

Geotechnical Investigation

Proposed Sorting Facility

1400 Upper Canada Street Ottawa, Ontario

Prepared for Purolator Inc.

Report PG4783-1 Revision 4 dated November 7, 2023



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1.0 Introduction

Paterson Group (Paterson) was commissioned by Purolator Inc. to undertake a geotechnical investigation for the proposed sorting facility to be located at 1400 Upper Canada Street in the City of Ottawa, Ontario (reference should be made 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 test holes.
- □ Provide geotechnical recommendations for the design of the proposed development including construction considerations which may affect its design.

This 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.

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

2.0 Proposed Development

Based on the available drawings, it is understood that the proposed sorting facility will consist of a two-storey warehouse structure of slab-on-grade construction located within the central portion of the site. A one-storey garage is anticipated along the eastern portion of the building footprint. Asphalt-paved access lanes and parking areas with landscaped margins are also proposed surrounding the structure. It is expected the proposed building will be municipally serviced.





3.0 Method of Investigation

3.1 Field Investigation

Field Program

A field investigation program was completed at the subject site by Paterson on April 14 and April 17, 2023. At that time, a total of 21 test pits were advanced to a maximum depth of 5.4 m below the existing ground surface. Previous investigations were completed by Paterson on January 3 to January 4, 2019 and January 13 and 14, 2014 and consisted of a total of 13 boreholes advanced to a maximum depth of 7.7 m below ground surface throughout or within the vicinity of the subject site. Historical geotechnical investigations were also completed by others on October 29, 2018, consisting of a total of 5 boreholes advanced to a maximum depth of 6.9 m below the existing ground surface.

The test hole locations were distributed in a manner to provide general coverage of the proposed development taking into consideration existing site features and underground services. The approximate locations of the test holes are shown on Drawing PG4783-1 - Test Hole Location Plan included in Appendix 2.

The test pits were completed using a hydraulic shovel and backfilled with the excavated soil upon completion. The boreholes were advanced using a trackmounted auger drill operated by a two-person crew. All fieldwork completed by Paterson was conducted under the full-time supervision of our personnel under the direction of a senior engineer. The test pit and drilling procedures consisted of excavating or augering, respectively, to the required depths at the selected locations and sampling the overburden.

Sampling and In Situ Testing

Grab samples were collected from the test pits at selected intervals and soil samples were recovered from the auger flights or collected using a 50 mm diameter split-spoon sampler. All samples were inspected and classified on site and placed in sealed plastic bags. All samples were transported to our laboratory. The depths at which the grab, auger and split-spoon samples were recovered from the test holes are shown as G, AU and SS, 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, using a vane apparatus, was carried out at regular intervals of depth in cohesive soils.

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

Groundwater infiltration levels were observed and recorded at the time of excavation in the test pits and standpipe piezometers were installed in the boreholes from the previous investigations to permit monitoring of the groundwater levels subsequent to completion of the sampling program.

Groundwater level observations are discussed in Section 4.3 and are 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 proposed development taking into consideration the existing site features and underground utilities. The test hole locations and ground surface elevation at each test hole location were surveyed by Paterson. The ground surface elevations were referenced to a geodetic datum. The test hole locations and ground surface elevations at each test hole location are presented on Drawing PG4783-1 - Test Hole Location Plan in Appendix 2.

3.3 Laboratory Review

Soil samples were recovered from the subject site and visually examined in our laboratory to review the results of the field logging. All samples from the current geotechnical investigation will be stored in the laboratory for one (1) month after this report is completed. They will then be discarded unless we are otherwise directed.



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 for 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 subject site consists of a former agricultural field which is bordered by Palladium Drive to the east, Upper Canada Street to the south, a vacant property to the west, and an agricultural property to the north. The site is currently undeveloped with the existing ground surface at approximate geodetic elevation of 104 m. However, several fill piles up to geodetic elevation of 109 m were observed across the subject site.

4.2 Subsurface Profile

Overburden

Generally, the subsurface profile encountered at the test hole locations consisted of a layer of topsoil and/or fill material underlain by a silty clay to clayey silt deposit. The fill was generally observed to consist of brown silty sand and/or silty clay with trace amounts of organics and occasional cobbles. The fill was observed to extend to approximate depths ranging between 0.3 to 5.5 m below the ground surface.

The fill was observed to be underlain by a native, silty clay or clayey silt layer. The very stiff to firm, brown silty clay to clayey silt layer was observed to extend to approximate depths of 1.5 to 4.6 m below the existing ground surface.

Underlying the silty clay deposit, a layer of loose to compact, brown to grey sandy silt with occasional sand and gravel.

Practical refusal to augering was encountered within the borehole locations at approximate depths of 4.6 to 7.7 m below existing ground surface.

Reference should be made to the Soil Profile and Test Data sheets in Appendix 1 for specific details of the soil profiles encountered at each test hole location and Drawing PG4783-2–Native Soil Contour Plan for the approximate native soil contours based on the subsurface profile encountered at the test hole locations.

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

Grain size distribution was completed on six (6) selected soil samples on the previous field investigation. The results of the grain size analysis are summarized in Table 1 and presented on the Grain Size Distribution Results sheets in Appendix 1.

| Table 1 - Summary of Grain Size Distribution Analysis | | | | | | | | | | | |
|---|-----------------|------------|----------|----------|----------|--|--|--|--|--|--|
| Test Hole | Sample Depth | Gravel (%) | Sand (%) | Silt (%) | Clay (%) | | | | | | |
| BH 1 | 1.5 m | 0.4 | 6.7 | 40.8 | 52.1 | | | | | | |
| BH 3 | 3.0 m | 0.4 | 23.8 | 68.8 | 7.0 | | | | | | |
| BH 4 | 1.5 m | 0.5 | 2.5 | 90 | 7.0 | | | | | | |
| BH 5 | 4.6 m | 6.6 | 33.5 | 49.9 | 10.0 | | | | | | |
| BH 6-19 | 0.3 m | 0 | 6.7 | 43.8 | 49.5 | | | | | | |
| BH 7-19 | 0.7 m | 0 | 8.0 | 42.0 | 50.0 | | | | | | |

4.3 Groundwater

Groundwater levels were measured on January 8, 2019, within the installed standpipe piezometers. Depths of sidewall infiltration, as observed during the current test pit investigation were also recorded. The majority of test pits were dry upon completion with the exception of some minor infiltration observed at the fillnative overburden interface which collected at the bottom of the test pit at TP 14-23, TP 15-23 and TP 17-23. The measured groundwater levels and observed test pit sidewall infiltration are presented in Table 2 on the following page.

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

The long-term groundwater level can also be estimated based on the observed colour, moisture content and consistency of the recovered samples. Based on these observations, the long-term groundwater level is expected to range between approximately **2 to 3 m** below original ground surface. It should be noted that groundwater levels are subject to seasonal fluctuations. Therefore, the groundwater level could vary at the time of construction.



| Table 2 – Measured Groundwater Levels | | | | | | | | | | |
|---------------------------------------|--------------------------|-------------------|---|------------------------------|------------------|--|--|--|--|--|
| Test Hole | Mathad | Ground Surface | Measured C Le | Dete | | | | | | |
| Number | Method | Elevation (m) | Depth (m) | Depth (m) Elevation (m) Date | | | | | | |
| BH 1-19 | Piezometer | 104.80 | 1.74 | 103.06 | January 8, 2019 | | | | | |
| BH 2-19 | Piezometer | 107.10 | 1.61 | 105.49 | January 8, 2019 | | | | | |
| BH 3-19 | Piezometer | 105.56 | 1.91 | 103.65 | January 8, 2019 | | | | | |
| BH 4-19 | Piezometer | 104.49 | 1.08 | 103.41 | January 8, 2019 | | | | | |
| BH 5-19 | Piezometer | 104.72 | 0.95 | 103.77 | January 8, 2019 | | | | | |
| BH 6-19 | Piezometer | 104.54 | 1.12 | 103.42 | January 8, 2019 | | | | | |
| BH 7-19 | Piezometer | 103.49 | 0.61 | 102.88 | January 8, 2019 | | | | | |
| BH 8-19 | Piezometer | 103.64 | 1.00 | 102.64 | January 8, 2019 | | | | | |
| BH 9-19 | Piezometer | 103.59 | 1.26 | 102.33 | January 8, 2019 | | | | | |
| TP 14-23 | Sidewall Infiltration | 105.03 | 1.05 | 103.98 | April 14, 2023 | | | | | |
| TP 15-23 | Sidewall Infiltration | 106.57 | 2.50 | 104.07 | April 14, 2023 | | | | | |
| TP 17-23 | Sidewall Infiltration | 106.32 | 2.45 | 103.87 | April 14, 2023 | | | | | |
| | | | le location of the cu eferenced to a geo | | were surveyed by | | | | | |



5.0 Discussion

5.1 Geotechnical Assessment

From a geotechnical perspective, the subject site is considered suitable for the proposed development. It is anticipated that the proposed building may be supported upon conventional spread footings placed over an undisturbed, compact silty clay/clayey silt or a layer of engineered fill wrapped in bi-axial geogrid and woven-geotextile underlain by the aforementioned bearing surfaces or existing fill.

Due to the presence of a silty clay deposit, permissible grade raise restrictions are recommended for this site.

The above and other considerations are discussed in the following paragraphs.

5.2 Site Grading and Preparation

Stripping Depth

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

It is important to note that due to the presence of a 0.3 to 5.5 m thick layer of fill overlying the native soils, sub-excavation of the existing fill will be required within the footprint of the proposed building. Where the fill is free of significant organic matter, such as peat, stumps, logs and/or other organic debris, the fill may be left in place provided proof-rolling of the fill is reviewed and approved by Paterson at the time of construction. This is discussed further in Subsection 5.3 and Subsection 5.4 of this report.

Where fill is encountered at the subgrade level for footings, it is recommended that a minimum 1.0 m deep sub-excavation of the existing fill will be completed. If undisturbed, native in-situ soi is encountered above this depth, the sub-excavation may be terminated upon the native soil surface. The footing sub-excavation should extend a minimum of 500 mm beyond the face of the overlying footing footprints. Reference should be made to Drawing PG4783-2 – Native Soil Contour Plan which depicts the areas where fill is anticipated below a geodetic elevation of 104.0 m.



Where fill is encountered at the subgrade level for the proposed slab-on-grade structure, it is recommended that a minimum 500 mm deep sub-excavation of the existing fill will be required below the slab-on-grade footprint. Further, it is recommended to sub-excavate to a minimum depth of 1 m below the subgrade depth for the Pudro slab where existing fill is encountered at the subgrade level. This sub-excavation may terminate upon the native, in-situ, undisturbed clay surface where it is encountered within the sub-excavation depth.

Fill Placement

From a geotechnical perspective, site-generated fill free of organic debris, inorganic material and/or stones/cobbles larger than 200 mm in their longest dimension is generally considered suitable for re-use as pre-grade material for throughout the subject site. The site-generated fill may be used for raising the ground surface within the building footprint, above the underside of and around footings, as foundation wall backfill, throughout the proposed paved areas and throughout landscaped areas.

It should be noted that only imported and approved crushed stone fill or lean concrete is permitted to be placed directly below footings and is discussed further in Section 5.3 of this report. In summary, sub-excavations below design underside of footing below footing footprints and within existing fill material should be reinstated using crushed stone fill wrapped in bi-axial geogrid and woven geotextile layers. Further details are provided in Section 5.3 of this report.

Prior to using site-generated soil from the existing fill piles and the remainder of the subject site, topsoil and fill which contains significant amounts of organics (peat, stumps, logs and/or other organic debris) or deleterious materials should be removed. Consideration may be given to screening topsoil from the existing fill piles to re-use the existing soil within the fill pile for use across the subject site provided it is in accordance with the above-noted requirements. The preparation and segregation of fill material should be reviewed and approved at the time of preparation and extraction from fill piles by Paterson personnel. Paterson personnel may advise on the suitability of potential re-use material at that time.

Care will also need to be taken during storage, placement and compaction of the excavated fill and native soils to maintain them in an unfrozen state and at a moisture content which is suitable for compaction. Soils intended for re-use which become frozen and/or which have excessive moisture contents will not be considered suitable for reuse at the subject site. Placement of this material during winter months increases the risk of placing frozen material which may result in future poor performing areas that will require future repair.



Based on this, site-generated fill that has been reviewed and approved by Paterson at the time of construction may be placed in maximum 300 mm thick loose lifts and compacted using a suitably sized sheepsfoot roller to a minimum of 98% of the materials SPMDD, in the dry and above-freezing conditions.

Each lift of site-generated fill should be reviewed and approved by Paterson field personnel at the time of construction.

All 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.

Lean Concrete Filled Trenches

As an alternative to placing geogrid and geotextile wrapped engineered fill below footings where fill is encountered at the design founding elevation, consideration may also be given to excavating near-vertical trenches extending to the undisturbed, native, stiff silty clay to clayey silt surface, and backfilling with lean concrete to the founding elevation (minimum **17 MPa** 28-day compressive strength).

Typically, the excavation side walls will be used as the form to support the concrete. The trench excavation should be at least 150 mm wider than all sides of the footing (strip and pad footings) at the base of the excavation. The additional width of the concrete poured against an undisturbed trench sidewall will suffice in providing a direct transfer of the footing load to the underlying stiff silty clay to clayey silt. Once the trench excavation is approved by the geotechnical engineer, lean concrete can be poured up to the proposed founding elevation.

5.3 Foundation Design

Bearing Resistance Values

Native Overburden Bearing Surface

Strip footings, up to 3 m wide, and pad footings, up to 5 m wide, placed on an undisturbed, stiff silty clay to clayey silt bearing surface, or on engineered fill or lean concrete placed directly over the undisturbed, stiff silty clay to clayey silt, 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, whether in situ or not, have been removed, in the dry, prior to the placement of the concrete for the footings. The bearing resistance value at SLS will be subjected to potential post-construction total and differential settlements of 25 and 20 mm, respectively. *Engineered Fill Bearing Surface*

Where fill is encountered at the design founding elevation, it is recommended to sub-excavate a minimum of 1.0 m below the proposed founding depth for the overlying footing structure and be re-instated with engineered fill.

If native subgrade is encountered within the sub-excavation, the depth of the sub-excavation may be limited to the native subgrade surface. The sub-excavation is recommended to extend a minimum of 500 mm horizontally beyond the overlying footing faces. Once the sub-excavation has been completed, it is recommended to proof-roll the in-situ fill subgrade and that the proof-rolling be reviewed and approved by Paterson personnel. If the fill subgrade is deemed unsuitable for the placement of engineered fill, additional sub-excavations may be required and as determined at the time of construction.

Once approved by Paterson personnel, the sub-excavation may be in-filled up to the design founding elevation using engineered fill, such as OPSS Granular A or OPSS Granular B Type II crushed stone placed in maximum 300 mm thick loose lifts and compacted to a minimum of 98% of the materials SPMDD. Where implemented, the engineered fill layer is recommended to be wrapped by a layer of bi-axial geogrid, such as Terrafix TBX2000, and then further by a layer of woven geotextile, such as Terrafix 200W.

It is recommended that each layer overlaps beyond the footing footprint by a minimum of 500 mm beyond the edge of the overlying footing face. All abutting layers of geogrid and geotextile should be fastened/secured and overlapped as per the manufacturer's recommendations. The installation of these layers should be reviewed by Paterson personnel at the time of construction.

Footings placed on a layer of engineered fill prepared as described herein and approved by Paterson personnel 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**, incorporating a geotechnical resistance factor of 0.5.



Lateral Support

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

Adequate lateral support is provided to the in-situ bearing medium soils above the groundwater table when a plane extending down and out from the bottom edges of the footing, at a minimum of 1.5H:1V, passes only through in situ soil or engineered fill of the same or higher capacity as that of the bearing medium.

Permissible Grade Raise

Due to the presence of the silty clay to clayey silt deposit, a permissible grade raise restriction of **2.0 m** is recommended for grading at the subject site.

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

Shear wave velocity testing was completed for the subject site to accurately determine the applicable seismic site classification for the proposed building in accordance with Table 4.1.8.4.A of the Ontario Building Code 2012. The shear wave velocity testing was completed by Paterson personnel. The results of the shear wave velocity test are provided in Figures 2 and 3 in Appendix 2.

Field Program

The seismic array testing location was placed within the southeast portion of the site in an approximate east-west direction as presented in Drawing PG4783-1 – Test Hole Location Plan, attached to the present report. Paterson field personnel placed 24 horizontal 4.5 Hz geophones mounted to the surface by means of two 75 mm ground spikes attached to the geophone land case. The geophones were spaced at 3 m intervals and connected by a geophone spread cable to a Geode 24 Channel seismograph.

The seismograph was also connected to a computer laptop and a hammer trigger switch attached to a 12-pound dead blow hammer. The hammer trigger switch sends a start signal to the seismograph. The hammer is used to strike an I-Beam seated into the ground surface, which creates a polarized shear wave.



The hammer shots are repeated between four (4) to eight (8) times at each shot location to improve signal to noise ratio.

The shot locations are also completed in forward and reverse directions (i.e.striking both sides of the I-Beam seated parallel to the geophone array). The shot locations were 3, 4.5 and 30 m away from the first geophone, 3, 4.5 and 15 m away from the last geophone and at the centre of the seismic array.

Data Processing and Interpretation

Interpretation of the shear wave velocity results was completed by Paterson personnel. Shear wave velocity measurement was made using reflection/refraction methods. The interpretation is repeated at each shot location to provide an average shear wave velocity, Vs₃₀, of the upper 30 m profile immediately below the proposed building foundations. The layer intercept times, velocities from different layers and critical distances are interpreted from the shear wave records to compute the bedrock depth at each location.

The bedrock velocity was interpreted using the main refractor wave velocity, which is considered a conservative estimate of the bedrock shear wave velocity due to the increasing quality of bedrock with depth. It should be noted that as bedrock quality increases, the bedrock shear wave velocity also increases. Based on the test results, the average overburden shear wave velocity is **172 m/s**. Through interpretation, the bedrock shear wave velocity is **2,685 m/s**.

The Vs₃₀ was calculated using the standard equation for average shear wave velocity provided in the OBC 2012, and as presented below.

$$V_{s30} = \frac{Depth_{OfInterest}(m)}{\left(\frac{(Depth_{Layer1}(m)}{Vs_{Layer1}(m/s)} + \frac{Depth_{Layer2}(m)}{Vs_{Layer2}(m/s)}\right)}$$
$$V_{s30} = \frac{30m}{\left(\frac{4m}{172m/s} + \frac{26m}{2,685m/s}\right)}$$
$$V_{s30} = 911m/s$$

Based on the results of the seismic shear wave velocity testing, the average shear wave velocity, Vs_{30} , was calculated to be **911 m/s** for an anticipated underside of footing at approximate geodetic elevation 104.0 m.



Although this average shear wave velocity is sufficient for a Site Class B, as per Note 1 of Table 4.1.8.4.A of the OBC 2012, "site Classes A and B, hard rock and rock are not to be used if there is more than 3 m of softer materials between the rock and the underside of footing or mat foundations." Therefore, for the anticipated underside of footing elevation noted above, a **Site Class C** is applicable for design of the proposed building.

However, if the underside of footing is located at or below geodetic elevation 102.0 m or is supported on lean concrete trenches which extend to geodetic elevation 102.0 m, which is within 3 m of the bedrock surface, a **Site Class B** would be applicable for design of the proposed building. The soils underlying the subject site are not susceptible to liquefaction.

5.5 Slab on Grade Construction

With the removal of all topsoil, deleterious fill/material within the footprint of the proposed warehouse footprint, the existing fill approved by Paterson field personnel at the time of construction will be considered an acceptable subgrade on which to commence backfilling for floor slab construction. It is recommended that where fill is encountered at the subgrade level below the slab-on-grade, that the existing fill be sub-excavated a minimum depth of 500 mm, or the native soil surface if encountered above this depth, below the underside of the slab-on-grade surface and as noted in Section 5.2.

Where fill is encountered at the depth of this sub-excavation, the ground surface should be proof-rolled by a suitably sized vibratory-roller and that proof-rolling be reviewed and approved by Paterson field personnel. Proof-rolling is recommended to be undertaken in the dry and in above-freezing conditions. Any soft areas should be removed and backfilled with appropriate granular material. If the existing fill layer is considered acceptable, it may be left in place for support of the slab-on-grade sub-slab fill layer.

It is recommended that the upper 200 mm of sub-slab fill consist of OPSS Granular A crushed stone compacted to a minimum of 98% of the materials SPMDD. All backfill material within the footprint of the building footprint should be placed in maximum 300 mm thick loose layers and compacted to a minimum of 98% of the SPMDD.



