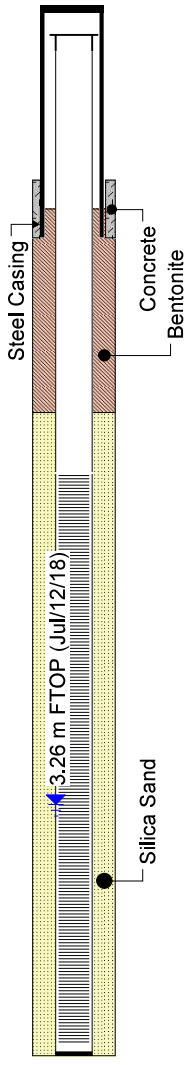
TERRAPEX

VAPOUR MONITOR: **RKI EAGLE 2**
PIPE SCHEDULE: **40**
RISER LENGTH: **1.5 m**

BOREHOLE DIAMETER: **180 mm**
SCREEN SLOT #: **10**
SAND TYPE: **SILICA SAND #2**

WELL DIAMETER: **60 mm**
SCREEN LENGTH: **3.0 m**
SEALANT TYPE: **MEDIUM BENTONITE**

SUBSURFACE PROFILE			SAMPLE							
Depth (ft / m)	Strataplot	Description	Elevation	Number	Type	% Recovery	SPT (n)	SV (ppm or %LEL- if applicable)	Laboratory Testing	Piezometer or Monitoring Well Installation
0		Ground Surface	0.00							
0 – 2		***TOP SOIL, TRACE ORGANICS AND CLAY/SILT*** BROWN, MOIST, STIFF		1	SS	40	16	<5 PPM		
			-0.76							
2 – 5 (1 m)		***SANDY SILT, TRACE GRAVEL*** LIGHT BROWN, MOIST , COMPACT		2	SS	100	11	<5 PPM	METALS AND INORGANICS, PAHs	
			-1.52							
5 – 7 (2 m)		WET, COMPACT		3	SS	80	14	<5 PPM	BTEX, PHCs, VOCs	
			-2.29							
7 – 10 (3 m)		***SANDY SILT, SOME CLAY, TRACE GRAVEL*** BROWN,, MOIST, COMPACT		4	SS	100	20	<5 PPM		
			-3.05							
10 – 13 (4 m)		***TRACE SILT*** GREY, WET, VERY DENSE		5	SS	100	50-6	<5 PPM		
13 – 16 (5 m)				6	SS	100	50-6	<5 PPM		
16 – 17 (5 m)				7	SS	100	50-5	<5 PPM		
			-5.18							



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RECORD OF: BH111

PROJECT NO: **CB1053.00**
CLIENT: **SUNCOR ENERGY PRODUCTS PARTNERSHIP**
ADDRESS LINE 1: **1695 BAYLY STREET**
CITY / PROVINCE: **PICKERING, ONTARIO**

BORING DATE: **JULY 6, 2018**
TYPE OF AUGER: **SOLIDS**
TYPE OF RIG: **TRUCK MOUNT CME 75**
CONTRACTOR: **PONTIL DRILLING**

TERRAPEX

VAPOUR MONITOR: **RKI EAGLE 2**
PIPE SCHEDULE: **-**
RISER LENGTH: **-**

BOREHOLE DIAMETER: **180 mm**
SCREEN SLOT #: **-**
SAND TYPE: **-**

WELL DIAMETER: **-**
SCREEN LENGTH: **-**
SEALANT TYPE: **MEDIUM BENTONITE**

SUBSURFACE PROFILE			SAMPLE							
Depth (ft / m)	Strataplot	Description	Elevation	Number	Type	% Recovery	SPT (n)	SV (ppm or %LEL- if applicable)	Laboratory Testing	Piezometer or Monitoring Well Installation
0 / 0		Ground Surface								
0–1 / 0		***TOP SOIL, TRACE ROOTLETS AND GRAVEL*** DARK BROWN, MOIST, LOOSE		1	SS	70	10	<5 PPM		
2–3 / 1				2	SS	100	6	<5 PPM		
5–6 / 2		***SANDY SILT, TRACE CLAY*** MOIST TO WET, GREY, VERY LOOSE		3	SS	80	4	<5 PPM	BTEX, PHCs	
7–8 / 2		LOOSE		4	SS	100	8	<5 PPM		
10–11 / 3		***TRACE GRAVEL*** WET, VERY LOOSE		5	SS	100	3	<5 PPM		
13–14 / 4				6	SS	100	5	<5 PPM		
15 / 5		End of Borehole								