Modulus of Subgrade Reaction

Based on our review, the modulus of subgrade reaction for the design of the slabon-grade founded upon a layer of engineered fill underlain by existing fill and/or very stiff, brown silty clay may be taken as **20 MPa/m**.

5.6 Pavement Design

Car only parking areas, access lanes and heavy truck parking areas, and concrete aprons are anticipated at this site. The proposed pavement structures are shown in Table 3 to Table 6 below.

| Table 3 - Recommended Pavement Structure - Car Only Parking Areas | | | | | | | | |
|--|--|--|--|--|--|--|--|--|
| Thickness (mm) Material Description | | | | | | | | |
| 50 Wear Course – HL-3 or Superpave 12.5 Asphaltic Concrete | | | | | | | | |
| 150 | 150 BASE – OPSS Granular A Crushed Stone | | | | | | | |
| 300 | 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 fill material placed over in situ soil or fill. | | | | | | | | |

| Table 4 - Recommended Pavement Structure - Access Lanes and Heavy-Truck | k |
|---|---|
| Parking Areas | |

| Thickness (mm) | Material Description | | | | | | |
|--|---|--|--|--|--|--|--|
| 40 | Wear Course – Superpave 12.5 Asphaltic Concrete | | | | | | |
| 50 | Binder Course – 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 fill or in-situ soil. | | | | | | | |



| Table 5 - Recommended Rigid Pavement Structure for Concrete Aprons in Loading Areas | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|
| Thickness (mm) Material Description | | | | | | | | | |
| Specified by Others Exposure Class C1 – 35 MPa Concrete (5 to 8% Air Entrainment) | | | | | | | | | |
| 300 BASE – OPSS Granular A Crushed Stone | | | | | | | | | |
| 100 RIGID INSULATION – HI-40 Extruded Polystyrene Insulation | | | | | | | | | |
| SUBGRADE – Either fill, in-situ soil, or OPSS Granular B Type I or II material over fill or in-situ soil. | | | | | | | | | |

| Table 6 - Recommended Rigid Pavement Structure for Truck Traffic and Turning Lane Areas | | | | | | | | | |
|--|---|--|--|--|--|--|--|--|--|
| Thickness (mm) | Material Description | | | | | | | | |
| 200 | Exposure Class C1 – 35 MPa Concrete (5 to 8% Air Entrainment) | | | | | | | | |
| 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 fill or in-situ soil. | | | | | | | | | |

Minimum Performance Graded (PG) 58-34 asphalt cement should be used for this project. It is recommended that exterior apron slabs consist of a Category C1 Exposure Class concrete with a minimum 28-day compressive strength of 35 MPa.

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. The pavement granular base and subbase should be placed in maximum 300 mm thick lifts and compacted to a minimum of 100% of the material's SPMDD using suitable vibratory equipment.

Rigid Pavement Structure – Frost Taper Recommendations

To improve the long-term performance of the concrete apron and lessen the effects of frost penetration and differential movement between the rigid and flexible pavement structures, it is recommended to place a minimum 100 mm thick layer of insulation a extending a minimum of 2.4 m beyond all directions of the footprint of the concrete loading dock where it meets the asphaltic laneway.

This layer should be placed on the subgrade layer throughout the area of the flexible pavement structure (i.e.- asphalt paved lanes).

Further, 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.

Pavement Structure Drainage

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

Due to the impervious nature of the subgrade materials consideration should be given to installing subdrains during the pavement construction as per City of Ottawa standards. The subdrain inverts should be approximately 300 mm below subgrade level. The subgrade surface should be crowned to promote water flow to the drainage lines.

5.7 Percolation Rates

Infiltration galleries are anticipated to be located beneath the asphaltic parking areas within the subject site. Paterson has completed a detailed hydrogeological investigation of the lands south of the subject site as part of previous phases of the Kanata West Business Park in order to establish hydraulic conductivity and percolation time of in-situ materials.

Varying strata at the base of the galleries will be encountered during the installation and will affect the rate of stormwater infiltration into the underlying material. The calculations for the infiltration galleries should be reviewed to correspond with the appropriate percolation rates given the appropriate strata. The percolation rate was interpreted from the hydraulic conductivity which was estimated based on the range of grain size distribution for the proposed development area. Based on these values, the average percolation rate (T-Time) was estimated to be within the ranges in Table 6.



| Table 6 – Estimated Percolation Rates | | | | | | | | | | |
|---------------------------------------|---|---------------------------------|--|--|--|--|--|--|--|--|
| Material | Hydraulic Conductivity – k | Percolation (T-time) – | | | | | | | | |
| | (m/sec) | (mins/cm) | | | | | | | | |
| Silty Clay ¹ | 3 x 10 ⁻⁶ to 1 x 10 ⁻¹⁰ | 35 to 50+ | | | | | | | | |
| Silty Fine Sand | | | | | | | | | | |
| / Sandy Silt ¹ | | | | | | | | | | |
| - | 1 x 10 ⁻⁷ to 1 x 10 ⁻⁸ | 20 to 50 | | | | | | | | |
| ¹ - Values are | based upon site specific testing carrie | ed out at a nearby phase of the | | | | | | | | |
| development | | | | | | | | | | |

5.8 Infiltration Galleries

Based on preliminary review of the proposed development plans, it is understood that an infiltration gallery will be constructed within the parking area of the development. Based on our review of the site servicing plans, it is important to note that a dewatering of the observed 'perched' pre-development groundwater level will occur.

Based on our review of the existing and proposed servicing, long-term groundwater levels will be located at invert of the lowest service pipe alignment. The lowest service pipes are located along Upper Canada Street, which will provide an outlet for the 'perched' pre-development groundwater level and provide sufficient separation between the infiltration gallery invert and the long-term groundwater level.



6.0 Design and Construction Precautions

6.1 Foundation Drainage and Backfill

Foundation Drainage

Since the building will consist of a slab-on-grade perimeter foundation drainage system is considered optional throughout the landscaped portions of the proposed building footprint. In areas where hard-scaping or pavement structures will abut the building footprint, it is recommended to implement a foundation drainage system. The system should consist of a 150 mm diameter perforated corrugated plastic pipe wrapped in a geosock and surrounded on all sides by 150 mm of 10 mm clear crushed stone. The clear stone should be wrapped in a non-woven geotextile. The pipe should have a positive outlet, such as a gravity connection to the storm sewer.

The pipe should be placed at the footing level around the exterior perimeter of the structure if the backfill between the founding depth and will consist of crushed stone fill or site-generated soil backfill in conjunction with a composite foundation drainage board.

Alternatively, the perimeter drainage pipe may be placed up to 1 m below proposed finished grade and against the building footprint upon approved soil backfill to ensure adequate drainage of the granular fill layer is provided from precipitation events and/or spring meltwater. In this configuration, provided the backfill overlying the pipe consists of crushed stone fill associated with the pavement structure, a composite foundation drainage board will not be required.

Pavement drainage will be required to limit the accumulation of water below the slab. Drainage can be achieved by installing perimeter drainage along the wing wall below the slab or centrally below the slab and connected to the building's perimeter drainage.

The pipe should be located a minimum of 1 m below finished grade at the ramp and should consist of a minimum 150 mm perforated drainage pipe wrapped in geotextile and surrounded with a minimum of 150 mm of clear crushed stone. The pipe is not required to be connected to the remainder of the building's perimeter drainage pipe if it is founded lower than that pipe. However, the loading dock drainage pipe should have a gravity connection towards a nearby storm drainage feature.



Foundation Backfill

Backfill against the exterior sides of the foundation walls may consist of freedraining, non-frost susceptible imported crushed stone or clean sand fill. Alternatively, consideration may be given to placing approved soil fill as described in Section 5.2 of this report as backfill against the foundation walls.

If the building's perimeter drainage pipe is located at footing level, a composite foundation drainage board should be placed against the foundation walls to ensure satisfactory drainage of the backfill layer to the perimeter drainage pipe. If the building's perimeter drainage pipe is raised up to 1 m below finished grade and the overlying fill will consist of granular stone fill, the composite foundation drainage board may be omitted.

All fill placed as foundation backfill should be paled in maximum 300 mm thick loose lifts, compacted using suitable compaction equipment (suitably sized smooth-drum roller for crushed stone fill, sheepsfoot roller for soil fill) and tested for compaction efforts at the time of construction by Paterson personnel.

Concrete and Brick Sidewalks Adjacent to Buildings

To avoid differential settlements within the proposed concrete and brick sidewalks adjacent to the proposed building, it is recommended that the upper 600 mm of backfill placed below the concrete sidewalks adjacent to the building footprints to consist of 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 a minimum of 98% of the material's SPMDD using suitable compaction equipment.

The subgrade material should be shaped to promote positive drainage towards the building's perimeter drainage system. Consideration should be given to placing a layer of rigid insulation below the granular fill layer, however, should be detailed by Paterson once design drawings are being complete by others.

Further, consideration can be given to installing a 150 mm diameter perforated, corrugated plastic pipe surrounded on all sides by 150 mm of 19 mm clear crushed stone at the interface of the soil subgrade and the granular sidewalk base. If a drainage pipe is provided at the top of the soil subgrade layer, the granular backfill thickness below the sidewalk may be reduced to 300 mm.



6.2 Protection of Footings and Slabs Against Frost Action

Perimeter footings of heated structures are required to be insulated against the deleterious effect of frost action. A minimum of 1.5 m thick soil cover (or equivalent) should be provided in this regard. This would be considered applicable to the perimeter of the proposed building, including snow-cleared areas, since the proposed building is anticipated to be heated.

Exterior unheated footings, such as those for isolated exterior piers and loading dock wing-walls, are more prone to deleterious movement associated with frost action than the exterior perimeter foundation walls of the proposed structure and would require additional protection, such as soil cover of 2.1 m or a combination of soil cover and foundation insulation. It is recommended that Paterson review the proposed frost protection detail for the loading dock footings during the design stage of the proposed building.

6.3 Excavation Side Slopes

Unsupported Excavations

The side slopes of excavations in the soil and fill overburden materials should either be 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 expected 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. Excavations below the groundwater level should be cut back at a maximum slope of 1.5H:1V. 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 & 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 firm grey silty clay, the thickness of the bedding material should be increased to a minimum of 300 mm and as advised by Paterson at the time of construction. The material should be placed in maximum 300 mm thick lifts and compacted to a minimum of 99% of its SPMDD. 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 lifts and compacted to a minimum of 99% of its SPMDD.

It should generally be possible to re-use the 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.

Where hard surface areas are considered above the trench backfill, the trench backfill material within the frost zone (about 1.8 m below finished grade) should match the soils exposed at the trench walls to minimize differential frost heaving. The trench backfill should be placed in maximum 300 mm thick loose lifts and compacted to a minimum of 95% of the material's SPMDD.

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 (in the trench direction) and should extend from trench wall to trench wall. Generally, the seals should extend from the frost line and fully penetrate the bedding, subbedding and cover material. The 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 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

Based on our observations, it is anticipated that groundwater infiltration into the excavations should be low to moderate and controllable using open sumps. Pumping from open sump pumps should be sufficient to control the groundwater influx through the sides of shallow excavations. The contractor should be prepared to direct water away from all subgrades, regardless of the source, to prevent disturbance to the founding medium.

Groundwater Control for Building Construction

A temporary Ministry of Environment, Conservation and Parks (MECP) permit to take water (PTTW) may be required if more than 400,000 L/day of ground and/or surface water are to be pumped during the construction phase. At least 4 to 5 months should be allowed for completion of the application 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 Persons as stipulated under O.Reg. 63/16.

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 using 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 into 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 to slightly aggressive corrosive environment.

6.8 Tree Planting Restrictions

The silty clay which was encountered 3 to 3.5 m below design footing level was very stiff to stiff and is considered low to medium sensitivity and is not considered a sensitive marine clay. Tree planting setback limits may therefore be reduced to 4.5 m for small trees (mature tree height up to 7.5 m) and medium size trees (mature tree height 7.5 m to 14 m). It should be noted that shrubs and other small plantings are permitted within the 4.5 m setback area.

It is documented in the literature, and is our experience, that fast-growing trees located near buildings founded on cohesive soils which 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 should not be considered in the landscaping design.



7.0 Recommendations

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

Review preliminary and detailed grading, servicing and structural plan(s) from a geotechnical perspective.

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

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

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

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





8.0 Statement of Limitations

The recommendations made in this report are in accordance with our present understanding of the project. We request that we be permitted to review the grading plan once available and to review our recommendations when the drawings and specifications are complete.

A geotechnical investigation of this nature is a limited sampling of a site. The recommendations are based on information gathered at the specific test locations and can only be extrapolated to an undefined limited area around the test locations. The extent of the limited area depends on the soil, bedrock and groundwater conditions, as well the history of the site reflecting natural, construction, and other activities. Should any conditions at the site be encountered which differ from those at the test locations, we request notification immediately in order to permit reassessment of our recommendations.

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 Purolator Inc. or their agent(s) is not authorized without review by Paterson Group for the applicability of our recommendations to the altered use of the report.

Paterson Group Inc.

Drew Petahtegoose, P.Eng.

Report Distribution:

- D Purolator Inc. (e-mail copy)
- Paterson Group (1 copy)



David J. Gilbert, P.Eng.



APPENDIX 1

SOIL PROFILE AND TEST DATA SHEETS SYMBOLS AND TERMS SOIL PROFILE & TEST DATA SHEETS BY OTHERS GRAIN SIZE DISTRIBUTION ANALYSIS RESULTS ANALYTICAL TESTING RESULTS

SOIL PROFILE AND TEST DATA

Geotechnical Investigation Proposed Sorting Facility - 1400 Upper Canada Street Ottawa, Ontario

FILE NO.

9 Auriga Drive, Ottawa, Ontario K2E 7T9

Geodetic

DATUM

| DEMARKO | | | | | | | | | PG4 | 783 | |
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| REMARKS | | | | | | | | | HOLE | | |
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| SOIL DESCRIPTION | PLOT | | SAN | IPLE | | DEPTH | ELEV. | | | Blows/0.3m Dia. Cone | er tion |
| | | | 8 | RY | B۹ | (m) | (m) | | • | | met |
| | STRATA | ТҮРЕ | NUMBER | » RECOVERY | N VALUE or RQD | | | • • | Vater C | Content % | Piezometer Construction |
| Ground Surface | | | 4 | RI | ZŸ | 0- | 103.67 | 20 | 40 | 60 80 | |
| TOPSOIL0.05 | \times | | | | | 0 | 103.07 | | | | |
| FILL: Brown silty clay, trace organics | | G | 1 | | | | | | | | |
| Very stiff, brown SILTY CLAY, trace0.60 | | ĢG | 2 | | | | | | | 1 | \$ 5 |
| sand | | J | | | | | | | | | |
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SOIL PROFILE AND TEST DATA

Geotechnical Investigation Proposed Sorting Facility - 1400 Upper Canada Street Ottawa, Ontario

FILE NO.

9 Auriga Drive, Ottawa, Ontario K2E 7T9

Geodetic

DATUM

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| BORINGS BY Excavator | | | | D | ATE | April 17, 2 | 2023 | | | P 2-23 | 3 | | _ |
| SOIL DESCRIPTION | РІОТ | | SAMPLE | | | DEPTH ELEV. | | Pen. Resist. Blows/0.3m • 50 mm Dia. Cone | | | r ter | Piezometer Construction | |
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| | STRATA | ТҮРЕ | NUMBER | % RECOVERY | N VALUE or RQD | | | 0 | Wate | r Cont | ent % | iezo | oris |
| Ground Surface | L2 | н | NN | REC | N N | | | 20 | 40 | 60 | 80 | ב כ | اد |
| TOPSOIL 0.05 | | | | | | 0- | 103.85 | | | | | | _ |
| FILL: Brown silty clay to clayey silt, | \bigotimes | | | | | | | | | | | | |
| trace sand and organics 0.45 | \bigotimes | _ G | 1 | | | | | | | | | | |
| | VVX | G | 2 | | | | | | | | | 228 | |
| CLAY, trace sand | | j | | | | | | | | | | | |
| End of Test Pit | | | | | | | | | | | | | |
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SOIL PROFILE AND TEST DATA

Geotechnical Investigation Proposed Sorting Facility - 1400 Upper Canada Street Ottawa, Ontario

> FILE NO. **PG4783**

9 Auriga Drive, Ottawa, Ontario K2E 7T9

| DATUM Geodetic | | | |
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| REMARKS | | | |
| BORINGS BY Excavator | | | |
| SOIL DESCRIPTION | PLOT | | SAN |
| | STRATA P | ТҮРЕ | NUMBER |
| Ground Surface | ũ | • | N. |
| TOPSOIL0.0 | | _ | |
| FILL: Brown silty sand to sandy silt, trace clay, organics, occasional | | G | 1 |
| cobbles | | G | 2 |
| | | | |

| BORINGS BY Excavator | | | | D | HOLE | HOLE NO. TP 3-23 | | | | | | |
|--|--------|--------|--------|----------|------------|----------------------------|--------------|--|----------------------------|------------------------|---------------|----|
| SOIL DESCRIPTION | | SAMPLE | | | | DEPTH (m) | ELEV. (m) | Pen. Resist. Blows/0.3m • 50 mm Dia. Cone | | | eter ction | |
| | STRATA | ТҮРЕ | NUMBER | NVER SUF | • v | /ater C | Content | t % | Piezometer Construction | | | |
| Ground Surface | ß | | Z | RE | N OF | 0 | 104 61 | 20 | 40 | 60 | 80 | |
| FILL: Brown silty sand to sandy silt, trace clay, organics, occasional cobbles | | G | 1 | | | | -104.61 | | | | | - |
| Very stiff to hard, brown SILTY | VVX | _ G | 2 | | | 1- | -103.61 | | | | 2 | 42 |
| Very stiff to hard, brown SILTY CLAY, trace sand End of Test Pit 1.80 | | 1. | | | | | | 20 Shea ▲ Undist | | 60 ngth (k ∠ Ren | 80 1 (Pa) | 00 |

SOIL PROFILE AND TEST DATA

Geotechnical Investigation Proposed Sorting Facility - 1400 Upper Canada Street Ottawa, Ontario

FILE NO.

9 Auriga Drive, Ottawa, Ontario K2E 7T9

Geodetic

DATUM

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| BORINGS BY Excavator DATE April 17, 2023 | | | | | | | | | | LE NO. 9 4-23 | | |
| SOIL DESCRIPTION | | | SAN | MPLE | | | DEPTH ELEV. | | | | | |
| | STRATA PLOT | ЭДХТ | NUMBER | * RECOVERY | N VALUE or RQD | (m) | (m) | | | Content % | Piezometer Construction | |
| Ground Surface | E S | H | ION I | REC | N N N N | | | 20 | 40 | 60 80 | je o | |
| | 0.05 🗙 | | | | | 0- | -105.98 | | | | - | |
| ` | | _ G | 1 | | | | | | | | | |
| | | | | | | 1- | -104.98 | | | | | |
| FILL: Topsoil with some sand, organics, trace clay, occasional | | | | | | | | | | | | |
| cobbles | | G | 2 | | | | | | | | | |
| | | | | | | 2- | -103.98 | | | | | |
| | | G | 3 | | | | | · · · · · · · · · · · · · · · · · · · | | | | |
| Very stiff to hard, brown SILTY | 2.90 3.10 | G | 4 | | | 3- | -102.98 | | | ····· | 245 | |
| End of Test Pit | | | | | | | | 20 | 40 | | 100 | |
| | | | | | | | | She | ar Sti | rength (kPa) | | |

SOIL PROFILE AND TEST DATA

Geotechnical Investigation Proposed Sorting Facility - 1400 Upper Canada Street Ottawa, Ontario

FILE NO.

9 Auriga Drive, Ottawa, Ontario K2E 7T9

| DATUM | Geodetic |
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| REMARKS | | | | | | | | | PG4 | 783 | |
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| BORINGS BY Excavator SOIL DESCRIPTION | | | SAN | IPLE | | April 17, 2 DEPTH | ELEV. | | TP 5-23 Resist. Blows/0.3m 50 mm Dia. Cone | | |
| | STRATA PLOT | ТҮРЕ | NUMBER | °% RECOVERY | VALUE r rod | (m) | (m) | | | ontent % | Piezometer |
| Ground Surface | STI | Ĥ | IN N | REC | N OF | | | 20 | 40 | 60 80 | je (|
| TOPSOIL 0.05 | 5 | . · | | | | 0- | 107.54 | | | | |
| FILL: Topsoil with dark brown silty sand, some organics, trace clay, | | G | 1 | | | | | | | | |
| occasional cobbles | | | | | | 1- | -106.54 | | | | |
| FILL: Dark brown silty sand, some silt and clay, trace organics, occasional cobbles | | G | 2 | | | | | | | | |
| | | | | | 2- | -105.54 | | | | | |
| | | G | 3 | | | | | | | | |
| 2. <u>8(</u> | | | | | | 3- | -104.54 | | | | |
| FILL: Light brown to grey silty clay, some organics, trace gravel, occasional cobbles | | G | 4 | | | | | | | | |
| | | | | | | 4- | -103.54 | | | | |
| Very stiff, light brown SILTY CLAY, 4.5 | | G | 5 | | | | | | | | |
| Trace sandEnd of Test Pit | |] | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | 20 She ▲ Undis | | 60 80 · · · · · · · · · · · · · · · · · · | 100 |

SOIL PROFILE AND TEST DATA

Geotechnical Investigation Proposed Sorting Facility - 1400 Upper Canada Street Ottawa, Ontario

Undisturbed

△ Remoulded

9 Auriga Drive, Ottawa, Ontario K2E 7T9

| DATUM Geodetic | | | | | | | | | FILE NO. PG4783 | | | |
|---|------|--------|------|-------------|---------------|------------------------|----------|------------|--|----------------|----------------------------|--|
| REMARKS | | | | | | | | | HOLE NO. | | | |
| BORINGS BY Excavator | | | | D | ATE | April 17, 2 | 2023 | | TP 6-23 | | | |
| SOIL DESCRIPTION | РІОТ | | SAN | IPLE | | DEPTH ELEV. (m) (m) | | | Pen. Resist. Blows/0.3m • 50 mm Dia. Cone | | | |
| | | STRATA | ТҮРЕ | NUMBER | % RECOVERY | VALUE r RQD | (11) | (11) | 0 W | ater Content % | Piezometer Construction | |
| Ground Surface | Ω. | • | Ĭ. | RE | N OL | | | 20 | 40 60 80 | | | |
| TOPSOIL0.05 | | J . | | | | - 0- | 107.64 | | | | | |
| FILL: Topsoil with silty sand, some organics, occasional cobbles | | G | 1 | | | 1- | -106.64 | | | | | |
| 1.30 | | | | | | | -106.64 | | | | | |
| | | G | 2 | | | 2- | - 105.64 | | | | | |
| FILL: Dark brown silty sand to sandy silt, trace clay and organics | | G | 3 | | | 3- | -104.64 | | | | | |
| | | G | 4 | | | | | | | | | |
| 4.30 | | | | | | 4- | -103.64 | | | | | |
| Stiff to very stiff, brown to grey SILTY CLAY to CLAYEY SILT, trace sand 4.50 End of Test Pit | | G J | 5 | | | | | | | | | |
| | | | | | | | | 20 Shea | 40 60 80 Ir Strength (kPa) | 100 | | |

SOIL PROFILE AND TEST DATA

Geotechnical Investigation Proposed Sorting Facility - 1400 Upper Canada Street Ottawa, Ontario

FILE NO.

9 Auriga Drive, Ottawa, Ontario K2E 7T9

| DATUM | Geodetic |
|-------|----------|

| REMARKS | | | | | | | | | PG478 | 3 | |
|--|--------|------|--------|---------------|-------------------|--------------|--------------|--|----------------------------------|-------|----------------------------|
| | | | | | | • | | | HOLE NO. | | |
| BORINGS BY Excavator | | | | 0 | DATE | April 17, 2 | 2023 | | TP 7-23 | 5 | |
| SOIL DESCRIPTION | PLOT | | SAN | IPLE | 1 | DEPTH (m) | ELEV. (m) | Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone | | | |
| | STRATA | ТҮРЕ | NUMBER | % RECOVERY | N VALUE or RQD | | | 0 V | Vater Cont | ent % | Piezometer Construction |
| Ground Surface | LS I | H | DN | REC | N OK | | | 20 | 40 60 | 80 | |
| | 5 | , · | | | | - 0- | 106.88 | | | | + |
| | | G | 1 | | | | | | | | |
| FILL: Brown silty sand to sandy silt, trace organics, occasional cobbles | | G | 2 | | | 1- | -105.88 | | | | _ |
| | | G | 3 | | | | | | | | |
| 2.00 | | G | 4 | | | 2- | -104.88 | | | | |
| FILL: Light brown silty sand with topsoil, trace organics, occasional cobbles | | G | 5 | | | | | | | | |
| <u>3.3(</u> Hard, brown SILTY CLAY, trace sand End of Test Pit | | G | 6 | | | 3- | -103.88 | | | 2 | 260 |
| | | | | | | | | | | | |
| | | | | | | | | 20 Shea ▲ Undist | 40 60 ar Strength turbed △ | | 100 |

SOIL PROFILE AND TEST DATA

Geotechnical Investigation Proposed Sorting Facility - 1400 Upper Canada Street Ottawa, Ontario

FILE NO.

9 Auriga Drive, Ottawa, Ontario K2E 7T9

| DATUM | Geodetic |
|-------|----------|
| DATOM | acoucilo |

| REMARKS | | | | | | | | | | F | PG4 | 783 | | |
|--|--------|----------------------------|--------|--|----------------|-------------|--------|-------------------------------------|------|----------|------|------------|------------|---|
| | | DATE April 17, 2023 | | | | | | | | | | | | |
| BORINGS BY Excavator | | 1 | | | DATE | April 17, 2 | 2023 | 1 | | | TP 8 | -23 | | |
| | PLOT | | SAN | MPLE | | DEPTH | ELEV. | | | | | | s/0.3m | 2 |
| SOIL DESCRIPTION | | | ~ | х | Що | (m) | (m) | | • | 50 r | nm L | Dia. Co | one | nete |
| | STRATA | ТҮРЕ | NUMBER | % RECOVERY | VALUE r RQD | | | Water Content % | | | | Piezometer | | |
| Ground Surface | STI | Ĥ | NUN | L S S S S S S S S S S S S S S S S S S S | N VI | | | | 20 | | 40 | 60 | 80 | i de c |
| TOPSOIL 0.0 | 5 | | | | | 0- | 105.43 | | - 20 | | +0 | | 0 U | |
| | | */ * | | | | | | | | | | | | |
| | | × * | | | | | | | | | | | | |
| | | G | 1 | | | | | | | | | | | |
| FILL: Brown silty sand to sandy silt, trace organics, occasional cobbles | | × | | | | | | | | | | | | |
| | | | | | | | 10110 | | | | | | | |
| | | G | 2 | | | 1- | 104.43 | | | | | | | |
| | | × | | | | | | | | | | | | |
| | | G | 3 | | | | | | | | | | | |
| | | ×_ ~ | | | | | | | | | | | | |
| | | × | | | | | | | | | | | | |
| 2.0 Very stiff to hard, brown SILTY CLAY 2.2 | 0 | × | | | | 2- | 103.43 | | | <u> </u> | | | | -254 |
| | 0//// | G | 4 | | | | | | _ | <u> </u> | | | | International de la construction de la construct |
| End of Test Pit | | | | | | | | | | | | | | |
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| | | | | | | | | | 20 |) 4 | 40 | 60 | 80 | 100 |
| | | | | | | | | | | | | ngth (l | | |
| | | | | | | | | | Un | disturb | ed | △ Rer | moulded | |

SOIL PROFILE AND TEST DATA

Geotechnical Investigation Proposed Sorting Facility - 1400 Upper Canada Street Ottawa, Ontario

FILE NO.

9 Auriga Drive, Ottawa, Ontario K2E 7T9

Geodetic

| DEMARKO | | | | | | | | | P | G478 | 3 | | |
|---|------------------------------|-------------|--------|---------------|-------------------|--------------|--------------|----------------------|------------------------|------------------|---------------------------------|-----------------------------|----------------------------|
| REMARKS | | | | _ | | | 2000 | | | | | | |
| BORINGS BY Excavator | | | | D | ATE / | April 17, 2 | 2023 | | | P 9-2 | 3 | | |
| SOIL DESCRIPTION | РІОТ | | SAN | | | DEPTH (m) | ELEV. (m) | Pen. I | | st. Blo m Dia | | | eter ction |
| | STRATA | ТҮРЕ | NUMBER | % RECOVERY | N VALUE or RQD | (, | (, | 0 | Wate | er Con | tent % | 6 | Piezometer Construction |
| Ground Surface | ŝ | - | ŭ. | REC | zö | | | 20 | 40 |) 6 | 0 8 | 30 | шО |
| TOPSOIL0.05 | $\times\!\!\times\!\!\times$ | J. | | | | - 0- | -103.98 | | | | | | |
| FILL: Brown silty clay to clayey silt, 0.30 trace organics and sand 0.40 Very stiff to hard, brown SILTY CLAY | | G G G | 1 2 | | | | | | | | | 23 | 81 |
| End of Test Pit | | L | | | | | | | | | | | |
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SOIL PROFILE AND TEST DATA

9 Auriga Drive, Ottawa, Ontario K2E 7T9

Geotechnical Investigation Proposed Sorting Facility - 1400 Upper Canada Street Ottawa, Ontario

| DATUM Geodetic | | | | | | | | | FILE NO | | |
|---|--------------|------|--------|------------------|-------------------|-------------|--------|------------------------|-------------------------|-------------------------------------|----------------------------|
| REMARKS | | | | | A TE | April 14 | 2000 | | HOLE N | Ю. | |
| BORINGS BY Excavator SOIL DESCRIPTION | PLOT | | SAN | IPLE | | April 14, 2 | ELEV. | | Pen. Resist. Blows/0.3m | | |
| | STRATA P | TYPE | NUMBER | ° © © © | N VALUE or RQD | (m) | (m) | | | ontent % | Piezometer Construction |
| Ground Surface | S | | NC | REC | z ⁰ | | | 20 | 40 | 60 80 | |
| TOPSOIL0.05 | \times | | | | | 0- | 105.22 | | | | |
| FILL: Brown silty sand with topsoil and gravel, trace organics, asphalt and clay | | G | 1 | | | | | | | | |
| | \bigotimes | G | 2 | | | 1- | 104.22 | | | | 4 |
| Very stiff to hard, brown SILTY CLAY, trace sand1.40 | | G | 3 | | | | | | | 2 | 9 |
| End of Test Pit | | | | | | | | 20 Shea ▲ Undist | r Streng | 60 80 1 gth (kPa) △ Remoulded | 00 |

SOIL PROFILE AND TEST DATA

Geotechnical Investigation Proposed Sorting Facility - 1400 Upper Canada Street Ottawa, Ontario

FILE NO.

9 Auriga Drive, Ottawa, Ontario K2E 7T9

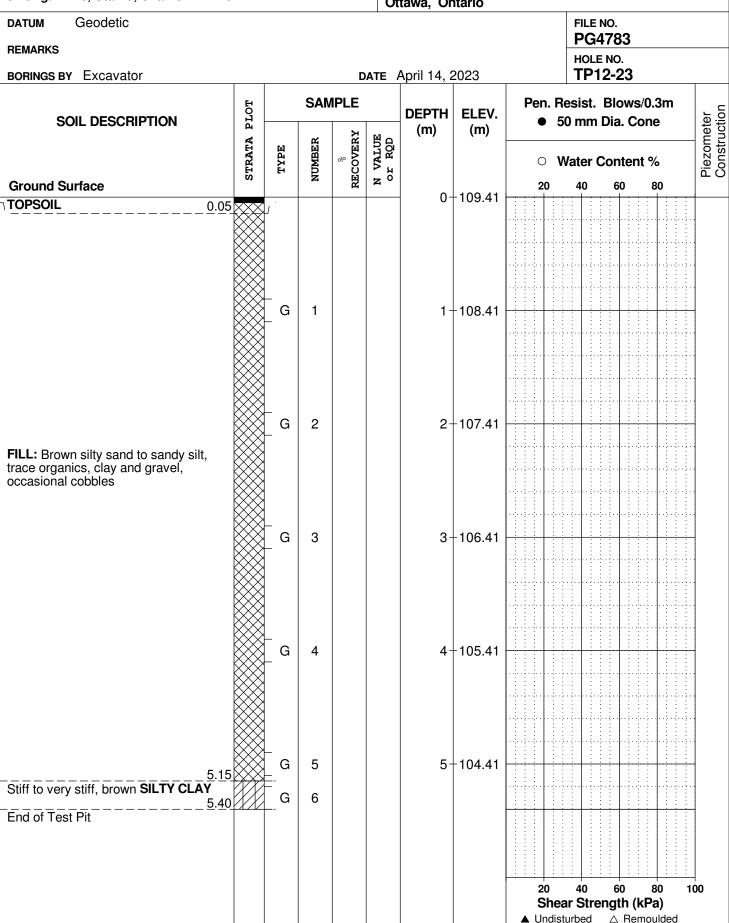
Geodetic

| REMARKS | | | | | | | | | PG478 | 33 | | | | |
|--|----------|------|--------|-----------------------|-------------------|-------------|---------|----------------|--|-----------------------|----------------------------|--|--|--|
| | | | | | | A | 2002 | | | | | | | |
| BORINGS BY Excavator | | | | | DATE | April 14, 2 | 2023 | | TP11-23 | | | | | |
| SOIL DESCRIPTION | РГОТ | | SAN | IPLE | 1 | DEPTH | ELEV. | | Pen. Resist. Blows/0.3m • 50 mm Dia. Cone | | | | | |
| | | ы | ER | ERY | ЩQ | (m) | (m) | | | | Piezometer Construction | | | |
| | STRATA | ТҮРЕ | NUMBER | ° ≈ © © © | N VALUE or RQD | | | 0 | Water Cor | ntent % | Dons Cons | | | |
| Ground Surface | N | | z | RE | z ^o | 0. | -104.18 | 20 | 40 6 | 50 80 | | | | |
| TOPSOIL0.05 FILL: Topsoil, some silty sand and | \times | | | | | 0- | 104.10 | | | | | | | |
| organics 0.40 | | G | 1 | | | | | | | | | | | |
| Very stiff, brown SILTY CLAY, trace 3 sand | | G | 2 | | | | | | | 1 | 8 | | | |
| End of Test Pit | | | | | | | | | | | | | | |
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| | | | | | | | | 20 | 40 (| 50 80 1(| 00 | | | |
| | | | | | | | | She ▲ Undis | ar Streng | th (kPa) Remoulded | | | | |

SOIL PROFILE AND TEST DATA

Geotechnical Investigation Proposed Sorting Facility - 1400 Upper Canada Street Ottawa, Ontario

9 Auriga Drive, Ottawa, Ontario K2E 7T9



SOIL PROFILE AND TEST DATA

Piezometer Construction

260

100

Shear Strength (kPa)

△ Remoulded

▲ Undisturbed

Geotechnical Investigation Proposed Sorting Facility - 1400 Upper Canada Street Ottawa, Ontario

| 9 Auriga Drive, Ottawa, Ontario K2E 7T9 | | | | | | ttawa, Or | | aciiity - I | 400 00 | | |
|--|------------|-------------|--------|---------------|----------------|--------------|--------------|-------------|---------|----------------------|------|
| DATUM Geodetic | | | | | | | | | FILE | NO. 1783 | |
| REMARKS | | | | | | Amuil 14 (| 2000 | | HOLE | E NO. 3-23 | |
| BORINGS BY Excavator | E 1 | | CVI | /IPLE | | April 14, 2 | 2023 | Pop I | Resist. | | |
| SOIL DESCRIPTION | РГОТ | | JAN | | _ | DEPTH (m) | ELEV. (m) | | 50 mm | | |
| | STRATA | ТҮРЕ | NUMBER | % RECOVERY | VALUE r RQD | | | 0 | Water C | Conte | nt % |
| Ground Surface | | _ | Ż | RE | N OF | 0- | -105.94 | 20 | 40 | 60 | 80 |
| FILL: Brown silty sand to sandy silt, some organics, trace clay and gravel | | G G | 1 | | | | -104.94 | | | | |
| FILL: Brown silty sand with gravel, crushed stone, trace clay 1.70 Hard, brown SILTY CLAY, trace sand End of Test Pit | | G G G | 3 4 | | | 2- | -103.94 | | | | |
| | | | | | | | | 20 | 40 | 60 | 80 |

SOIL PROFILE AND TEST DATA

FILE NO.

Geotechnical Investigation Proposed Sorting Facility - 1400 Upper Canada Street Ottawa, Ontario

9 Auriga Drive, Ottawa, Ontario K2E 7T9

Geodetic DATUM

| REMARKS | | | | | | | | | PG47 | 83 | |
|---|----------|---------------------|-------------|---------------|-------------------|-------|---------|----------------------|-----------------------|--|----------------------------|
| | | | | | | | | | HOLE N | | |
| BORINGS BY Excavator | | DATE April 14, 2023 | | | | | | 1 | TP14- | -23 | |
| SOIL DESCRIPTION | РІОТ | | SAN | IPLE | | DEPTH | ELEV. | | lesist. B 50 mm Di | lows/0.3m a. Cone | ter Stion |
| | STRATA | ТҮРЕ | NUMBER | % RECOVERY | N VALUE or RQD | (m) | (m) | 0 | Vater Co | ntent % | Piezometer Construction |
| Ground Surface | LN LN | H | NN | REC | N N | | | 20 | 40 | 60 80 | ĒÖ |
| TOPSOIL 0.05 | | • | | | | 0- | 105.03 | | | | |
| FILL: Topsoil, some gravel and organics | | G | 1 | | | | | | | | |
| 0.90 FILL: Light brown silty clay to clayey silt with gravel, crushed stone, trace topsoil and asphalt Hard, brown SILTY CLAY, trace sand | | G | 2 3 4 | | | 1- | -104.03 | | | 22 | 50 |
| <u>1.50</u> End of Test Pit | XX | | | | | | | | | | |
| Sidewall infiltration encountered at base of test pit below fill layer. | | | | | | | | 20 She ▲ Undis | ar Streng | 60 80 10 j th (kPa) ∆ Remoulded | 00 |

SOIL PROFILE AND TEST DATA

Geotechnical Investigation Proposed Sorting Facility - 1400 Upper Canada Street Ottawa, Ontario

FILE NO.

9 Auriga Drive, Ottawa, Ontario K2E 7T9

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| DATUM | Geodetic |
|-------|----------|

| DEMADIZO | | | | | | | | | PG4 | 783 | |
|---|--------|------|--------|---------------|-------------------|-------------|--------|------------|----------------|---|------------|
| REMARKS | | | | | | Ameril 14 (| 2000 | | HOLE | | |
| BORINGS BY Excavator | | | | | AIE | April 14, 2 | 2023 | | | | |
| SOIL DESCRIPTION | PLOT | | SAN | IPLE | 1 | DEPTH | | | | Blows/0.3m Dia. Cone | Piezometer |
| | | 덦 | ER | ERY | E G | (m) | (m) | | | | ome |
| | STRATA | ТҮРЕ | NUMBER | ∾ RECOVERY | N VALUE or RQD | | | 0 V | Vater C | ontent % | Piez |
| Ground Surface | | | 4 | R | z | 0- | 106.57 | 20 | 40 | 60 80 | |
| TOPSOIL0.05 | | J | | | | _ | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | • | |
| FILL: Brown silty sand to sandy silt | | G | 1 | | | 1- | 105.57 | | | | - |
| FILL: Brown silty sand to sandy silt with topsoil, clay, some gravel, occasional cobbles | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | G | 2 | | | 2- | 104.57 | | | | |
| | | | | | | | | | | | |
| <u>2.50</u> | | G | 3 | | | | | | | | 59 ⊻ |
| Very stiff, brown SILTY CLAY , trace sand and gravel 2.70 | | G | 4 | | | | | | | | 3 9 |
| End of Test Pit | | | | | | | | | | | |
| Sidewall infiltration encountered at | | | | | | | | | | | |
| base of test pit below fill layer. | | | | | | | | | | | |
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| | | | | | | | | 20 Shea | 40 ar Strer | ngth (kPa) | 00 |
| | | | | 1 | 1 | | | ▲ Undist | urbed | △ Remoulded | |

SOIL PROFILE AND TEST DATA

Geotechnical Investigation Proposed Sorting Facility - 1400 Upper Canada Street Ottawa, Ontario

FILE NO.