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RECORD OF: BH112

PROJECT NO: **CB1053.00**
CLIENT: **SUNCOR ENERGY PRODUCTS PARTNERSHIP**
ADDRESS LINE 1: **1695 BAYLY STREET**
CITY / PROVINCE: **PICKERING, ONTARIO**

BORING DATE: **JULY 6, 2018**
TYPE OF AUGER: **SOLIDS**
TYPE OF RIG: **TRUCK MOUNT CME 75**
CONTRACTOR: **PONTIL DRILLING**

TERRAPEX

VAPOUR MONITOR: **RKI EAGLE 2**
PIPE SCHEDULE: **-**
RISER LENGTH: **-**

BOREHOLE DIAMETER: **180 mm**
SCREEN SLOT #: **-**
SAND TYPE: **-**

WELL DIAMETER: **-**
SCREEN LENGTH: **-**
SEALANT TYPE: **MEDIUM BENTONITE**

SUBSURFACE PROFILE			SAMPLE							
Depth (ft / m)	Strataplot	Description	Elevation	Number	Type	% Recovery	SPT (n)	SV (ppm or %LEL- if applicable)	Laboratory Testing	Piezometer or Monitoring Well Installation
0 / 0		Ground Surface								
0		***TOP SOIL, TRACE ROOTLETS AND GRAVEL*** DARK BROWN, MOIST, COMPACT		1	SS	50	14	<5 PPM		
2										
3 / 1				2	SS	90	15	<5 PPM		
4										
5		***SANDY SILT, SOME CLAY, TRACE GRAVEL*** BLACK TO DARK BROWN, MOIST TO WET, VERY LOOSE		3	SS	50	4	175 PPM	VOCs, PAHs, GRAIN SIZE, pH	
6 / 2										
7										
8		***SANDY SILT, SOME CLAY*** LIGHT GREY, WET, LOOSE		4	SS	100	5	9% LEL	BTEX, PHCs	
9										
10 / 3										
11		***SANDY SITL, TRACE CLAY*** LIGHT BROWN, WET, VERY LOOSE		5	SS	100	3	<5 PPM	BTEX, PHCs	
12										
13 / 4				6	SS	<5	4	<5 PPM		
14										
15		End of Borehole								
16 / 5										
17										
18										
19 / 6										
20										