9 Auriga Drive, Ottawa, Ontario K2E 7T9

Geodetic

| DEMARKO | | | | | | | | | | | PG4 | 1783 | 8 | | |
|--|--------|------|--------|---------------|-------------------|-------------|---------|---|----------|-------------------------|------------|-------------------|-------------------------------------|----|------------|
| REMARKS | DA | | | | | | | | | | | NO. | | | |
| BORINGS BY Excavator | 1 | | | D | ATE | April 14, 2 | 2023 | | | | IP1 | 6-23 | 3 | | 1 |
| | PLOT | | SAN | IPLE | | DEPTH | ELEV. | F | | . Res | | | | | 20 |
| SOIL DESCRIPTION | | | ĸ | RY | Ľ۵ | (m) | (m) | | • | 50 I | mm | Dia. | Con | e | mete |
| | STRATA | ТҮРЕ | NUMBER | ∾ RECOVERY | N VALUE of ROD | | | | 0 | Wa | ter C | Conte | ent % | 6 | Piezometer |
| Ground Surface | 07 | | 4 | RI | zö | 0- | -104.88 | | 20 |) | 40 | 60 | 8 | 30 | |
| Very stiff, brown SILTY CLAY to 0.40 CLAYEY SILT, some gravel, trace 0.40 | | G | 1 | | | | -104.00 | | | | | | | 1 | 71 |
| End of Test Pit | | | | | | | | | | | | | | | |
| | | | | | | | | | 20 Sł | h ear disturt | 40 Stre | 60 ngth △ F | ہ (kP a) Remot | a) | ⊣ 00 |

SOIL PROFILE AND TEST DATA

Geotechnical Investigation Proposed Sorting Facility - 1400 Upper Canada Street Ottawa, Ontario

FILE NO.

9 Auriga Drive, Ottawa, Ontario K2E 7T9

Geodetic

| | | | | | | | | | PG47 | 783 | |
|--|------------------|------|--------|---------------|-------------------|--------------|--------------|----------------------|-------------|--|----------------------------|
| REMARKS | DATE Apri | | | | | | | | HOLE | | |
| BORINGS BY Excavator | | | | | | | 2023 | 1 | TP17 | -23 | 1 |
| SOIL DESCRIPTION | РГОТ | | SAN | IPLE | 1 | DEPTH (m) | ELEV. (m) | | | Blows/0.3m Dia. Cone | ter ction |
| | STRATA | ТҮРЕ | NUMBER | ∾ RECOVERY | N VALUE or RQD | | (11) | 0 V | Vater Co | ontent % | Piezometer Construction |
| Ground Surface | LS | н | NN | REC | N N | | | 20 | 40 | 60 80 | |
| TOPSOIL 0.05 | XXX | · · | | | | 0- | 106.32 | | | | |
| FILL: Brown silty clay, some organics, trace gravel and brick | | G | 1 | | | 1- | -105.32 | | | | |
| | | G | 2 | | | 2- | -104.32 | | | | |
| 2.40 Very stiff, brown SILTY CLAY , trace sand <u>2.70</u> End of Test Pit Sidewall infiltration encountered at base of test pit below fill layer. | | G | 3 | | | | | | | 11 | 59 |
| | | | | | | | | 20 She ▲ Undis | | 60 80 1 Ig th (kPa) △ Remoulded | 00 |

SOIL PROFILE AND TEST DATA

9 Auriga Drive, Ottawa, Ontario K2E 7T9

Geotechnical Investigation Proposed Sorting Facility - 1400 Upper Canada Street Ottawa, Ontario

| DATUM Geodetic | | | | | | · | | | FILE NO. PG4783 | |
|--|--------|------|--------|---------------|-------------------|--------------|--------------|-------------------------|-------------------------------------|----------------------------|
| REMARKS | | | | | | | | | HOLE NO. | |
| BORINGS BY Excavator | | | | D | ATE | April 14, 2 | 2023 | | TP18-23 | |
| SOIL DESCRIPTION | PLOT | | | IPLE 거 | M - | DEPTH (m) | ELEV. (m) | | esist. Blows/0.3m) mm Dia. Cone | neter uction |
| | STRATA | ТҮРЕ | NUMBER | % RECOVERY | N VALUE or RQD | | | | ater Content % | Piezometer Construction |
| Ground Surface TOPSOIL 0.05 | | | | 8 | 2 | 0- | 104.97 | 20 | 40 60 80 | |
| FILL: Topsoil with silty clay, trace organics and gravel | | G | 1 | | | | | | | - |
| Very stiff to hard brown SILTY | VVX | G | 2 | | | 1- | -103.97 | | | |
| Very stiff to hard, brown SILTY CLAY, trace sand and gravel 1.60 End of Test Pit | | G | 3 | | | | | 20 Shea ▲ Undistu | 40 60 80 10 r Strength (kPa) | |

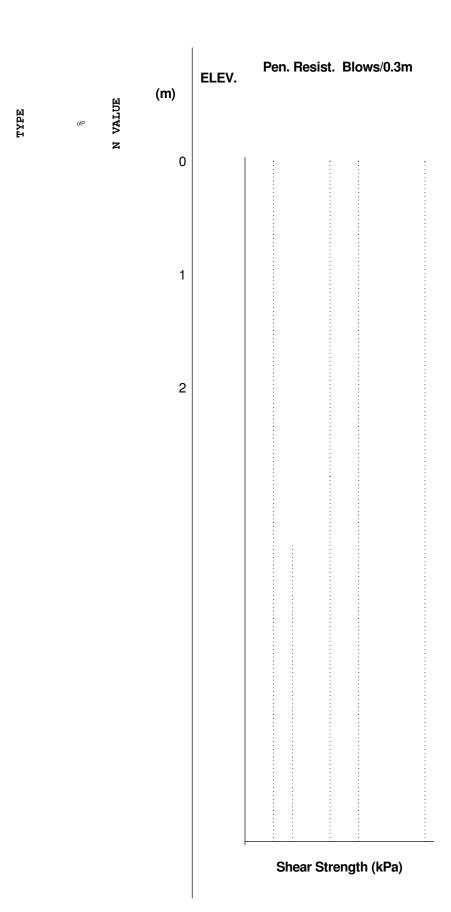
SOIL PROFILE AND TEST DATA

Geotechnical Investigation Proposed Sorting Facility - 1400 Upper Canada Street

| 9 Auriga Drive, Ottawa, Ontario K2E 7T9DATUMGeodetic | | | | | | tawa, Or | 110 | | FILE | | |
|---|--------------|------------|--------|---------------|-------------------|-------------|---------|-----|---------|-------------------------------------|------------|
| REMARKS | | | | | | | | | | 4783 E NO. | |
| BORINGS BY Excavator | | | | D | ATE | April 14, 2 | 2023 | 1 | | 19-23 | |
| SOIL DESCRIPTION | PLOT | | SAN | IPLE | 1 | DEPTH | ELEV. | | | Blows/0.3m Dia. Cone | ter |
| | STRATA | ТҮРЕ | NUMBER | % RECOVERY | N VALUE or RQD | (m) | (m) | 0 | Nater | Content % | Piezometer |
| Ground Surface | | | z | RE | z o | 0- | -104.48 | 20 | 40 | 60 80 | |
| TOPSOIL0.05 | \bigotimes | | | | | 0 | 104.40 | | | | |
| FILL: Topsoil, trace silty clay, organics, crushed stone, sand and cobbles | | G | 1 | | | | | | | | |
| | | | | | | 4 | 100 40 | | | | |
| | | G | 2 | | | 1- | -103.48 | | | | |
| <u>1.40</u> | | a | | | | | | | | | 151 |
| Stiff to very stiff, brown SILTY CLAY , 50 | FXX2 | <u>_</u> G | 3 | | | | | | | | |
| End of Test Pit | | 1 | | | | | | | | | |
| | | | | | | | | | | | |
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| | | | | | | | | | | | |
| | | | | | | | | 20 | 40 | 60 80 | <u> </u> |
| | | | | | | | | She | ar Stro | 60 80 ength (kPa) △ Remoulded | - |

SOIL PROFILE AND TEST DATA

patersongroup



SOIL PROFILE AND TEST DATA

Geotechnical Investigation Proposed Sorting Facility - 1400 Upper Canada Street Ottawa, Ontario

FILE NO.

9 Auriga Drive, Ottawa, Ontario K2E 7T9

Geodetic

| | | | | | | | | | Ρ | G478 | 33 | |
|---|--------------|------------------|------------------|---------------|-------------------|-------------|----------------------------------|----|--------------------------|--------|-----------------------------|----------------------------|
| REMARKS | | | | | | • • • • = • | | | | | | |
| BORINGS BY Excavator | | | | D | ATE | April 17, 2 | 2023 | | | P21- | 23 | 1 |
| SOIL DESCRIPTION | PLOT | | SAN | IPLE | | DEPTH | ELEV. | | | | ows/0.3m a. Cone | ter |
| | | F-1 | R | IRY | Ba | (m) | (m) | | | | | ome. |
| | STRATA | ТҮРЕ | NUMBER | % RECOVERY | N VALUE or RQD | | | 0 | Wate | er Cor | ntent % | Piezometer Construction |
| Ground Surface | 07 | | 4 | RE | zÖ | 0- | 106.88 | 20 | 40 |) 6 | 50 80 | |
| TOPSOIL0.05 | \bigotimes | | | | | 0 | 100.00 | | | | | |
| FILL: Brown silty sand to sandy silt, trace organics, occasional cobbles Very stiff, light brown to grey CLAYEY SILT to SILTY CLAY, trace ^{3.50} sand End of Test Pit | | G G G G | 1 2 3 4 | | | 2- | - 105.88 - 104.88 - 103.88 | | | | | |
| | | | | | | | | | 40 near S disturbe | treng | 50 80 10 kPa) 10 kPa) | |

SOIL PROFILE AND TEST DATA

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

| DATUM Geodetic | | | | | I | | | | FILE NO. PG4783 | |
|---|--------|------|--------|----------------------------|-------------------|--------------|--------------|-------------------------------|-------------------------------------|----------------------------|
| REMARKS | | | | | | | | | | |
| BORINGS BY Excavator | | | | D | ATE 2 | 2020 Dec | ember 1 | 7 | TP 1 | |
| SOIL DESCRIPTION | PLOT | | | /IPLE | | DEPTH (m) | ELEV. (m) | | esist. Blows/0.3m 0 mm Dia. Cone | ter tion |
| | STRATA | ТҮРЕ | NUMBER | ° ≈ © © © © | N VALUE or RQD | | | • v | Vater Content % | Piezometer Construction |
| GROUND SURFACE | Ω. | L. | N | REC | z ö | | 100.00 | 20 | 40 60 80 | Co Co |
| FILL: Brown silty sand, some clay, trace organics, gravel, and cobbles | | G | 1 | | | 0- | -109.08 | | | |
| 1.35 | | G | 2 | | | 1- | -108.08 | | | - |
| FILL: Brown to grey silty clay some organics, trace gravel, cobbles, and sand | | | | | | 2- | -107.08 | | | |
| Sanu | | | | | | | | | | |
| | | | | | | 3- | -106.08 | | | |
| | | | | | | 4- | -105.08 | | | - |
| | | | | | | | | | | |
| 5.55 | | G | 3 | | | 5- | -104.08 | | | - |
| Brown CLAYEY SILT to SILTY CLAY | | G | 4 | | | 6- | -103.08 | | | - |
| (GWL @ 5.55 m depth - Dec 17, 2020) | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | 20 Shea ▲ Undist | ar Strength (kPa) | 00 |

SOIL PROFILE AND TEST DATA

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

| DATUM Geodetic | | | | | | | | | FILE | NO. PG | 4783 | |
|---|--------------|-------|--------|------------------|-------------------|--------------|----------------------|------------------------|---------|-------------------------------|------|----------------------------|
| REMARKS | | | | | | | | | HOLE | | | |
| BORINGS BY Excavator | | | | D | ATE 2 | 2020 Dec | ember 1 | | | | | |
| SOIL DESCRIPTION | А РІОТ | | | MPLE 값 | Ĕ٥ | DEPTH (m) | ELEV. (m) | | | Blows/0. Dia. Cone | | eter ction |
| | STRATA | ТУРЕ | NUMBER | ° ≈ © © | N VALUE or RQD | | | 0 W | /ater (| Content % | 5 | Piezometer Construction |
| GROUND SURFACE | | | 4 | RE | z | 0- | 108.15 | 20 | 40 | 60 8 | 0 | Ξŏ |
| FILL: Brown sandy silt, some clay, trace organics, gravel, and cobbles | | | | | | | | | | | | |
| | \bigotimes | G | 1 | | | 1- | 107.15 | | : : : | | | |
| FILL: Brown silty clay to clayey silt | | G | 2 | | | | | | | | | |
| FILL: Brown silty clay to clayey silt, trace organics, sand, gravel, and | \bigotimes | | | | | 2- | 106.15 | | | | | |
| cobbles4.74 | | G | 3 | | | | - 105.15 - 104.15 | | | | | |
| Brown CLAYEY SILT | | G | 4 | | | 5- | -103.15 | | | | | |
| 5.67 End of Test Pit | YXAZ | | | | | | | | | | | |
| (TP dry upon completion) | | | | | | | | 20 Shea ▲ Undist | | 60 € ength (kPa △ Remou | | 00 |

SOIL PROFILE AND TEST DATA

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

| DATUM Geodetic | | | | | | | | | FILE NO. PG4783 | |
|--|--------|------------|--------|----------------------------|-------------------|--------------|--------------|------------------------|--|----------------------------|
| REMARKS | | | | | | | | | HOLE NO. TP 3 | |
| BORINGS BY Excavator | | | | D | ATE 2 | 2020 Dec | ember 1 | | | |
| SOIL DESCRIPTION | A PLOT | | | /IPLE | E o | DEPTH (m) | ELEV. (m) | | esist. Blows/0.3m 0 mm Dia. Cone | ster ction |
| | STRATA | ТҮРЕ | NUMBER | ° ≈ © © © © | N VALUE or RQD | | | • v | Vater Content % | Piezometer Construction |
| GROUND SURFACE | | | 2 | RE | zo | 0- | -106.87 | 20 | 40 60 80 | Ξŏ |
| FILL: Brown silty sand with some organics, trace gravel and cobbles | | _ G | 1 | | | | 100.07 | | | |
| 1.10 | | | | | | 1- | 105.87 | | | |
| FILL: Brown silty sand, some clay and organics, trace gravel and cobbles | | G | 2 | | | | | | | |
| FILL: Dark brown silty clay, some sand, organics trace gravel and cobbles | | G | 3 | | | 2- | -104.87 | | | |
| 3.38 | | G | 4 | | | 3- | -103.87 | | | |
| Brown CLAYEY SILT | | | | | | 4- | -102.87 | | | |
| | | G | 5 | | | 5- | -101.87 | | | |
| 5.40 | | - - | | | | 5 | 101.07 | | | |
| | | | | | | | | | | |
| (GWL @ 4.32 m depth - Dec 17, 2020) | | | | | | | | | | |
| | | | | | | | | 20 Shea ▲ Undist | 40 60 80 10 ar Strength (kPa) turbed △ Remoulded | JU |

SOIL PROFILE AND TEST DATA

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

| DATUM Geodetic | | | | | | | | | FILE N | ^{IO.} PG4783 | |
|--|--------|---------------|--------|---------------|-------------------|--------------|--------------|------------------------|---------|---|----------------------------|
| REMARKS | | | | | | | | | HOLE | | |
| BORINGS BY Excavator | | | | | ATE 2 | 2020 Dec | ember 1 | | | | |
| SOIL DESCRIPTION | A PLOT | | | IPLE ᄶᇤ | Ŕ۵ | DEPTH (m) | ELEV. (m) | | | Blows/0.3m Dia. Cone | eter ction |
| | STRATA | ΞবλΤ | NUMBER | % RECOVERY | N VALUE or RQD | | | • • | /ater C | ontent % | Piezometer Construction |
| GROUND SURFACE | 07 | | 4 | R | zv | 0- | 107.31 | 20 | 40 | 60 80 | ΞŎ |
| TOPSOIL 0.27 FILL: Brown sandy silt, trace organics, gravel, and cobbles | | ĒG | 1 | | | | | | | | - |
| 1.65 | | =- G | 2 | | | 1- | -106.31 | | | | |
| FILL: Dark brown clayey silt, some organics, trace sand gravel and cobbles | | _ ~ | - | | | 2- | -105.31 | | | | |
| 3.75 | | | | | | 3- | -104.31 | | | | |
| TOPSOIL 3.85 | | <u>_</u> G | 3 | | | 4- | -103.31 | | | | |
| 5.42 | | | | | | 5- | -102.31 | | | | |
| (GWL @ 5.0 m depth - Dec 17, 2020) | | | | | | | | 20 Shea ▲ Undist | | 60 80 1 10 11 10 11 10 11 10 11 10 11 10 11 10 11 10 11 10 11 10 11 10 11 10 11 10 10 | 00 |

SOIL PROFILE AND TEST DATA

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

| DATUM Geodetic | | | | | | | | | FILE NO. | PG4783 | |
|--|--------|------|--------|---------------|-------------------|--------------|--------------|----|----------------------------|--------|----------------------------|
| REMARKS | | | | | | | | | | | |
| BORINGS BY Excavator | | | | D | ATE 2 | 2020 Dec | ember 1 | 7 | | TP 5 | |
| SOIL DESCRIPTION | A PLOT | | | PLE גע | Ŕ۵ | DEPTH (m) | ELEV. (m) | | esist. Blow 0 mm Dia. (| | eter iction |
| GROUND SURFACE | STRATA | ТҮРЕ | NUMBER | % RECOVERY | N VALUE or RQD | | | | ater Conte | | Piezometer Construction |
| | | | | <u></u> | - | 0- | 105.68 | 20 | 40 60 | 80 | |
| TOPSOIL 0.41 | \sim | G | 1 | | | | | | | | |
| FILL: Brown clayey silt, some sand, trace organics, gravel, and cobbles | | G | 2 | | | 1- | -104.68 | | | | |
| FILL: Dark brown sandy silt, some organics, trace gravel, and cobbles 1.85 | | G | 3 | | | | | | | | |
| Brown CLAYEY SILT | | G | 4 | | | 2- | -103.68 | | | | |
| | | | | | | 3- | -102.68 | | | | |
| 4.12 | | | | | | 4- | -101.68 | | | | |
| | | | | | | | | | | | |
| (GWL 3.77 m depth - Dec 17, 2020) | | | | | | | | 20 | 40 60 | 80 10 | |
| | | | | | | | | | r Strength | | |

SOIL PROFILE AND TEST DATA

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

| DATUM Geodetic | | | | | | | | | FILE | •o. PG47 | /83 |
|--|--------|---------------|--------|-----------------------|-------------------|--------------|--------------|------------|---------|--------------------------|----------------------------|
| REMARKS | | | | | | | | | HOLE | | |
| BORINGS BY Excavator | | | | D | ATE | 2020 Dec | ember 1 | 7 | | IPO | |
| SOIL DESCRIPTION | PLOT | | | /IPLE 건 | M a | DEPTH (m) | ELEV. (m) | | | Blows/0.3m Dia. Cone | |
| | STRATA | ТҮРЕ | NUMBER | ° ≈ © © © | N VALUE or RQD | | | • v | Vater C | content % | Piezometer Construction |
| GROUND SURFACE | | | | RE | z | 0- | 106.50 | 20 | 40 | 60 80 | ŭ <u>ה</u> |
| FILL: Brown sandy silt to silty sand, some organics, trace clay, cobbles, PVC pipe and plastic wrappers | | _ G _ _ | 2 | | | | -105.50 | | | | |
| 1.91 | | | | | | | | | | | |
| Brown CLAYEY SILT to SILTY CLAY | | | | | | 2- | 104.50 | | | | |
| | | | | | | | | | | | |
| 2.70 End of Test Pit | IVX. | G | 3 | | | | | | | | |
| (TP dry upon completion) | | | | | | | | 20 | 40 | 60 80 | 100 |
| | | | | | | | | | ar Stre | ngth (kPa) △ Remoulde | |

SOIL PROFILE AND TEST DATA

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

| DATUM Geodetic | | | | | I | | | | FILE NO. PG4783 |
|---|--------|--------|--------|---------------|-------------------|--------------|--------------|------------------|--|
| REMARKS | | | | | | | | | HOLE NO. TP 7 |
| BORINGS BY Excavator | | | | D | ATE 2 | 2020 Dec | ember 1 | 7 | |
| SOIL DESCRIPTION | A PLOT | | | IPLE 것 | E o | DEPTH (m) | ELEV. (m) | | esist. Blows/0.3m 0 mm Dia. Cone |
| GROUND SURFACE | STRATA | ТҮРЕ | NUMBER | » RECOVERY | N VALUE or RQD | | | | 0 mm Dia. Cone Vater Content % Vater Construction 60 |
| | | | | щ | | 0- | 107.22 | 20 | |
| FILL: Brown clayey silt, some clay, trace gravel, and cobbles | | G | 1 | | | 1- | -106.22 | | |
| <u>1.93</u> | | | | | | | 105.00 | | |
| FILL: Brown sandy silt, some clay, trace organics, gravel, and cobbles | | _ G | 2 | | | 2- | -105.22 | | |
| 3.21 Brown CLAYEY SILT to SILTY CLAY 5.54 | | G G | 3 4 | | | 3- | -104.22 | | |
| End of Test Pit (TP dry upon completion) | | | | | | | | 20 Choc | 40 60 80 100 |
| | | | | | | | | Shea ▲ Undist | ar Strength (kPa) urbed △ Remoulded |