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Appendix B

Physical Laboratory Testing Results

Grain Size Distribution Chart

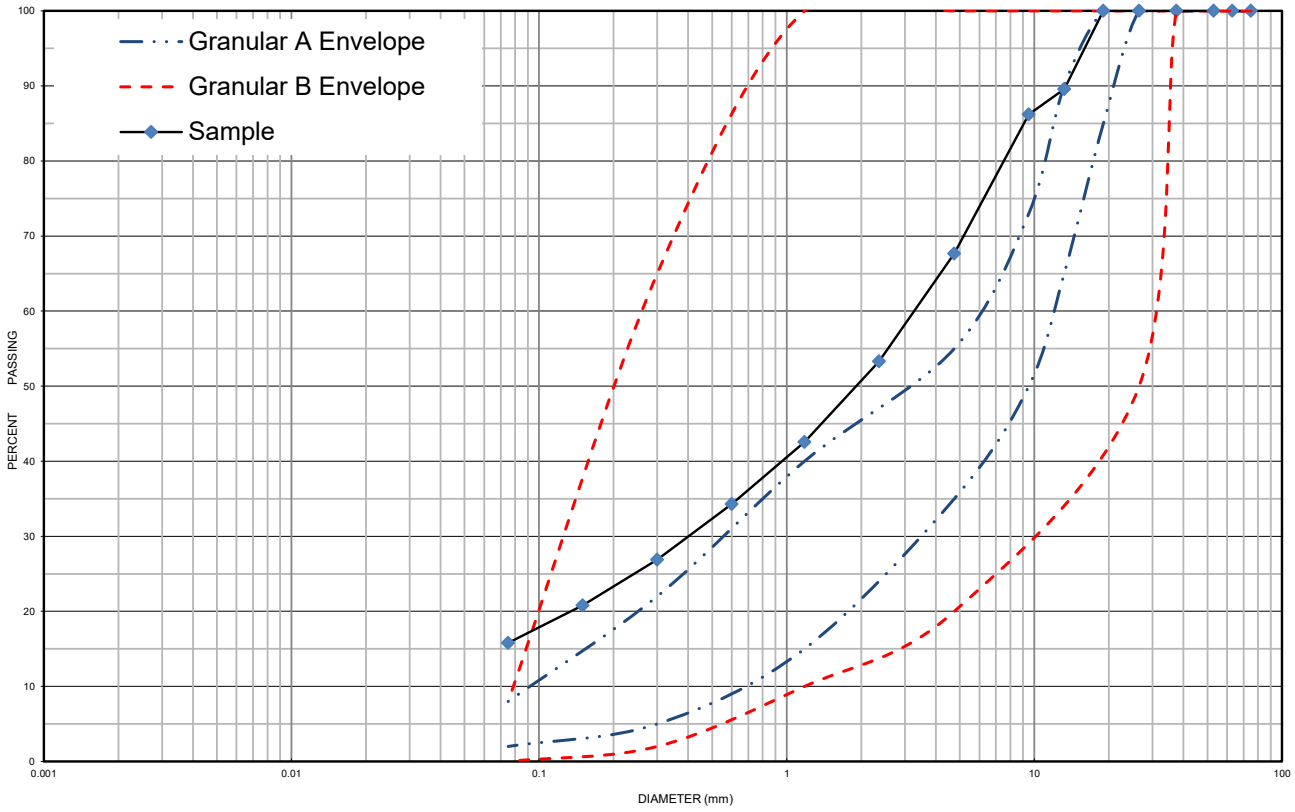
Project Number: *22852-001* **Client:** *Kirby Structures Ltd.*

Project Name: *1695 Bayly Street*

Sample Date: *July 21 & 22, 2025* **Sampled By:** *Abbie Edgell - Cambium Inc.*

Location: *BH 106-25 SS 1A* **Depth:** *0 m to 0.2 m* **Lab Sample No:** *S-25-1160*

UNIFIED SOIL CLASSIFICATION SYSTEM					
CLAY & SILT (<0.075 mm)	SAND (<4.75 mm to 0.075 mm)			GRAVEL (>4.75 mm)	
	FINE	MEDIUM	COARSE	FINE	COARSE



MIT SOIL CLASSIFICATION SYSTEM								
CLAY	SILT	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	BOULDERS
		SAND			GRAVEL			

Borehole No.	Sample No.	Depth	Gravel	Sand	Silt	Clay	Moisture
BH 106-25	SS 1A	0 m to 0.2 m	32	52	16		2.5

Description	Classification	D_{60}	D_{30}	D_{10}	C_u	C_c
Gravelly Silty Sand	SM	3.300	0.400	-	-	-

Additional information available upon request

Issued By: _____ *Date Issued:* *August 6, 2025*

(Senior Project Manager)

Cambium Inc. (Laboratory)
866.217.7900 | cambium-inc.com
194 Sophia St. | Peterborough | ON | K9H 1E5

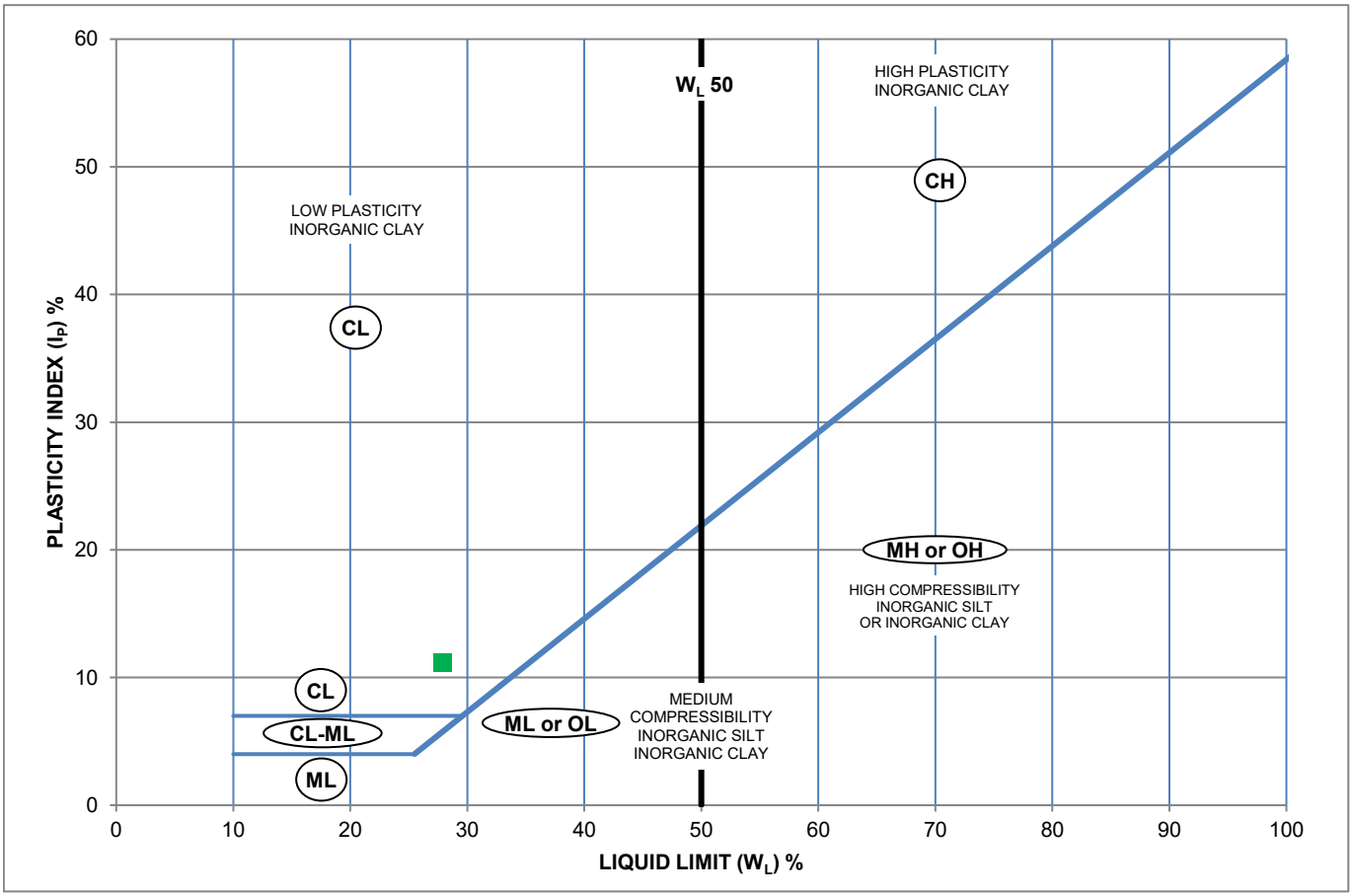
Plasticity Chart

Project Number: *22852-001* **Client:** *Kirby Structures Ltd.*

Project Name: *1695 Bayly Street*

Sampled By: *Abbie Edgell - Cambium Inc.* **Sample Date:** *July 21 & 22, 2025*

Hole No.: *BH 103-25 SS 3* **Depth:** *1.5 m to 2.1 m* **Lab Sample No:** *S-25-1161*



Symbol	Borehole	Sample	Depth	Description
■	BH 103-25	SS 3	1.5 m to 2.1 m	Low Plasticity Clay

Liquid Limit (%)	Plastic Limit	Plasticity Index (%)
27.9	***16.8***	***11.2***

Additional information available upon request

Issued By: _____ *Date Issued:* *August 7, 2025*

(Senior Project Manager)