SOIL PROFILE AND TEST DATA

154 Colonnade Road South, Ottawa, Ontario K2E 7J5

| DATUM Geodetic | | | | | ľ | | | | FILE NO. | PG4783 | |
|--|--------|----------|--------|-----------------------|-------------------|--------------|--------------|-------------------------|-----------------------|---|----------------------------|
| REMARKS | | | | | | | | | HOLE NO | | |
| BORINGS BY Excavator | | | | D | ATE 2 | 2020 Dec | ember 1 | 7 | | 180 | |
| SOIL DESCRIPTION | A PLOT | | | NPLE 것 | Шо | DEPTH (m) | ELEV. (m) | | esist. Bl 0 mm Dia | ows/0.3m a. Cone | ter Stion |
| | STRATA | ТҮРЕ | NUMBER | ° ≈ © © © | N VALUE or RQD | | | 0 N | /ater Cor | ntent % | Piezometer Construction |
| GROUND SURFACE | | | 4 | RE | z º | 0- | 105.50 | 20 | 40 6 | 50 80 | ΞŬ |
| FILL: Brown clayey silt to silty clay trace organics, gravel, and cobbles | | _ _ G | 1 | | | | 100.00 | | | | |
| | | | | | | 1- | -104.50 | | | | - |
| Brown CLAYEY SILT to SILTY CLAY | X | | | | | | | | | | |
| <u>1.81</u> End of Test Pit | XX | G | 2 | | | | | | | | |
| (TP dry upon completion) | | | | | | | | | | | |
| (TP dry upon completion) | | | | | | | | 20 | 40 6 | 50 80 1 | 00 |
| | | | | | | | | 20 Shea ▲ Undistr | r Streng | 60 80 1 th (kPa) ⊾ Remoulded | 00 |

| patersongr 54 Colonnade Road South, Ottawa, O | | _ | | | Pr | eotechnic op. Sort F tawa, On | acility - | igation Upper Car | nada St. @ |) Palladiur | n Dr. |
|---|-----------------|------------------|------------------|------------------|------------------|-------------------------------------|-----------------------|----------------------|---------------------------------------|-------------|------------|
| TBM - Top spindle of fire with a geodetic elev. of 1 REMARKS plans. | hydrai 05.51 | nt loca based | ited at on to | t the n pogra | orth e phic i | end of Pall nterpolatio | ladium D on of ava | Drive, ailable | FILE NO. | PG478 | 3 |
| BORINGS BY CME-55 Low Clearance | e Drill | | | D | ATE 2 | 2019 Janı | uary 3 | | HOLE NO. | BH 1-19 | • |
| | PLOT | | SAN | IPLE | | DEPTH | ELEV. | | esist. Blo | | |
| SOIL DESCRIPTION | | E | BER | ÆRY | VALUE SE ROD | (m) | (m) | • 5 | 0 mm Dia. | Cone | Piezometer |
| GROUND SURFACE | STRATA | ТҮРЕ | NUMBER | % RECOVERY | N VA or F | | | 0 W 20 | 40 60 40 40 | | Piezometer |
| ILL: Topsoil, trace clay | | X AU | 1 | | | 0- | -104.80 | | | | |
| 0.6 | 50 ×× | \$ 17 | | | | | | | | | |
| | | ss | 2 | 67 | 5 | | -103.80 | | · · · · · · · · · · · · · · · · · · · | | |
| ery stiff, brown SILTY CLAY | | ss | 3 | 96 | 5 | | | | | | |
| | | | | | | 2- | 102.80 | | | | |
| | | | | | | | | | | | |
| rown SILT , trace clay and sand | | | | | | 3- | -101.80 | | | | |
| grey by 3.8m depth | | | | | | | | | | | |
| | | | | | | 4- | 100.80 | <u> </u> | | | |
| | 2/ | ss | 4 | 96 | 3 | | | | | | |
| ery loose, grey SANDY SILT, trace ravel | | - SS | 5 | 100 | 50+ | 5- | -99.80 | | | | |
| nd of Borehole | 59[| - | | | | | | | | | |
| ractical refusal to augering at 5.59m epth | | | | | | | | | | | |
| GWL @ 1.74m - Jan. 8, 2019) | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | 20 | 40 60 | 80 | 100 |

| paterson | | _ | | sultinç ineers | Pr | eotechnic op. Sort | cal Invest Facility - | FILE AI igation Upper Ca | | | | |
|--|----------------|-----------------|--------|-------------------|----------------|--|--------------------------|--------------------------------|-------|-----------------------|--------|------------|
| DATUM TBM - Top spindle with a geodetic ele | of fire hydrar | nt loca | ted a | t the no pogra | orth e | tawa, Or end of Pa nterpolati | lladium D |)rive, ailable | FILE | E NO. P | G4783 | 3 |
| REMARKS plans. | | | | _ | | 0040 | | | HOL | .E NO. BI | H 2-19 | |
| BORINGS BY CME-55 Low Clea | | | | | ATE 2 | 2019 Jan | uary 4 | | | | | |
| SOIL DESCRIPTION | ТОЛЧ | | | IPLE | | DEPTH (m) | ELEV. (m) | | | . Blows/ n Dia. Co | | er |
| | STRATA | ТҮРЕ | NUMBER | % RECOVERY | VALUE r RQD | | | • V | Vater | Content | % | Piezometer |
| FILL PILE SURFACE | 20 | L . | IN | RE(| N O L O | 0 | -107.10 | 20 | 40 | 60 | 80 | Pie |
| | | AU | 1 | | | | -107.10 | | | | | |
| FILL: Brown silt, some sand and | , | | | | | 1- | -106.10 | | | | | |
| oots | | ss | 2 | 54 | 3 | 2- | -105.10 | | | | | |
| | | | | | | | | | | | | |
| | <u>3.05</u> | ss | 3 | 4 | 11 | 3- | -104.10 | | | | | |
| ILL: Grey sandy silt, trace grav and roots | | ss | 4 | 4 | 8 | 4- | -103.10 | | | | | |
| | 4.42 XXX | ss | 5 | 4 | 5 | 5- | -102.10 | | | | | |
| | | | | | | | | | 2 | | • | |
| oose, grey SANDY SILT, trace lay | | ss | 6 | 75 | 9 | 6- | -101.10 | | | | | |
| | | ∬ ∦ss | 7 | 71 | 6 | 7- | -100.10 | | | | | |
| | | Δ | | | - | | | | | | | |
| ind of Borehole | 7.75 | ≖ SS | 8 | 100 | 50+ | | | | | | | Ē |
| Practical refusal to augering at 7 lepth | 7.75m | | | | | | | | | | | |
| GWL @ 1.61m - Jan. 8, 2019) | | | | | | | | 20 | 40 | 60 | | 100 |
| | | | | | | | | Shea ▲ Undist | | ength (k ∆ Rem | | |

| patersongr | | ır | Con | sulting | | SOII | - PRO | | ND TES | T DATA | |
|--|-----------------|------------------|-----------------|---------------|-------------------|------------------------------------|--------------|-------------------|----------------------|-------------|----------------------------|
| 154 Colonnade Road South, Ottawa, On | | - | | ineers | Pr | eotechnic op. Sort ttawa, Or | Facility - | | nada St. @ |) Palladium | n Dr. |
| DATUM TBM - Top spindle of fire h with a geodetic elev. of 10 | nydrai 05.51 | nt loca based | ated a on to | t the no | orth e | end of Pa | lladium D |)rive, ailable | FILE NO. | PG4783 | 5 |
| REMARKS plans. BORINGS BY CME-55 Low Clearance | Drill | | | DA | TE | 2019 Jan | uarv 4 | | HOLE NO. | BH 3-19 | |
| | | | SAN | IPLE | | | | Pen. R | lesist. Blo | ws/0.3m | |
| SOIL DESCRIPTION | A PLOT | | ~ | ХХ | Що | DEPTH (m) | ELEV. (m) | • 5 | 50 mm Dia. | Cone | ster |
| FILL PILE SURFACE | STRATA | ТҮРЕ | NUMBER | % RECOVERY | N VALUE of ROD | | | 0 V 20 | Vater Cont 40 60 | | Piezometer Construction |
| | | X AU | 1 | | | - 0- | -105.56 | | | | |
| FILL: Brown silt, trace to some clay, trace sand and roots. | | | | | | 1- | -104.56 | | | | |
| 1.83 | | ss | 2 | 29 | 4 | | -103.56 | | | | |
| Very stiff to stiff, brown CLAYEY SILT | | | | | | 3- | - 102.56 | | <u>}</u> | | |
| <u>4.5</u> 7 | | ss | 3 | 79 | 15 | 5- | -100.56 | | | | |
| Compact to loose, brown SANDY | | ∇ | | | | | | | | | |
| | | ss | 4 | 50 | 5 | | | | | | |
| 6.07 End of Borehole | | + | | | | 6- | -99.56 | | | | |
| Practical refusal to augering at 6.07m depth | | | | | | | | | | | |
| (GWL @ 1.91m - Jan. 8, 2019) | | | | | | | | | | | |
| | | | | | | | | 20 She | 40 60 ar Strengtl | | 100 |
| | | | | | | | | ▲ Undis | | Remoulded | |

SOIL PROFILE AND TEST DATA patersongroup **Geotechnical Investigation** Prop. Sort Facility - Upper Canada St. @ Palladium Dr. 154 Colonnade Road South, Ottawa, Ontario K2E 7J5 Ottawa, Ontario TBM - Top spindle of fire hydrant located at the north end of Palladium Drive, FILE NO. DATUM with a geodetic elev. of 105.51 based on topographic interpolation of available **PG4783** REMARKS plans. HOLE NO. BH 4-19 BORINGS BY CME-55 Low Clearance Drill DATE 2019 January 3 SAMPLE Pen. Resist. Blows/0.3m PLOT DEPTH ELEV. Piezometer Construction SOIL DESCRIPTION 50 mm Dia. Cone (m) (m) RECOVERY STRATA VALUE F ROD NUMBER TYPE 0/0 Ο Water Content % N VJ 80 **GROUND SURFACE** 20 40 60 0+104.49TOPSOIL 0.36 AU 1 1+103.49 SS 2 12 12 Very stiff to stiff, brown CLAYEY SILŤ 3 SS 71 12 2+102.49 SS 4 8 71 2.90 End of Borehole (GWL @ 1.08m - Jan. 8, 2019) 40 60 80 100 20 Shear Strength (kPa) Undisturbed \triangle Remoulded

SOIL PROFILE AND TEST DATA patersongroup **Geotechnical Investigation** Prop. Sort Facility - Upper Canada St. @ Palladium Dr. 154 Colonnade Road South, Ottawa, Ontario K2E 7J5 Ottawa, Ontario TBM - Top spindle of fire hydrant located at the north end of Palladium Drive, FILE NO. DATUM with a geodetic elev. of 105.51 based on topographic interpolation of available **PG4783** REMARKS plans. HOLE NO. BH 5-19 BORINGS BY CME-55 Low Clearance Drill DATE 2019 January 3 SAMPLE Pen. Resist. Blows/0.3m PLOT DEPTH ELEV. Piezometer Construction SOIL DESCRIPTION 50 mm Dia. Cone • (m) (m) RECOVERY STRATA VALUE F ROD NUMBER TYPE 0/0 Ο Water Content % N VJ 80 **GROUND SURFACE** 20 40 60 0+104.72TOPSOIL AU 1 0.41 Stiff, brown CLAYEY SILT 1+103.72 SS 2 75 8 1.50 SS 3 71 11 Loose to dense, brown SANDY 2+102.72SILT, some clay SS 4 35 88 2.90 End of Borehole 40 60 80 100 20 Shear Strength (kPa) Undisturbed \triangle Remoulded

| patersongr | | ır | Con | sulting | | SOIL | _ PRO | FILE AND TEST DATA |
|--|-----------------|-------------------------|------------------|---------------------------------|-------------------|--------------|-------------------------|--|
| 154 Colonnade Road South, Ottawa, On | | — | | ineers | Pro | | al Invest Facility - | tigation Upper Canada St. @ Palladium Dr. |
| DATUM TBM - Top spindle of fire h with a geodetic elev. of 10 | nydrai 05.51 | nt loca based | ited at on to | t the no pograp | orth er | nd of Pa | lladium D | Drive, FILE NO. ailable PG4783 |
| REMARKS plans. BORINGS BY CME-55 Low Clearance | Drill | | | DA | те 2 | 019 Jan | uarv 3 | HOLE NO. BH 6-19 |
| | | | SAN | IPLE | | | _ | Pen. Resist. Blows/0.3m |
| SOIL DESCRIPTION | A PLOT | | щ | RY | | DEPTH (m) | ELEV. (m) | ● 50 mm Dia. Cone |
| | STRATA | ТҮРЕ | NUMBER | ~ © © © © © © | N VALUE or RQD | | | ● 50 mm Dia. Cone □ Japenov ○ Water Content % 20 40 60 80 |
| GROUND SURFACE | 01 | × | 2 | RE | zÓ | 0- | 104.54 | 20 40 60 80 🛱 Č |
| TOPSOIL | | AU | 1 | | | | | |
| | | $\overline{\mathbb{N}}$ | | | | | 400 54 | |
| Very stiff, brown SILTY CLAY | | ss | 2 | 92 | 6 | 1- | -103.54 | V |
| 1.83 | | | | | | | | 139 |
| End of Borehole | | | | | | | | |
| (GWL @ 1.12m - Jan. 8, 2019) | | | | | | | | |
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| patersongr | | In | Con | sulting | | SOIL | _ PRO | FILE AND TEST DATA |
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| 154 Colonnade Road South, Ottawa, On | | - | | ineers | Pro | op. Sort I | | tigation · Upper Canada St. @ Palladium Dr. |
| DATUM TBM - Top spindle of fire h with a geodetic elev. of 10 | nydrai | nt loca | ited a | t the no pograp | orth e | t awa, Or nd of Pa nterpolati | lladium [| Drive, FILE NO. ailable PG4783 |
| REMARKS plans. | | | | | 0 | 040 1 | | HOLE NO. BH 7-19 |
| BORINGS BY CME-55 Low Clearance | | | | | | 2019 Jan | uary 3 | |
| SOIL DESCRIPTION | PLOT | | | /IPLE 것 | E a | DEPTH (m) | ELEV. (m) | Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone |
| GROUND SURFACE | STRATA | ТҮРЕ | NUMBER | [%] RECOVERY | N VALUE or RQD | | | So mm Dia. Cone So mm Dia. Cone Guatance Water Content % Z0 40 60 80 Gamma Construction |
| | | AU | 1 | | | 0- | -103.49 | |
| Very stiff, brown SILTY CLAY | | ss | 2 | 92 | 6 | 1- | -102.49 | |
| 1.83 | | | | | | | | 129 |
| End of Borehole | | - | | | | | | |
| (GWL @ 0.61m - Jan. 8, 2019) | | | | | | | | |
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| | | | | | | | | 20 40 60 80 100 |
| | | | | | | | | Shear Strength (kPa) ▲ Undisturbed △ Remoulded |

| patersongr | | ın | Con | sulting | | SOIL | - PRO | FILE AND TEST DATA |
|--|-----------------|------------------|-----------------|--------------------|-------------------|---------------------------------------|--------------|--|
| 154 Colonnade Road South, Ottawa, Ont | | _ | | ineers | P | eotechnic rop. Sort I ttawa, Or | Facility - | tigation Upper Canada St. @ Palladium Dr. |
| DATUM TBM - Top spindle of fire h with a geodetic elev. of 10 | ydrar 5.51 l | nt loca based | ted at on to | t the no pograp | orth e | end of Pal | lladium D | Drive, FILE NO. ailable PG4783 |
| REMARKS plans. BORINGS BY CME-55 Low Clearance [| Drill | | | DA | TE | 2019 Jan | uarv 3 | HOLE NO. BH 8-19 |
| | | | SAN | IPLE | | | | Pen. Resist. Blows/0.3m |
| SOIL DESCRIPTION | LOT | | | ĸ | M e | DEPTH (m) | ELEV. (m) | ● 50 mm Dia. Cone |
| | STRATA | ТҮРЕ | NUMBER | ~ RECOVERY | N VALUE or ROD | | | ● 50 mm Dia. Cone □ trate ○ Water Content % 20 40 60 80 G |
| GROUND SURFACE | 01 | × | - | 8 | z ⁰ | - 0- | -103.64 | 20 40 60 80 ĒŎ |
| TOPSOIL0.30 | | AU | 1 | | | | | |
| Very stiff, brown SILTY CLAY | | ss | 2 | 96 | 4 | 1- | -102.64 | |
| <u>1.83</u> End of Borehole | AX. | - | | | | | | |
| (GWL @ 1.00m - Jan. 8, 2019) | | | | | | | | |
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| | | | | | | | | 20 40 60 80 100 Shear Strength (kPa) ▲ Undisturbed △ Remoulded |

| patersongr | | ın | Con | sulting | | SOIL | - PRO | FILE AI | ND TES | ST DATA | L. |
|--|------------------|------------------|------------------|--------------------|-------------------|---------------------------------------|------------|------------------------|------------------------|-----------------------|----------------------------|
| 154 Colonnade Road South, Ottawa, Ont | | - | | ineers | P | eotechnic rop. Sort l ttawa, Or | Facility - | | nada St. (| @ Palladium | Dr. |
| DATUM TBM - Top spindle of fire h with a geodetic elev. of 10 REMARKS plans. | iydrar 5.51 I | nt loca based | ated at on to | t the no pograp | orth e | end of Pa | lladium D | Drive, ailable | FILE NO. | PG4783 | • |
| BORINGS BY CME-55 Low Clearance I | Drill | | | DA | ATE | 2019 Jan | uary 3 | | HOLE NO | ^{).} BH 9-19 | |
| SOIL DESCRIPTION | PLOT | | SAN | IPLE | | DEPTH | ELEV. | | esist. Blo 0 mm Dia | ows/0.3m L Cone | . 5 |
| | STRATA F | ТҮРЕ | NUMBER | % RECOVERY | N VALUE of RQD | (m) | (m) | | Vater Cor | | Piezometer Construction |
| GROUND SURFACE | ß | ~ | Z | RE | z ⁰ | | -103.59 | 20 | 40 6 | 0 80 | ы Б С |
| TOPSOIL 0.38 Stiff, brown SILTY CLAY | | SS | 1 | 100 | 5 | | -102.59 | | | | |
| 1.83 | | | | | | | | | | | |
| End of Borehole | | | | | | | | | | | |
| (GWL @ 1.26m - Jan. 8, 2019) | | | | | | | | 20 Shea ▲ Undist | ar Streng | | 00 |