Cambium Inc. (Laboratory)
866.217.7900 | cambium-inc.com
194 Sophia St. | Peterborough | ON | K9H 1E5

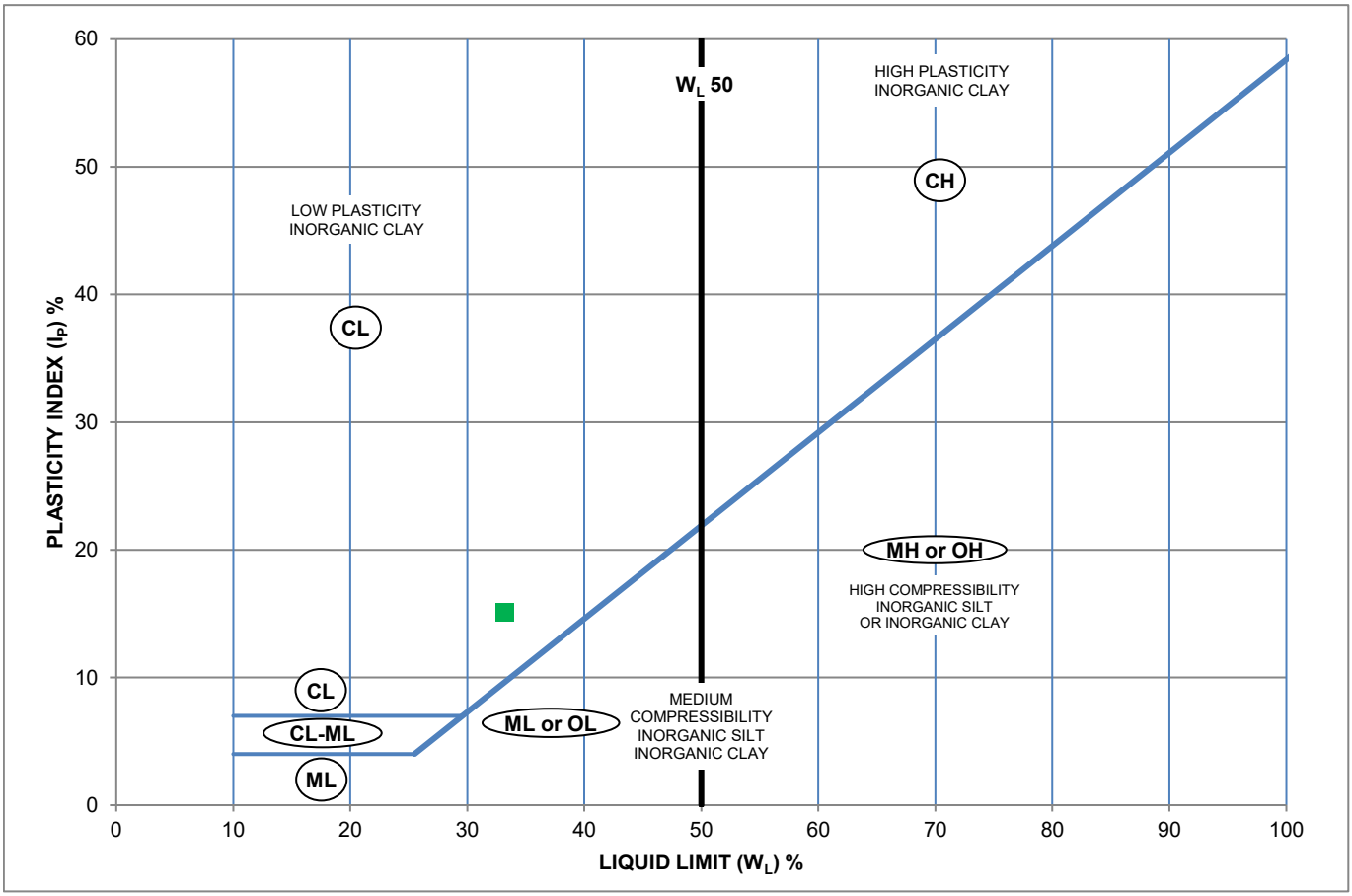
Plasticity Chart

Project Number: *22852-001* **Client:** *Kirby Structures Ltd.*

Project Name: *1695 Bayly Street*

Sampled By: *Abbie Edgell - Cambium Inc.* **Sample Date:** *July 21 & 22, 2025*

Hole No.: *BH 102-25 SS 4* **Depth:** *2.3 m to 2.9 m* **Lab Sample No:** *S-25-1162*



Symbol	Borehole	Sample	Depth	Description
■	BH 102-25	SS 4	2.3 m to 2.9 m	Low Plasticity Clay

Liquid Limit (%)	Plastic Limit	Plasticity Index (%)
33.2	***18.1***	***15.1***

Additional information available upon request

Issued By: _____ *Date Issued:* *August 7, 2025*

(Senior Project Manager)

Cambium Inc. (Laboratory)
866.217.7900 | cambium-inc.com
194 Sophia St. | Peterborough | ON | K9H 1E5

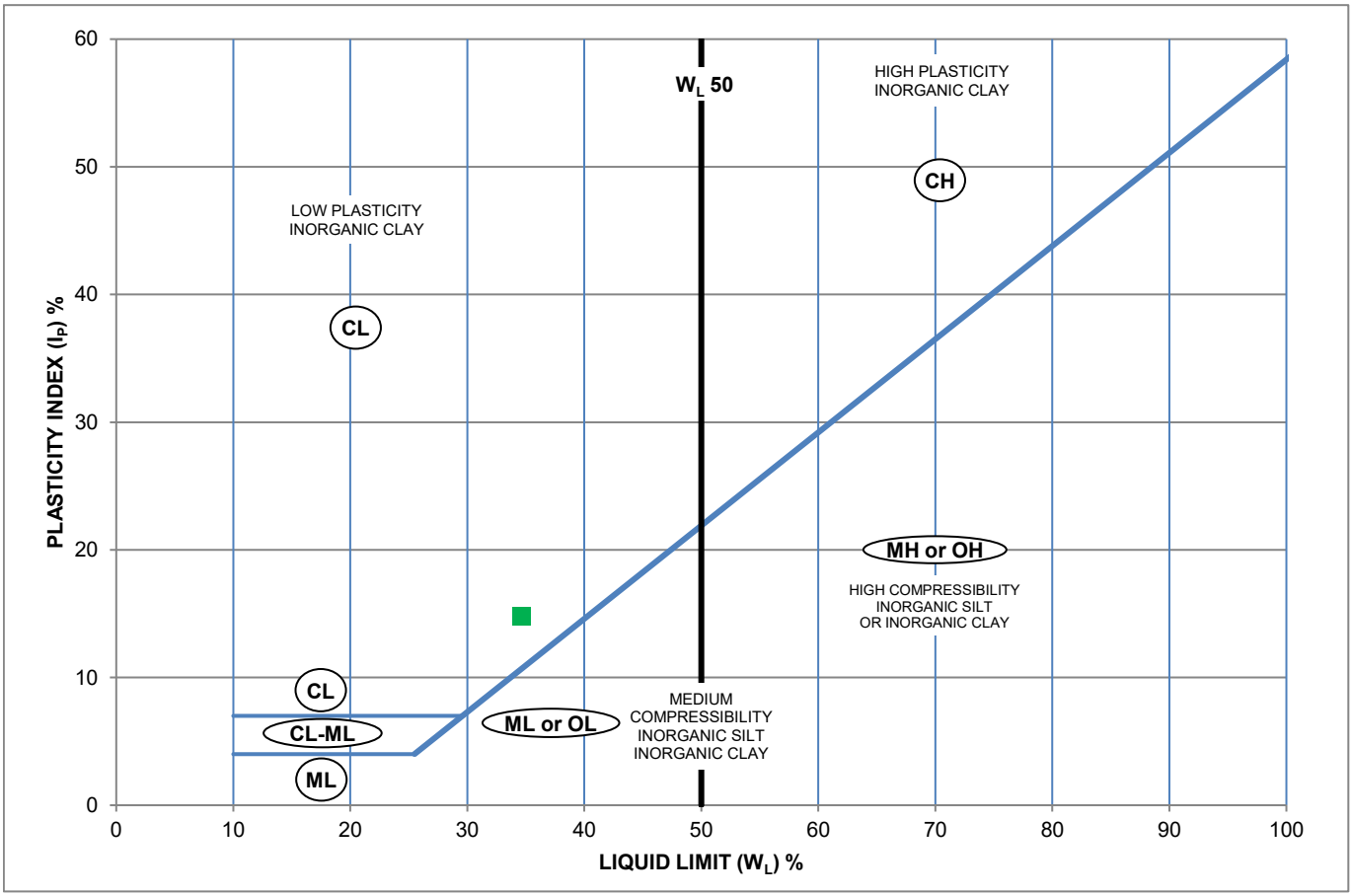
Plasticity Chart

Project Number: *22852-001* **Client:** *Kirby Structures Ltd.*

Project Name: *1695 Bayly Street*

Sampled By: *Abbie Edgell - Cambium Inc.* **Sample Date:** *July 21 & 22, 2025*

Hole No.: *BH 109-25 SS 5* **Depth:** *3 m to 3.7 m* **Lab Sample No:** *S-25-1163*



Symbol	Borehole	Sample	Depth	Description
■	BH 109-25	SS 5	3 m to 3.7 m	Low Plasticity Clay

Liquid Limit (%)	Plastic Limit	Plasticity Index (%)
34.7	***19.9***	***14.8***

Additional information available upon request

Issued By: _____ *Date Issued:* *August 7, 2025*

(Senior Project Manager)

Cambium Inc. (Laboratory)
866.217.7900 | cambium-inc.com
194 Sophia St. | Peterborough | ON | K9H 1E5

Moisture Content

Project Number: 22852-001
Project Name: 1695 Bayly Street
Client: Kirby Structures Ltd.
Date Taken: 2025-07-21

Lab Number: S-25-1159
Date Tested: 2025-07-25
Tested By: A.Heffernan