| patersongro | | In | Con | sultin | g | SOI | l pro | FILE AN | ND TEST I | DATA | |
|--|---------|----------------|--------|---------------|-------------------|-------------------------------------|--------------|------------------------------|--|---|----------------------------|
| 154 Colonnade Road South, Ottawa, Or | | - | | ineers | P | eotechnic roposed (ttawa, Or | Commer | | opment - Hun | itmar Roa | ad |
| DATUM Ground surface elevations p | orovido | ed by s | Stante | ec Geo | | | | | FILE NO. | PG3115 | |
| REMARKS | | | | | | | | | HOLE NO. | 3H 4 | |
| BORINGS BY CME 55 Power Auger | | | | | ATE | January 1 | 4, 2014 | | | | |
| SOIL DESCRIPTION | PLOT | | | IPLE | | DEPTH (m) | ELEV. (m) | | esist. Blows 0 mm Dia. Co | | Piezometer Construction |
| | STRATA | ТҮРЕ | NUMBER | « RECOVERY | N VALUE or ROD | | | • v | Vater Conten | t % | Piezon Constru |
| GROUND SURFACE | | | | RE | z ö | | 104.12 | 20 | 40 60 | 80 | |
| TOPSOIL 0.30 | | Š AU I S AU | 1 | | | | 101.12 | | | | |
| Very stiff, brown SILTY CLAY | | ss | 3 | 100 | 4 | 1- | -103.12 | | | | |
| <u>2.13</u> | | | | | | 2- | 102.12 | <u> </u> | | ······································ | |
| | | ss | 4 | 71 | 13 | | | | | | |
| | | ss | 5 | 54 | 9 | 3- | -101.12 | | ······································ | • | |
| Grey CLAYEY SILT | | ss | 6 | 50 | 5 | 4- | 100.12 | | | | |
| - trace gravel below 4.6m depth | | ⊥ ∏ss | 7 | 71 | 7 | _ | | | | | |
| | | x ss | 8 | 100 | 19 | 5- | -99.12 | | | | |
| | | | 9 | 86 | 50+ | 6- | -98.12 | | ······································ | · · · · · · · · · · · · · · · · · · · | |
| End of Borehole | | x ss | | | 001 | | | | | · · · · · · · · · · · · · · · · · · · | |
| Practical refusal to augering at 6.50m depth | | | | | | | | | | | |
| (GWL @ 2.0m depth based on field observations) | | | | | | | | | | | |
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| patersongro | | In | Con | sulting | 1 | SOI | l pro | FILE AI | ND TE | ST DATA | |
|---|---------|---------|--------|---------------|----------------|-------------------------------------|--------------|------------------|----------|---------------------------------|----------------------------|
| 154 Colonnade Road South, Ottawa, Or | | - | | ineers | P | eotechnic roposed (ttawa, Or | Commer | | opment | - Huntmar Ro | ad |
| DATUM Ground surface elevations p | provide | ed by S | Stante | c Geor | | | | | FILE NO | ^{).} PG3115 | |
| REMARKS | | | | | | | | | HOLEN | 0 | |
| BORINGS BY CME 55 Power Auger | | | | | ΔTE | January 1 | 4, 2014 | | | ^{•••} BH 5 | |
| SOIL DESCRIPTION | PLOT | | SAN | | | DEPTH (m) | ELEV. (m) | | | lows/0.3m ia. Cone | neter uction |
| | STRATA | ТҮРЕ | NUMBER | * RECOVERY | VALUE r ROD | | | • V | Vater Co | ontent % | Piezometer Construction |
| GROUND SURFACE | | | | RE | N OF OF | | 103.56 | 20 | 40 | 60 80 | |
| 0.28 | | ∑ AU | 1 | | | | 100.00 | | | | |
| | | ss | 2 | 100 | 2 | 1- | -102.56 | | | | |
| Stiff, brown SILTY CLAY | | | | | | 2- | -101.56 | | | / | |
| - grey-brown by 2.9m depth | | x ss | 3 | 100 | 8 | 3- | - 100.56 | <u> </u> | | | |
| 4.50 | | ss | 4 | 83 | 5 | 4- | -99.56 | | | | |
| GLACIAL TILL: Grey-brown clayey silt with gravel5.25 | | ss | 5 | 58 | 3 | 5- | -98.56 | | | | |
| GLACIAL TILL: Brown silty sand with gravel, cobbles and boulders | | ss | 6 | 50 | 11 | 6- | 97.56 | | | | |
| 6.70 | | ss | 7 | 100 | 17 | | | | | | |
| (GWL @ 3.0m depth based on field observations) | | | | | | | | | | | |
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| | | | | | | | | 20 | 40 | | 00 |
| | | | | | | | | Shea ▲ Undist | ar Stren | gth (kPa) ∆ Remoulded | |

| natersonard | | Consulting Engineers | | g | SOIL PROFILE AND TEST DATA | | | | | | |
|---|--------|-------------------------|--------|--|----------------------------|--------|------------|------------------------|-------------------------------------|--------------------------|----------------------------|
| patersongroup Consultin Engineer 154 Colonnade Road South, Ottawa, Ontario K2E 7J5 | | | ineers | Proposed Commercial Development - Huntmar Road | | | | | | | |
| DATUM Ground surface elevations provided by Stantec Geomatics Ltd. Ottawa, Ontario | | | | | | | | | | | |
| REMARKS | | | | | | | | | | | |
| BORINGS BY CME 55 Power Auger DATE January 13, 2014 | | | | | | | | BH14 | | | |
| | PLOT | SAMPLE | | | | DEPTH | ELEV. | | esist. Blows/0.3m 0 mm Dia. Cone | | Piezometer Construction |
| SOIL DESCRIPTION | | | RY RR | Be | 변요 (m) | (m) | 4 5 | | | | |
| | STRATA | ТҮРЕ | NUMBER | % RECOVERY | N VALUE or ROD | | | • V | • Water Content % | | |
| GROUND SURFACE | | | | z ° | 4 ⁰ | 103.55 | 20 | 40 60 | 80 | | |
| 0.28 | | 1 | | | | | 103.55 | | | | |
| | | ss | 1 | 100 | 3 | 1- | -102.55 | | 0 | | |
| Very stiff to stiff, brown SILTY CLAY | | | | | | 2- | -101.55 | <u></u> | | ·······················1 | 0 |
| | | | | | | 3- | - 100.55 | | | | ¥ |
| Grey-brown SILTY FINE SAND | | ss | 2 | 71 | 6 | 4- | -99.55 | X 0 | | | |
| End of Borehole4.60 | | - ss | 3 | 0 | 50+ | | | | | | |
| Practical refusal to augering at 4.60m depth | | | | | | | | | | | |
| (GWL @ 2.8m depth based on field observations) | | | | | | | | | | | |
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| patersongro | | Consulting Engineers | | | g 🔄 | SOIL PROFILE AND TEST DATA | | | | | | |
|--|-----------------|-------------------------|---|---------------|----------------|--|----------|--|--|--|--|--|
| 154 Colonnade Road South, Ottawa, Or | - | P | Geotechnical Investigation Proposed Commercial Development - Huntmar Road Ottawa, Ontario | | | | | | | | | |
| DATUM Ground surface elevations p | FILE NO. PG3115 | | | | | | | | | | | |
| REMARKS | HOLE NO. DUITE | | | | | | | | | | | |
| BORINGS BY CME 55 Power Auger | | DATE January 14, 2014 | | | | | | BH15 | | | | |
| SOIL DESCRIPTION | STRATA PLOT | SAMPLE | | | | DEPTH | | Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone | | | | |
| | | ТҮРЕ | NUMBER | % RECOVERY | VALUE r ROD | ALUE ROD ROD ROD ROD ROD ROD ROD ROD ROD ROD | (m) | Pen. Resist. Blows/0.3m □ ● 50 mm Dia. Cone □ ○ Water Content % □ | | | | |
| GROUND SURFACE | STI | N A C | | | | 20 40 60 80 | | | | | | |
| | | _ | | | | - 0- | 104.43 | | | | | |
| | | i au I ss | 1 | 83 | 4 | 1- | 103.43 | | | | | |
| Stiff, brown SILTY CLAY | | ss | 3 | 100 | 4 | | 100.40 | | | | | |
| 2.90 | | | | | | 2- | -102.43 | | | | | |
| 5.30 | | ss | 4 | 67 | 14 | 3- | - 101.43 | | | | | |
| Grey-brown SILTY FINE SAND | | ss | 5 | 42 | 3 | 4- | -100.43 | | | | | |
| | | ss | 6 | 83 | 5 | 5- | -99.43 | | | | | |
| 5.49 End of Borehole | | SS = | 7 | 0 | 50+ | | | | | | | |
| Practical refusal to augering at 5.49m depth | | | | | | | | | | | | |
| (GWL @ 3.0m depth based on field observations) | | | | | | | | | | | | |
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| | | | | | | | | | | | | |
| | | | | | | | | 20 40 60 80 100 Shear Strength (kPa) ▲ Undisturbed △ Remoulded | | | | |

SYMBOLS AND TERMS

SOIL DESCRIPTION

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

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

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

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

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

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

SYMBOLS AND TERMS (continued)

SOIL DESCRIPTION (continued)

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

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

ROCK DESCRIPTION

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

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

RQD % ROCK QUALITY

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

SAMPLE TYPES

| SS | - | Split spoon sample (obtained in conjunction with the performing of the Standard |
|----|---|---|
| | | Penetration Test (SPT)) |

- TW Thin wall tube or Shelby tube
- PS Piston sample
- AU Auger sample or bulk sample
- WS Wash sample
- RC Rock core sample (Core bit size AXT, BXL, etc.). Rock core samples are obtained with the use of standard diamond drilling bits.

SYMBOLS AND TERMS (continued)

GRAIN SIZE DISTRIBUTION

| MC% LL PL PI | - - - | Natural moisture content or water content of sample, % Liquid Limit, % (water content above which soil behaves as a liquid) Plastic limit, % (water content above which soil behaves plastically) 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 |
| Сс | - | Concavity coefficient = $(D30)^2 / (D10 \times D60)$ |
| 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 > 4Well-graded sands have: 1 < Cc < 3 and Cu > 4Well-graded sands have: 1 < Cc < 3 and Cu > 6Sands 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) |
| Сс | - | Compression index (in effect at pressures above p'c) |
| OC Ratio |) | Overconsolidaton ratio = p'_c / p'_o |
| Void Rat | io | 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 Topsoil Asphalt Peat Sand Silty Sand Fill ∇ Sandy Silt Clay Silty Clay Clayey Silty Sand Glacial Till Shale Bedrock

MONITORING WELL AND PIEZOMETER CONSTRUCTION



PIEZOMETER CONSTRUCTION



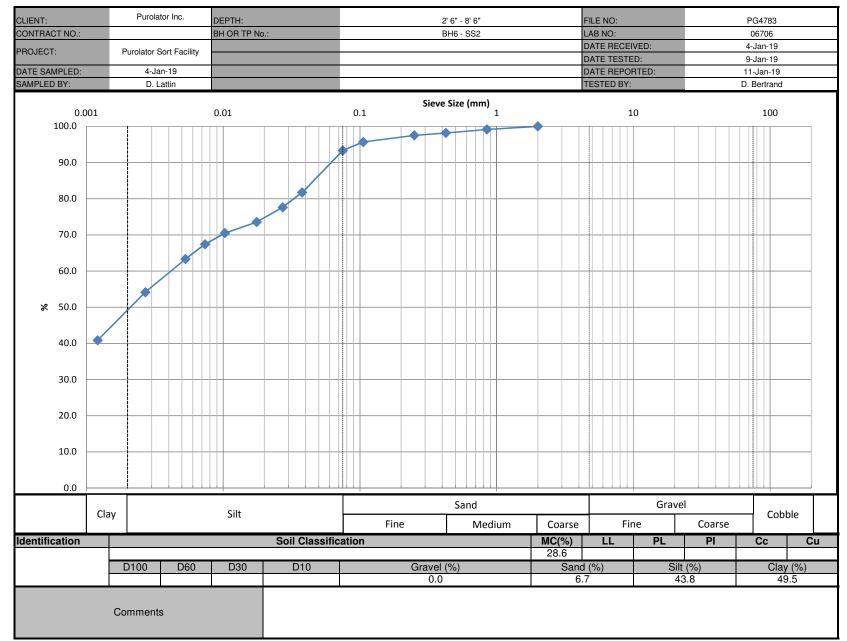
| | | | | | - | | | | ole: BH1 | | | | | |
|----------------------------------|--------|--|---------------|----------------------------|-------------|----------------|--------------|-------------|--|-------------------------------------|-------------------|-----------|------------------------------------|---|
| | | PINCHIN | | • | | l: 231 Geot | | | nvestigation | l | ogg | ed By | y: WT | |
| | (| | | - | | urola | | | reaugation | | | | | |
| | | | | | | | | | & 4, Concessi | ion 1, Block | (s 26 | to 33 | , Ottaw | /a, ON |
| | | | | Drill | Date | e: Oc | tober | 29, | 2018 | I | Proje | ect Ma | nager | wr |
| | | SUBSURFACE PROFILE | | | | | | | SA | MPLE | | | | |
| Depth (m) | Symbol | Description | Elevation (m) | Monitoring Well Details | Sample Type | Sampler # | Recovery (%) | SPT N-Value | Standard Penetration N-Value 20 40 60 | Shear Strength kPa 100 200 | Water Content (%) | Sample ID | Soil Vapour Concentration (ppm) | Laboratory Analysis |
| 0- | | Ground Surface Clay and silt, trace gravel, trace | 0.00 | | <u> </u> | <u> </u> | | | | | | | | |
| - | | sand, DTPL to ATPL, grey, soft to stiff | | | SS | SS1 | 40 | 12 | | | | | | |
| | #17 | | | | SS | SS2 | 80 | 8 | | | | | | |
| 2- | | Silt, trace to some sand, trace | -2.29 | N. | SS | SS3 | 100 | 3 | , | | 32.7 | | | Hydrometer |
| 3- | | gravel, trace clay, wet, grey, very loose | | | SS | SS4 | 80 | 3 | | | | | | |
| - | | Till - Sandy silt, trace to some clay, | -3.81 | | SS | SS5 | 100 | 4 | (Q | | | | | |
| 4- | | trace gravel, wet, grey, very loose to | | | ss | SS6 | 100 | 9 | 0 | | | | | |
| 5- | | | -5.49 | | SS | SS7 | 80 | 3 | | | | | | |
| - 6- - - - - - | | End of Borehole Due to SPT refusal on probable bedrock | | | _ 00 _ | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | C | ontractor: Strata Drilling Group | | | · | | | | Grade I | Elevation: | N/A | | | <u>, </u> |
| | Dı | rilling Method: Direct Push/Split | t Spoor | ٦ | | | | | Top of | Casing Ele | evatio | on: N | /A | |
| | W | ell Casing Size: N/A | | | | | | | Sheet: | 1 of 1 | | | | |

| | (| PINCHIN SUBSURFACE PROFILE | | Proj Proj Clie Loca | iect # iect: (nt: P ation | k: 231 Geote urola I: Par | 270. echni tor In t of L | 001 ical li ic. ots 3 | 2018 | ion 1, Block | Logged By: WT Blocks 26 to 33, Ottawa, ON Project Manager: WT | | | | |
|-----------|--------|--|---------------|------------------------------|-------------------------------------|------------------------------------|-----------------------------------|--------------------------------|--|-------------------------------------|---|-----------|------------------------------------|------------------------|--|
| ┝ | | | | | | | | | | | | | | | |
| Depth (m) | Symbol | Description | Elevation (m) | Monitoring Well Details | Sample Type | Sampler # | Recovery (%) | SPT N-Value | Standard Penetration N-Value 20 40 60 | Shear Strength kPa 100,200 | Water Content (%) | Sample ID | Soil Vapour Concentration (ppm) | Laboratory Analysis | |
| 0- | | Ground Surface Fill - Sand and gravel, some silt, | 0.00 | | | | | | - | | | | | | |
| | | some clay, damp, brown, compact | -0.76 | | ss | SS1 | 40 | 14 | / | | | | | | |
| 9- | H | Clay and silt, trace gravel, trace sand, DTPL to WTPL, grey, very soft | | | SS | SS2 | 80 | 1 | V I | | | | | | |
| 2 | HH | | -2.29 | ¥ | SS | SS3 | 100 | 0 | l N | | | | | | |
| 3- | | Till - Sandy silt, trace to some clay, trace gravel, wet, grey, compact | | | SS | SS4 | 80 | 15 | | | | | | | |
| - | | | | i | SS | SS5 | 100 | 12 | | | | | | | |
| 4 | | | | | | | | | | | | | | | |
| 5- | | | | | SS | SS6 | 100 | 12 | | | | | | | |
| | 11 | | -5.79 | | | | | | | | | | | | |
| 6 | | End of Borehole Due to casing refusal on probable bedrock | -3.79 | | | | | | | | | | | | |
| - | C(| ontractor: Strata Drilling Group | | | <u> </u> | | | | Grade | Elevation: 1 | ∟ √/A | | | | |
| | | rilling Method: Direct Push/Split | Spoor | n | | | | | | Casing Ele | | on: N/ | 'A | | |
| | | ell Casing Size: N/A | | | | | | | Sheet: | | | | | | |

| | | | | Lo | g c | of B | ore | ehc | ole: BH3 | | | | | |
|-------------|--------|--|---------------|----------------------------|-------------|-----------|--------------|-------------|--|-------------------------------------|-------------------|-----------|------------------------------------|------------------------|
| | | | | Proj | ect ‡ | : 231 | 270. | 001 | | L | .ogg | ed By | /: WT | |
| | 1 | PINCHIN | | Proj | ect: | Geote | echni | cal lı | nvestigation | | | | | |
| | | | | Clie | nt: P | urola | tor In | С. | | | | | | |
| | | | | Loc | ation | : Par | t of L | ots 3 | & 4, Concessi | ion 1, Block | s 26 | to 33 | , Ottaw | a, ON |
| | | | | Drill | Date | e: Oc | tober | 29, | 2018 | F | Proje | ct Ma | nager. | WT |
| | | SUBSURFACE PROFILE | | | | | | | SA | MPLE | | | | |
| Depth (m) | Symbol | Description | Elevation (m) | Monitoring Well Details | Sample Type | Sampler # | Recovery (%) | SPT N-Value | Standard Penetration N-Value 20 40 60 | Shear Strength kPa 100 200 | Water Content (%) | Sample ID | Soil Vapour Concentration (ppm) | Laboratory Analysis |
| 0- | 757 | Ground Surface Silt, trace gravel, trace sand, trace | 0.00 | | | | | | | | | | | |
| - | HI | clay, damp to moist, grey, very loose to compact | | | ss | SS1 | 80 | 12 | ĵ | | | | | |
| 1- | IF1 | | | | SS | SS2 | 60 | 2 | V | | | | | |
| - | | | | | 33 | 332 | υv | 2 | | | | | | |
| - | HI | | | | | | | | | | | | | |
| 2- | H1 | | | | SS | SS3 | 50 | 3 | | | | | | |
| - | | | -3.05 | | ss | SS4 | 100 | 4 | 0 | | | | | |
| 3- | | Till - Sandy silt, trace to some clay, trace gravel, wet, grey, loose to compact | -3.03 | Ŧ | SS | SS5 | 100 | 19 | | | 16.7 | | | hudromator |
| | 11-1 | | | | | | | | | | | | | Hydrometer |
| 4 | | | | | | | | | | | | | | |
| - | | | | | | | | | 1 | | | | | |
| 5- | | | | | SS | SS6 | 80 | 6 | Ć I | | | | | |
| | | | | | | | | | | | | | | |
| 6- | | | | | | | | | | | | | | |
| - | 11-1 | | | | | | | | | | | | | |
| - | 11-1 | | | | SS | SS7 | 100 | 8 | 1 | | | | | |
| 7- | 11 1 | End of Borehole | -6.86 | | | | | | | | | | | |
| - - - | | Due to casing refusal on probable bedrock | | | | | | | | | | | | |
| | Ca | ontractor: Strata Drilling Group | | | } | | | | Grade I | Elevation: | 1 N/A | | | 1 |
| | Dı | illing Method: Direct Push/Split | t Spool | n | | | | | Top of | Casing Ele | vatie | on: N | Ά | |
| | W | ell Casing Size: N/A | | | | | | | Sheet: | 1 of 1 | | | | |