Borehole Number	Sample Number	Sample Depth (m)	Water Weight (g)	Water Content (%)	Additional Observations
101	1A	0.15-0.30	19.5	8.3	NR
101	1B	0.30-0.76	34.4	15.4	
101	2	0.76-1.37	21.8	8.8	
101	3	1.52-2.13	5.9	10.7	NR
101	3GS	1.52-2.13	24.7	11.6	
101	4	2.29-2.90	61.9	28.5	
101	5	3.05-3.66	51.4	24.9	
101	6	4.57-5.18	29.8	14.9	
101	7	6.10-6.71	32.5	14.7	
101	8	7.62-7.90	28.7	12.6	
102	1	0.10-0.25	18.6	8.4	NR
102	1GS	0.15-0.30	15.7	6.5	
102	2	0.76-1.37	42.4	18.2	
102	3A	1.52-1.73	26.0	10.8	
102	3B	1.68-2.13	62.4	36.6	
102	4	2.29-2.90	228.6	27.6	NR
102	5	3.05-3.66	47.3	22.0	
102	6	4.57-5.18	38.5	15.5	
102	8A	7.62-7.67	20.6	15.0	NR
102	8B	7.67-7.90	21.6	9.2	
103	1A	0.13-0.38	17.0	7.7	
103	1B	0.38-0.76	38.6	16.3	
103	1GS	0.15-0.30	10.3	3.9	
103	2	0.76-1.37	38.3	17.2	
103	3	1.52-2.13	307.4	60.5	NR
103	4	2.29-2.90	80.6	32.8	NR
103	5	3.05-3.66	64.3	31.6	

1 – Contains organics
2 – Contains rubble
3 – Hydrocarbon Odour
4 – Unknown Chemical Odour
5 – Saturated – free water visible
6 – Very moist – near optimum moisture content
7 – Moist – below optimum moisture
8 – Dry – dry texture – powdery
9 – Very small – caution may not be representative
10 – Hold sample for gradation analysis

Moisture Content

Project Number: 22852-001
Project Name: 1695 Bayly Street
Client: Kirby Structures Ltd.
Date Taken: 2025-07-21