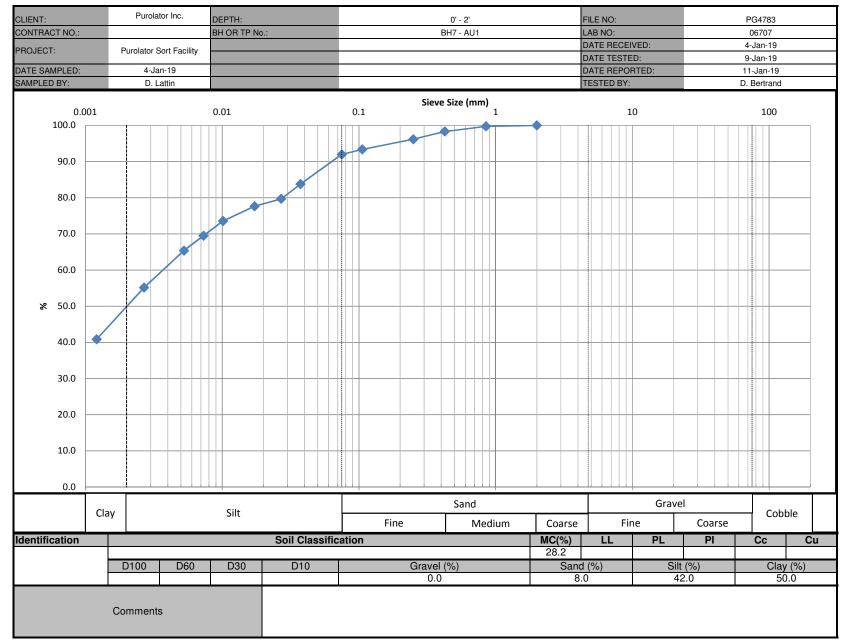
| PINCHIN | | Proj Proj Clie Loca | iect # iect: (nt: P ation | : 231 Geoto urola : Par | 270, echni tor In t of L | 001 cal lı c. ots 3 | DIE: BH4 | on 1, Block | s 26 | to 33 | /: WT , Ottaw | |
|---|---------------|------------------------------|-------------------------------------|----------------------------------|-----------------------------------|------------------------------|--|-------------------------------------|-------------------|-----------|------------------------------------|------------------------|
| SUBSURFACE PROFILE | | | | | | | SA | MPLE | | | | |
| Description SX Description | Elevation (m) | Monitoring Well Details | Sample Type | Sampler # | Recovery (%) | SPT N-Value | Standard Penetration N-Value 20 40 60 | Shear Strength kPa 100 200 | Water Content (%) | Sample ID | Soil Vapour Concentration (ppm) | Laboratory Analysis |
| 0 Ground Surface Clay and silt, trace gravel, trace sand, DTPL to ATPL, grey, soft to firm | 0.00 | | SS | SS1 | 60 | 5 | р | | | | | |
| Silt, trace to some sand, trace gravel, trace clay, wet, grey, loose to compact | -1.52 | Ŧ | ss ss | SS2 SS3 | 100 | 4 | | | 17.4 | | | |
| 2 | | | ss | SS4 | | 15 | | | | | | Hydrometer |
| | | | ss | SS5 | 100 | 7 | | | | | | |
| 5 Till - Sandy silt, trace to some clay, trace gravel, wet, grey, compact | -4.57 | | SS | SS6 | 100 | 28 | | | | | | |
| End of Borehole Due to casing refusal on probable bedrock | | | | | | | | | | | | |
| Contractor: Strata Drilling Group | | | | | | | Grade I | Elevation: | N/A | | | |
| Drilling Method: Direct Push/Spli | t Spoor | า | | | | | Top of | Casing Ele | vatio | on: N/ | A | |
| Well Casing Size: N/A | | | | | | | Sheet: | 1 of 1 | | | | |

| Γ | | | | Lo | g c | of B | ore | ehc | ole: BH5 | | | - | | |
|-----------|--------|--|---------------|----------------------------|-------------|-----------|--------------|-------------|--|-------------------------------------|-------------------|-----------|------------------------------------|------------------------|
| | | DINICUIN | | - | | : 231 | | | | L | .ogg | ed By | y: WT | |
| | | PINCHIN | | | | | | | nvestigation | | | | | |
| | | | | | | urola | | | | | | | | |
| | | | | | | | | | & 4, Concessi | | | | | |
| - | | SUBSURFACE PROFILE | | Dhii | Date | e: Uc | toper | 29 | 2018 | MPLE | roje | ect Ma | nager | VVI |
| \vdash | | | | | | | | | | | | | | <u> </u> |
| Depth (m) | Symbol | Description | Elevation (m) | Monitoring Well Details | Sample Type | Sampler # | Recovery (%) | SPT N-Value | Standard Penetration N-Value 20 40 60 | Shear Strength kPa 100 200 | Water Content (%) | Sample ID | Soil Vapour Concentration (ppm) | Laboratory Analysis |
| 0- | | Ground Surface Organics ~ 150 mm | 0.00 | | | | | | | | | | | |
| | | Clay and silt, trace gravel, trace sand, DTPL to ATPL, grey, soft to stiff | | | ss | SS1 | 80 | 9 | Ĵ | | | | | |
| 1- | H | | -1.52 | 23 | SS | SS2 | 100 | 4 | ¢ | | | | | |
| 2- | | Silt, trace to some sand, trace gravel, trace clay, moist to wet, grey, very loose | | | SS | SS3 | 100 | 1 | ļ | | | | | |
| 3- | | | | ¥ | SS | SS4 | 100 | 0 | | | | | | |
| | | | | | ss | SS5 | 100 | 3 | l N | | | | | |
| 4- | | | -4.57 | | | | | | | | | | | |
| 5- | | Till - Sandy silt, trace to some clay, trace gravel, wet, grey, compact to dense | | | ss | SS6 | 100 | 18 | | | 15.3 | | | Hydrometer |
| 6- | | | | | | | | | | | | | | |
| 7- | | End of Borehole Due to SPT refusal on probable bedrock | -6.40 | | SS | SS7 | 100 | 56 | ь | | | | | |
| - | c | ontractor: Strata Drilling Group | | | | | | | Grade I | Elevation: | N/A | | | |
| | D | rilling Method: Direct Push/Spli | Spoor | n | | | | | Top of | Casing Ele | vatie | on: N/ | Ά | |
| | | /ell Casing Size: N/A | | | | | | | Sheet: | | | | | |



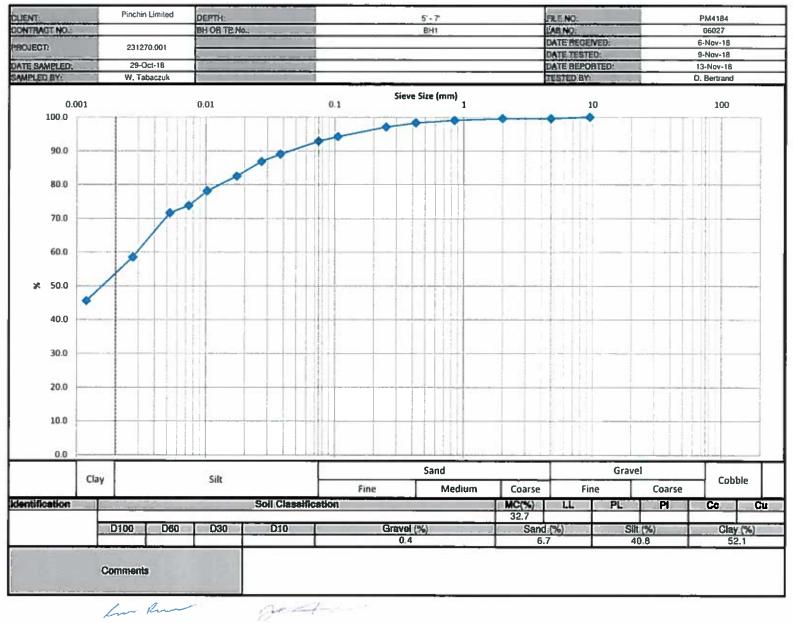
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| CLIENT: | | Purolator Inc. | | DEPTH: | 2' 6" | - 8' 6" | FILE NO.: | PG4783 | |
|--------------------------------|--------------------|-------------------------|-----------|-----------------|----------|----------|----------------------|------------|--|
| PROJECT: | | Purolator Sort Facility | | BH OR TP No.: | BH6 | - SS2 | DATE SAMPLED: | 04-Jan-19 | |
| LAB No. : | | 06706 | | TESTED BY: | D. Be | ertrand | DATE RECEIVED: | 04-Jan-19 | |
| SAMPLED BY: | | D. Lattin | | DATE REPT'D: | 11-Ja | an-19 | DATE TESTED: | 09-Jan-19 | |
| | | | | AMPLE INFORMA | TION | | | | |
| SAMPLE MASS | | 09.8 | 50 | .00 | | | | | |
| SPECIFIC GI | | 2.700 | | | REM | IARKS | | | |
| HYGROSCOPI | | Tare No. | | | | | | | |
| TARE Wt. | 50.00 | ACTUAL Wt. | | | | | | | |
| AIR DRY (Wa) | 150.00 | 100.00 | | | | | | | |
| OVEN DRY (Wo) | 146.80 | 96.80 | | | | | | | |
| F=(Wo/Wa) | | 968 | | | | | | | |
| INITIAL Wt. (Ma) | | 0.00 3.40 | | | | | | | |
| Wt. CORRECTED Wt. AFTER WAS | | | | | | | | | |
| SOLUTION CONCE | | 3.45 | | | | | | | |
| SOLUTION CONCE | | 40 g / L | | RAIN SIZE ANALY | reie | | | | |
| | | | | | 515 | | | | |
| SIE | EVE DIAMETER (n | าm) | WEIGHT RI | ETAINED (g) | PERCENT | RETAINED | PERCENT F | PASSING | |
| | 63.0 | | | | | | | | |
| | 53.0 | | | | | | | | |
| | 37.5 | | | | | | | | |
| | 26.5 | | | | | | | | |
| | 19.0 | | | | | | | | |
| | 16.0 | | | | | | | | |
| | 13.2 9.5 | | | | | | | | |
| | 4.75 | | | | | | | | |
| | 2.0 | | 0 | .0 | | .0 | 100. | 0 | |
| | Pan | | | 9.8 | 0 | .0 | 100. | | |
| | | | | | | | | | |
| | 0.850 | | 0. | 42 | 0 | .8 | 99.2 | 2 | |
| | 0.425 | | 0. | 91 | 1 | .8 | 98.2 | 2 | |
| | 0.250 | | | 24 | 2 | .5 | 97.5 | 97.5 | |
| | 0.106 | | | 16 | 4 | .3 | 95. | 7 | |
| | 0.075 | | | 33 | 6 | 6.7 9 | | | |
| | Pan | | 3. | 45 | | | | | |
| SIEVE | CHECK | 0.0 | | = 0.3% | | | | | |
| | | 1 | | HYDROMETER DA | ТА | | | | |
| ELAPSED | TIME (24 hours) | Hs | Hc | Temp. (°C) | DIAMETER | (P) | TOTAL PERCE | NT PASSING | |
| 1 | 8:41 | 46.0 | 6.0 | 23.0 | 0.0378 | 81.7 | 81. | 7 | |
| 2 | 8:42 | 44.0 | 6.0 | 23.0 | 0.0273 | 77.6 | 77.6 | 6 | |
| 5 | 8:45 | 42.0 | 6.0 | 23.0 | 0.0176 | 73.5 | 73. | 5 | |
| 15 | 8:55 | 40.5 | 6.0 | 23.0 | 0.0103 | 70.5 | 70.9 | 5 | |
| 30 | 9:10 | 39.0 | 6.0 | 23.0 | 0.0074 | 67.4 | 67.4 | 4 | |
| 60 | 9:40 | 37.0 | 6.0 | 23.0 | 0.0053 | 63.3 | 63.3 | 3 | |
| 250 | 12:50 | 32.5 | 6.0 | 23.0 | 0.0027 | 54.1 | 54. | 1 | |
| 1440 | 8:40 | 26.0 | 6.0 | 21.0 | 0.0012 | 40.9 | 40.9 | 9 | |
| | | | | COMMENTS | | | | | |
| Moisture Cont | ent = 28.6% | | | | | | | | |
| | | Curtis Beadow | | | | | Joe Forsyth, P. Eng. | | |
| REVIEWED BY: | for the | | | APPRO | VED BY: | | Jenz | | |
| | for the | | | | | | gent 2 | | |
| | | | | | | | | | |



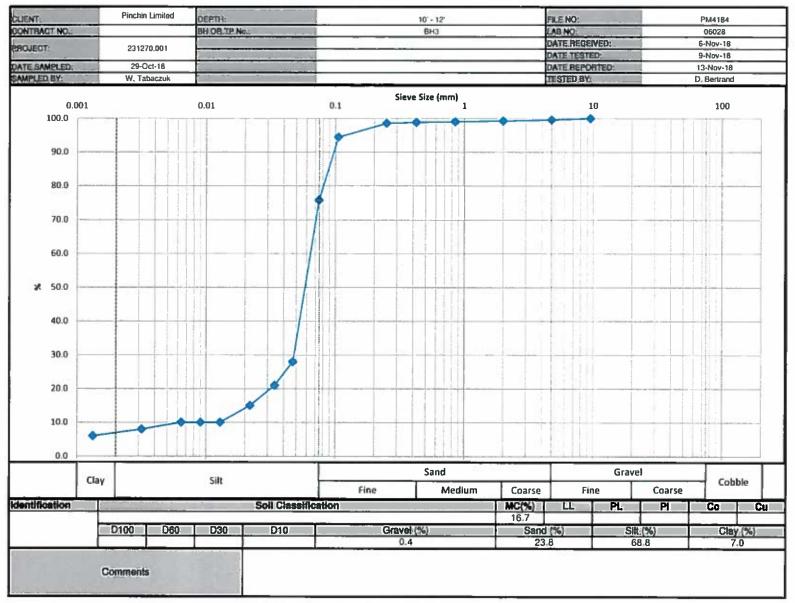
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| 105 TY (Gs) DISTURE 50.00 150.00 146.80 0.9 50. | URE Tare No. 00 ACTUAL Wt. .00 100.00 .80 96.80 0.968 50.00 48.40 SIEVE 3.45 | | DEPTH: BH OR TP No.: TESTED BY: DATE REPT'D: AMPLE INFORMAT .00 | | AU1 trand | FILE NO.: DATE SAMPLED: DATE RECEIVED: DATE TESTED: | PG4783 04-Jan-19 04-Jan-19 09-Jan-19 | |
|---|---|--|--|--|--|--|---|--|
| 105 TY (Gs) DISTURE 50.00 150.00 146.80 0.9 50. 48. ACK SIEVE ATION | 06707 D. Lattin 109.8 2.700 URE Tare No. 00 ACTUAL Wt. .00 100.00 .80 96.80 0.968 50.00 48.40 SIEVE 3.45 | | TESTED BY: DATE REPT'D: AMPLE INFORMAT | D. Ber 11-Ja ION | trand n-19 | DATE RECEIVED: | 04-Jan-19 | |
| TY (Gs) DISTURE 50.00 150.00 146.80 0.9 50. 48. ACK SIEVE ATION | D. Lattin | | DATE REPT'D: AMPLE INFORMAT | 11-Ja ION | n-19 | | | |
| TY (Gs) DISTURE 50.00 150.00 146.80 0.9 50. 48. ACK SIEVE ATION | 109.8 as) 2.700 URE Tare No. 00 ACTUAL Wt. .00 100.00 .80 96.80 0.968 50.00 48.40 SIEVE | | AMPLE INFORMAT | ION | | DATE TESTED: | 09-Jan-19 | |
| TY (Gs) DISTURE 50.00 150.00 146.80 0.9 50. 48. ACK SIEVE ATION | Basi 2.700 URE Tare No. 00 ACTUAL Wt. .00 100.00 .80 96.80 0.968 50.00 48.40 SIEVE | | | | ARKS | | | |
| TY (Gs) DISTURE 50.00 150.00 146.80 0.9 50. 48. ACK SIEVE ATION | Basi 2.700 URE Tare No. 00 ACTUAL Wt. .00 100.00 .80 96.80 0.968 50.00 48.40 SIEVE | 50 | .00 | REM | ARKS | | | |
| DISTURE 50.00 150.00 146.80 0.9 50. 48. ACK SIEVE ATION | URE Tare No. 00 ACTUAL Wt. .00 100.00 .80 96.80 0.968 50.00 48.40 SIEVE 3.45 | | | REM/ | ARKS | | | |
| 50.00 150.00 146.80 0.9 50. 48. ACK SIEVE ATION | 00 ACTUAL Wt. .00 100.00 .80 96.80 0.968 50.00 48.40 SIEVE | | | | | | | |
| 150.00 146.80 0.9 50. 48. ACK SIEVE ATION | .00 100.00 .80 96.80 0.968 50.00 48.40 SIEVE | | | | | | | |
| 146.80 0.9 50. 48. ACK SIEVE ATION | .80 96.80 0.968 50.00 48.40 SIEVE 3.45 | | | | | | | |
| 0.9 50. 48. ACK SIEVE ATION | 0.968 50.00 48.40 SIEVE 3.45 | | | | | | | |
| 50. 48. ACK SIEVE ATION | 50.00 48.40 SIEVE 3.45 | | | | | | | |
| 48. ACK SIEVE ATION | 48.40 SIEVE 3.45 | | | | | | | |
| ACK SIEVE ATION | SIEVE 3.45 | | | | | | | |
| ATION | | | | | | | | |
| | 2N 40 0 / 1 | | | | | | | |
| AMETER (mr | | | | | | | | |
| DIAMETER (mr | | | RAIN SIZE ANALY | 515 | | | | |
| | ETER (mm) | WEIGHT RE | ETAINED (g) | PERCENT F | {ETAINED | PERCENT P | ASSING | |
| 63.0 | | | | | | | | |
| 53.0 | | | | | | | | |
| 37.5 | | | | | | | | |
| 26.5 | | | | | | | | |
| 19.0 | | | | | | | | |
| 16.0 | | | | | | | | |
| 13.2 | | | | | | | | |
| 9.5 | | | | | | | | |
| 4.75 | | | 0 | | | | | |
| | | | | 0.0 |) | 100.0 | J | |
| - an | | | 1.0 | | | | | |
| 0.850 | 50 | 0. | 14 | 0.5 | 3 | 99.7 | , | |
| | | | | | | | | |
| 0.250 | | | | 3.8 | | 96.2 | | |
| 0.106 | | 3. | 32 | | | 93.4 | | |
| 0.075 | | 4. | 1.00 | | | | | |
| | | 4. | 12 | | | | | |
| К | | MAX = | = 0.3% | | | | | |
| | · · · · · | | HYDROMETER DA | ГА | | • | | |
| TIME 24 hours) | | Hc | Temp. (°C) | DIAMETER | (P) | TOTAL PERCEN | NT PASSING | |
| 8:59 | | 6.0 | 23.0 | 0.0374 | 83.8 | 83.6 | } | |
| 9:00 | | | | | | | | |
| 9:03 | | | 23.0 | | | 77.6 | | |
| 9:13 | | 6.0 | 23.0 | 0.0102 | 73.5 | 73.5 | | |
| 9:28 | | 6.0 | 23.0 | 0.0073 | 69.5 | 69.5 | | |
| 9:58 | | 6.0 | 23.0 | 0.0053 | 65.4 | 65.4 | | |
| 13:08 | 08 33.0 | 6.0 | 23.0 | 0.0027 | 55.2 | 55.2 | 2 | |
| 8:58 | 58 26.0 | 6.0 | 21.0 | 0.0012 | 40.9 | 40.9 |) | |
| | | | COMMENTS | | | | | |
| = 28.2% | 8.2% | | | | | | | |
| | | | | | Joe Forsyth. P. Eng. | | | |
| | Curtis Beadow | | | | | Joe Forsyth, P. Eng. | | |
| ((() () () () () () () () () () () () () | 2. Pa 0.8 0.4 0.2 0.1 0.0 Pa 0.1 0.0 Pa 9:0 9:0 9:0 9:0 9:1 9:2 9:2 9:2 9:2 9:2 9:2 9:2 8:5 | 2.0 Pan Pan 0.850 0.425 0.250 0.106 0.075 Pan -19.4 TIME Hs hours) 47.0 9:00 45.0 9:03 44.0 9:13 42.0 9:28 40.0 9:58 38.0 13:08 33.0 8:59 26.0 | 2.0 0 Pan 11 0.850 0. 0.425 0. 0.250 1. 0.106 3. 0.075 4. Pan 4. -19.4 MAX = TIME Hs Hc hours) 47.0 6.0 9:00 45.0 6.0 9:13 42.0 6.0 9:28 40.0 6.0 9:58 38.0 6.0 33:08 33.0 6.0 8:58 26.0 6.0 | 2.0 0.0 Pan 111.3 0.850 0.14 0.425 0.85 0.250 1.92 0.106 3.32 0.075 4.02 Pan 4.12 0.19.4 MAX = 0.3% HYDROMETER DA TIME hours) Hs Hc Temp. (°C) 8:59 47.0 6.0 23.0 9:00 45.0 6.0 23.0 9:03 44.0 6.0 23.0 9:28 40.0 6.0 23.0 9:58 38.0 6.0 23.0 9:58 38.0 6.0 23.0 9:58 36.0 6.0 23.0 8:58 26.0 6.0 21.0 | 2.0 0.0 0.0 Pan 111.3 0.850 0.14 0.3 0.425 0.85 1.7 0.250 1.92 3.8 0.106 3.32 6.6 0.075 4.02 8.0 Pan 4.12 8.0 0.075 4.02 8.0 Pan 4.12 8.0 O.075 Hs Hc Temp. (°C) DIAMETER TIME Hs Hc Temp. (°C) DIAMETER 9:00 45.0 6.0 23.0 0.0270 9:03 44.0 6.0 23.0 0.0173 9:13 42.0 6.0 23.0 0.0073 9:28 40.0 6.0 23.0 0.0073 9:58 38.0 6.0 23.0 0.0027 8:58 26.0 6.0 23.0 0.0027 8:58 26.0 6.0 21.0 0.0012 | 2.0 0.0 0.0 Pan 111.3 0.0 Pan 111.3 0.0 0.850 0.14 0.3 0.425 0.85 1.7 0.250 1.92 3.8 0.106 3.32 6.6 0.075 4.02 8.0 Pan 4.12 8.0 Pan HC Temp. (°C) DIAMETER (P) IMME HS HC Temp. (°C) DIAMETER (P) 859 47.0 6.0 23.0 0.0374 83.8 9:00 45.0 6.0 23.0 0.0173 77.6 9:13 42.0 6.0 23.0 0.0173 77.6 9:13 42.0 6.0 23.0 0.012 73.5 9:28 40.0 6.0 23.0 0.0073 69.5 9:58 38.0 6.0 23.0 0.0027 75.2 8:58 26.0 6.0 21.0 0.0012 40.9 | 2.0 0.0 0.0 100.0 Pan 111.3 0.00 0.00 100.0 Dasso 0.14 0.3 99.7 0.425 0.85 1.7 98.3 0.250 1.92 3.8 96.2 0.106 3.32 6.6 93.4 0.075 4.02 8.0 92.0 Pan 4.12 7 7 0.194 MAX = 0.3% 7 7 TOTAL PERCEN TOTAL PERCEN NOTAL PERCEN TOTAL PERCEN TOTAL PERCEN Pan COMMETER DATA TOTAL PERCEN Hs Hc Temp. (°C) DIAMETER (P) TOTAL PERCEN Bisso 47.0 6.0 23.0 0.0374 83.8 83.8 9:03 44.0 6.0 23.0 0.0173 77.6 77.6 9:13 42.0 6.0 23.0< | |