Lab Number: S-25-1159
Date Tested: 2025-07-25
Tested By: A.Heffernan

Borehole Number	Sample Number	Sample Depth (m)	Water Weight (g)	Water Content (%)	Additional Observations
103	6	4.57-5.18	44.0	20.0	
103	7	6.10-6.71	34.9	13.9	
103	8	7.62-8.23	22.9	9.7	
104	1A	0.00-0.38	15.5	6.9	
104	1B	0.38-0.61	22.5	18.2	NR
104	2	0.76-1.37	40.4	15.8	
104	3	1.52-2.13	25.3	15.3	NR
104	4	2.29-2.90	63.2	32.7	
104	5	3.05-3.66	40.4	17.5	
104	6GS	4.57-5.18	50.7	27.4	
104	7	6.10-6.71	41.2	14.0	
104	8	7.62-8.23	29.0	13.8	
104	9	9.14-9.17	1.1	10.6	NR
105	1A	0.00-0.15	9.6	6.6	NR
105	1B	0.06-0.61	23.7	8.8	
105	2	0.76-1.37	38.2	14.1	
105	3	1.52-2.13	31.9	13.4	NR
106	1A	0.05-0.13	3.0	3.6	NR
106	1B	0.13-0.66	33.7	15.7	
106	2	0.76-1.37	50.6	21.3	
106	2	0.76-1.37	34.8	13.7	
106	3	1.52-2.13	35.2	12.0	
107	1A	0.00-0.20	7.0	2.5	NR
107	1B	0.20-0.61	18.7	7.4	
107	3	1.52-2.13	34.2	15.8	
108	1A	0.10-0.28	17.7	7.9	
108	1B	0.28-0.71	33.4	15.5	

1 – Contains organics
2 – Contains rubble
3 – Hydrocarbon Odour
4 – Unknown Chemical Odour
5 – Saturated – free water visible
6 – Very moist – near optimum moisture content
7 – Moist – below optimum moisture
8 – Dry – dry texture – powdery
9 – Very small – caution may not be representative
10 – Hold sample for gradation analysis

Moisture Content

Project Number: 22852-001
Project Name: 1695 Bayly Street
Client: Kirby Structures Ltd.
Date Taken: 2025-07-21

Lab Number: S-25-1159
Date Tested: 2025-07-25
Tested By: A.Heffernan

Borehole Number	Sample Number	Sample Depth (m)	Water Weight (g)	Water Content (%)	Additional Observations
108	1GS	0.15-0.30	15.6	6.4	
108	2	0.76-1.37	38.4	20.6	
108	3	1.52-2.13	29.9	15.4	
108	5	3.05-3.66	61.7	36.5	
108	6	4.57-5.18	65.1	31.0	
109	1A	0.10-0.43	21.9	9.5	
109	1B	0.43-0.71	24.2	12.4	
109	1GS	0.15-0.30	11.2	4.5	
109	2	0.76-1.37	35.6	17.8	
109	3	1.52-2.13	24.5	9.7	
109	4A	2.29-2.51	31.6	26.8	NR
109	4B	2.51-2.90	57.0	28.7	NR
109	5	3.05-3.66	78.9	29.1	NR
109	6	4.72-5.18	52.1	30.5	
110	1	0.10-0.23	4.2	7.2	NR
110	1GS	0.15-0.30	16.3	6.1	
110	2	0.76-1.37	30.7	14.2	
110	3A	1.52-1.68	28.7	13.8	NR
110	3B	1.68-2.13	63.5	35.8	
110	4	2.29-2.90	43.0	28.2	NR
110	5	3.05-3.66	61.1	34.4	
110	6	4.57-5.18	14.7	14.7	NR

1 – Contains organics
2 – Contains rubble
3 – Hydrocarbon Odour
4 – Unknown Chemical Odour
5 – Saturated – free water visible
6 – Very moist – near optimum moisture content
7 – Moist – below optimum moisture
8 – Dry – dry texture – powdery
9 – Very small – caution may not be representative
10 – Hold sample for gradation analysis