for Run

| - | , - | | | | | 23-10 | L3-702 A31 M-422 | | | | |
|------------------|--|-----------------|--|----------------------------------|-----------|--|----------------------|--|--|--|--|
| LIENT: | 10 - 11 - 11 | Pinchin Limited | - 76% ED 12/2 | DEPTH | 5 - 1 | 7 | FILE NO. | PM4184 | | | |
| Roject: | | 231270.001 | | BH OR TP No. | BH | 1 | DATE SAMPLED: | 29-Oct-18 | | | |
| AB No. : | | 06027 | 10.000 | TESTED BY: | D, Bert | rand | DATE RECEIVED: | 05-Nov-1 | | | |
| AMPLED BY: | | W. Tabaczuk | | DATE REPT'D | 13-Nov | /-18 | DATE TESTED | 09-Nov-1 | | | |
| S.S. Same | | The second | | SAMPLE INFORMAT | ION | | | | | | |
| SAMPLE MASS | 1 | 12.3 | ŧ | 50,30 | | | | 27 | | | |
| SPECIFIC GR/ | AVITY (Gs) | 2.700 | | | REMA | RKS | | | | | |
| HYGROSCOPIC | MOISTURE | Tare No. | | | | | | | | | |
| TARE_Wt. | 50.00 | ACTUAL WI. | | | | | | | | | |
| AIR DRY (Wa) | 150.00 | 100.00 | | | | | | | | | |
| OVEN DRY (Wo) | 140.15 | 90.15 | | | | | | | | | |
| F=(Wo/Wa) | |).902 | | | | | | | | | |
| INITIAL Wt. (Ma) | | 50.30 | | | | | | | | | |
| NL CORRECTED | | 15.35 | | | | | | | | | |
| Wt. AFTER WASH | BACK SIEVE | 3.51 | | | | | | | | | |
| OLUTION CONCEN | TRATION | 40 g/L | In Data and March 201 | | | | | | | | |
| | | | | GRAIN SIZE ANALY | SIS | | | | | | |
| SIEV | E DIAMETER (| mm) | WEIGHT | RETAINED (g) | PERCENT R | ETAINED | PERCENT F | ASSING | | | |
| | 63.0 | | | - S | | | | 100 Aug 21 Aug | | | |
| | 53.0 | | 18 Mar 19 19 | condex ben all | | | | | | | |
| | 37.5 | | | | | | | | | | |
| | 26.5 | | | | | | | | | | |
| | 19.0 | | | | | | | | | | |
| | 16.0 | | | And when a what he had a feature | | | | | | | |
| | 13.2 | | | | | | | | | | |
| | 9.5 | | | 0.0 | 0.0 | | 100. | 0 | | | |
| | 4.75 | 1 | | 0.5 | 0.4 | | 99.6 | ; | | | |
| | 2.0 | 1 | and the second sec | 0.5 | 0.4 | | 99.6 | 5 | | | |
| | Pan | | | 11.8 | | | | | | | |
| | A State of the | | | | | | di senan menerika | 1.11.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1 | | | |
| | 0.850 | | | 0.26 | 1.0 | 6 | 99.0 |) — | | | |
| | 0.425 | | | 0.65 | 1.7 | | 98.3 | I | | | |
| | 0.250 | 1 | | 1.25 | 2.9 | | 97,1 | | | | |
| | 0.106 | 1 | | 2.68 | 5,7 | | 94.3 | l | | | |
| | 0.075 | | | 3,38 | 7.1 | | 92.9 |) | | | |
| | Pan | | | 3.51 | | _ | | | | | |
| SIEVE CI | IECK | 0.0 | MA | K = 0.3% | | | _ | | | | |
| | | | | HYDROMETER DA | TA | | | | | | |
| ELAPSED | TIME (24 hours) | Hs | Hc | Temp. (*C) | DIAMETER | (P) | TOTAL PERCEN | T PASSING | | | |
| 1 | 9:43 | 47.0 | 6.0 | 22.0 | 0.0379 | 89.4 | 89.0 | | | | |
| 2 | 9:44 | 46.0 | 6.0 | 22.0 | 0.0271 | 87.2 | 86.8 | | | | |
| 5 | 9:47 | 44.0 | 6.0 | 22.0 | 0.0175 | 82.9 | 82.5 | | | | |
| 15 | 9:57 | 42.0 | 6.0 | 22.0 | 0.0103 | 78.5 | 78.2 | 2 | | | |
| 30 | 10:12 | 40.0 | 6.0 | 22.0 | 0.0074 | 74.1 | 73.6 |) | | | |
| 60 | 10:42 | 39.0 | 6.0 | 22.0 | 0.0053 | 72.0 | 71.6 | ; | | | |
| 250 | 13:52 | 33.0 | 6.0 | 22.0 | 0.0027 | 58.9 | 58,6 | j | | | |
| 1440 | 9:42 | 27.0 | 6.0 | 22.0 | 0.0012 | 45.8 | 45. (| 3 | | | |
| | | | | COMMENTS | | | | STATES. | | | |
| Moisture Conte | ent = 32.7% | | | | | | | | | | |
| | | Curtis Beadow | | | | | Joe Forsyth, P. Eng. | | | | |
| REVIEWED BY: | and the second | | | APPRO | VED BY: | Generation and a second | | | | | |



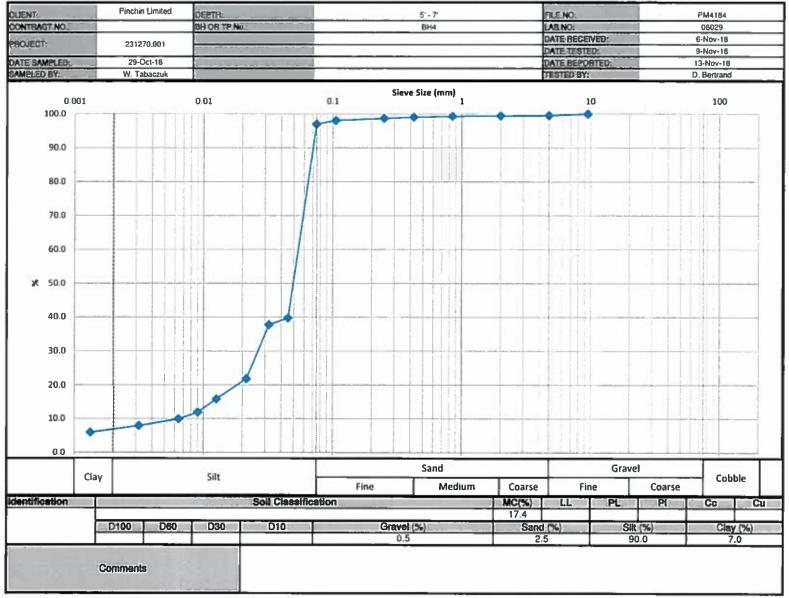
Im Run

and-

| CLIENT: | NAME AND A | Pinchin Limited | | DEPTH | 10'- | 12' | FILE NO. | PM4184 | |
|---------------------|--------------------|-----------------|-------------------------|-----------------|-----------|----------|----------------------|------------|--|
| ROJECT: | | 231270.001 | | BH OR TP No. | BH | | DATE SAMPLED | 29-Oct-18 | |
| AB No. : | | 06028 | | TESTED BY: | D. Ber | | DATE RECEIVED | 06-Nov-1 | |
| SAMPLED BY: | 1. 16 . 16 . 1 | W. Tabaczuk | He was the | DATE REPT D | 13-No | | DATE TESTED | 09-Nov-1 | |
| | and the second | | | SAMPLE INFORMA | | | pine itoreb. | | |
| SAMPLE MASS | 1 | 51.1 | : | 50.30 | | | | | |
| SPECIFIC GR | AVITY (Gs) | 2.700 | | | REM | ARKS | | | |
| HYGROSCOPIC | | Tare No. | | | | | | | |
| TARE WI. | 50.00 | ACTUAL WI. | | | | | | | |
| AIR DRY (Wa) | 150.00 | 100.00 | | | | | | | |
| OVEN DRY (Wo) | 147,55 | 97.55 | | | | | | | |
| F=(Wo/Wa) | 0 | .976 | | | | | | | |
| INITIAL Wt. (Ma) | 5 | 0.30 | | | | | | | |
| Wt. CORRECTED | 4 | 9.07 | | | | | | | |
| Wt. AFTER WAS | H BACK SIEVE | 17.65 | | | | | | | |
| OLUTION CONCEI | TRATION | 40 g / L | | ONLY IN CASE | | | | | |
| | | | | GRAIN SIZE ANAL | SIS | SW: | | an andara | |
| SIE | VE DIAMETER (I | າກກາ) | WEIGHT | RETAINED (g) | PERCENT F | RETAINED | PERCENT | ASSING | |
| | 63.0 | | | | | | | | |
| | 53.0 | | | | | | | | |
| | 37.5 | | 1 | | | | | | |
| | 26.5 | | | 1 | | | | | |
| | 19.0 | | | | | | | | |
| | 16.0 | | | | | | | | |
| | 13.2 | | Collection of the local | | | | | | |
| | 9.5 | | | 0.0 | 0.0 |) | 100. | 0 | |
| | 4.75 | | | 0.6 | 0.4 | 1 | 99.6 | 5 | |
| | 2.0 | | | 1.1 | 0.7 | 1 | 99,3 | 3 | |
| | Pan | | | 150 | | | | | |
| | | | | | | | | | |
| | 0.850 | | | 0.12 | 1.0 |) | 99.0 |) | |
| | 0.425 | | | 0.22 | 1.2 | 2 | 98.6 | 3 | |
| | 0.250 | | | 0.35 | 1.4 | | 98.6 | | |
| | 0.106 | | | 2.44 | 5,5 | 5 | 94.5 | 5 | |
| | 0.075 | | | 1.87 | 24. | 2 | 75.6 | 3 | |
| | Pan | | | 7.65 | | | | | |
| SIEVE C | HECK | 0.0 | MA | K = 0.3% | | _ | | | |
| | | 1 | | HYDROMETER DA | TA | diamont | | | |
| ELAPSED | TIME (24 hours) | Hs | Hc | Temp. (°C) | DIAMETER | (P) | TOTAL PERCE | NT PASSING | |
| 1 | 9:57 | 20.0 | 6.0 | 22.0 | 0.0472 | 28.2 | 28.0 |) | |
| 2 | 9:58 | 16.5 | 6.0 | 22.0 | 0.0342 | 21.2 | 21.0 |) | |
| 5 | 10:01 | 13.5 | 6.0 | 22,0 | 0.0220 | 15.1 | 15.0 | | |
| 15 | 10:11 | 11.0 | 6.0 | 22.0 | 0.0129 | 10,1 | 10.0 |) | |
| 30 | 10:26 | 11.0 | 6.0 | 22.0 | 0.0091 | 10.1 | 10.0 |) | |
| 60 | 10:56 | 11:0 | 6.0 | 22.0 | 0.0064 | 10.1 | 10.0 |) | |
| 250 | 14:06 | 10.0 | 6.0 | 22.0 | 0.0032 | 8.1 | 8.0 | | |
| 1440 | 9:56 | 9,0 | 6.0 | 22.0 | 0.0013 | 6.0 | 6.0 | | |
| | | | | COMMENTS | | | | | |
| Moisture Conte | ent = 16.7% | | | | | | | | |
| | | Curtis Beadow | | | | | Joe Forsyth, P. Eng. | | |
| | EVIEWED BY: | | | - | VED BY: | | Querosad | | |
| REVIEWED BY: | 1 | | | | | | | | |

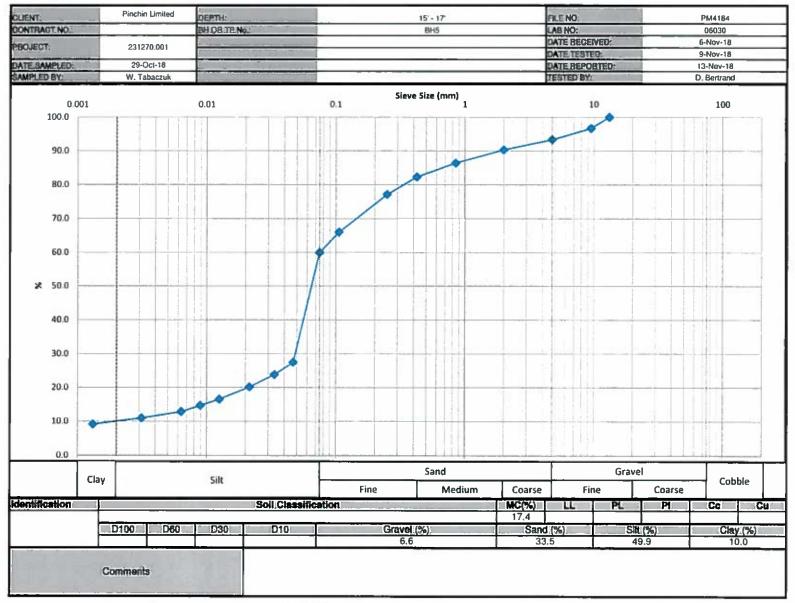
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consulting engineers



In the god-

| CLIENT: | | Pinchin Limited | | DEPTH | 5. | | FILE NO.: | PM4184 | | |
|------------------|--------------------|-----------------|------------------------|--------------------|---------------------------------------|----------------------|----------------------|------------|--|--|
| ROJECT: | Carlos and States | 231270.001 | Street Street | BH OR TP No.: | BH | 4 | DATE SAMPLED: | 29-Oct-18 | | |
| A8 No. : | | 06029 | and the second | TESTED BY: | D. Ber | | DATE RECEIVED: | 06-Nov-18 | | |
| AMPLED BY | | W. Tabaczuk | ARTER CARDIN | DATE REPT'D: | 13-No | v-18 | DATE TESTED: | 09-Nov-18 | | |
| | | | | SAMPLE INFORMAT | non | | | | | |
| SAMPLEMASS | | 131.4 | | 50.30 | | | | | | |
| SPECIFIC G | | 2.700 | | | REM | NRKS | | | | |
| HYGROSCOPI | | Tare No. | | | | | | | | |
| TARE WI. | 50.00 | ACTUAL WI. | | | | | | | | |
| AIR DRY (Wa) | 150.00 | 100.00 | | | | | | | | |
| OVEN DRY (Wo) | 148.50 | 98.50 | | | | | | | | |
| F=(Wo/Wa) | | 0.985 | | | | | | | | |
| INITIAL Wt. (Ma) | | 50.30 | | | | | | | | |
| VI. CORRECTED | | 19.55 | | | | | | | | |
| Wt. AFTER WAS | | 1,54 | | | | | | | | |
| OLUTION CONCE | NTRATION | 40 g / L | States in Cases and an | ODAIN STEE ANALY | | | | | | |
| | | | | GRAIN SIZE ANALY | تجلعك بقيا بالم | | | | | |
| SIE | VE DIAMETER (| mm) | WEIGHT | RETAINED (g) | PERCENT F | TETAINED | PERCENT F | ASSING | | |
| 4 | 63,0 | | | | | | | | | |
| | 53.0 37.5 | | | | | | + | | | |
| | 26.5 | 192 <u>0</u> | | | | | | | | |
| | 20.5 | | | | | | | | | |
| | 19.0 | | | | | | | | | |
| | 13,2 | | | | · · · · · · · · · · · · · · · · · · · | | | | | |
| | 9.5 | | | 0.0 | | | 100. | 0 | | |
| | 4.75 | | | 0.6 | 0.0 | | 99.5 | | | |
| | 2.0 | | | 0.7 | 0.5 | | 99.5 | | | |
| | Pan | | | 32.1 | 0.5 | 2 | | | | |
| | | | | College and on the | Market Market Street | | | | | |
| | 0.850 | | | 0.07 | 0.7 | 7 | | 1 | | |
| · · | 0.425 | | | 0.21 | 0.9 | | 99.1 | | | |
| | 0.250 | | | 0.38 | 1.5 | | 98.7 | | | |
| | 0.106 | | | 0.71 | 1.5 | | 98.1 | | | |
| | 0.075 | | | 1.26 | 3.0 | | 97.0 | | | |
| | Pan | | S- SAUCE | 1.54 | | | | - | | |
| SIEVE | CHECK | 0.0 | MAX | (= 0.3% | | , | | | | |
| | | | | HYDROMETER DA | TA | | a the second second | | | |
| ELAPSED | TIME (24 hours) | Hs | Hc | Temp. (°C) | DIAMETER | (P) | TOTAL PERCEN | NT PASSING | | |
| 11 | 10:14 | 26.0 | 6.0 | 22.0 | 0.0453 | 39.9 | 39.7 | 7 | | |
| 2 | 10:15 | 25.0 | 6.0 | 22.0 | 0.0323 | 37.9 | 37. | , | | |
| 5 | 10:18 | 17.0 | 5.0 | 22.0 | 0.0215 | 22.0 | 21.8 | 3 | | |
| 15 | 10:28 | 14.0 | 6.0 | 22.0 | 0.0127 | 16.0 | 15.9 |) | | |
| 30 | 10:49 | 12.0 | 6.0 | 22.0 | 0.0091 | 12.0 | 11.9 |) | | |
| 60 | 11.13 | 11.0 | 6.0 | 22.0 | 0.0064 | 10.0 | 9.9 | | | |
| 250 | 14;23 | 10.0 | 6.0 | 22.0 | 0.0032 | 8.0 | 7.9 | | | |
| 1440 | 10:13 | 9.0 | 6.0 | 22.0 | 0.0013 | 6.0 | 6.0 | | | |
| Interne On 1 | | | | COMMENTS | | | | | | |
| loisture Cont | ent = 17.4% | | | | | | | | | |
| | | Curtis Beadow | | | | | Joe Forsyth, P. Eng. | | | |
| | | | | 40000 | VED BY: | Joe Forsyth, P. Eng. | | | | |
| REVIEWED BY: | | | | | | | | | | |



Im Run ve -1---

| LIENT: | | Pinchin Limited | | DEPTH | 15'- | 17 | FILE NO.: | PM4184 |
|-----------------------|--|-----------------|----------------------|------------------|----------------------------|------------|-------------------------------|-----------------|
| ROJECT: | and the second s | 231270.001 | 0 | BH OR TP No.: | BH | 5 | DATE SAMPLED: | 29-Oct 18 |
| AB No. : | | 06030 | | TESTED BY: | D, Berl | rand | DATE RECEIVED: | 06-Nov-18 |
| AMPLED BY: | | W. Tabaczuk | | DATE REPT D | 13-No | v-18 | DATE TESTED: | 09-Nov-18 |
| | | | | SAMPLE INFORMAT | TION | | | - 21 |
| SAMPLE MASS | 1 | 47.6 | | 50.30 | | | | |
| SPECIFIC GF | | 2.700 | | | REM | VRKS | | |
| HYGROSCOPI | | Tare No. | | | | | | |
| TARE WL | 50.00 | ACTUAL Wt. | | | | | | |
| AIR DRY (Wa) | 150.00 | 100.00 | | | | | | |
| OVEN DRY (Wo) | 146.75 | 96.75 | | | | | | |
| F=(Wo/Wa) | | .968 | | | | | | |
| NITIAL Wt. (Ma) | | 60:30 | | | | | | |
| I. CORRECTED | | 8.67 | | | | | | |
| Wt. AFTER WAS | | 17.73 | | | | | | |
| OLUTION CONCE | NTRATION | 40 g / L | | | | | | |
| | | | | GRAIN SIZE ANALY | <u>SIS</u> | | 1 | |
| SIE | VE DIAMETER (| mm) | WEIGHT | RETAINED (g) | PERCENT F | ETAINED | PERCENT | PASSING |
| | 63.0 | | C. P. STATE ALSO, S. | | | | | |
| | 53.0 | | | 100 C | | | | |
| | 37.5 | | | | | | | |
| | 19.0 | | | | | | | |
| | 16.0 | | | | | | | |
| | 13.2 | | | 0.0 | | - | 100 | 0 |
| | 9,5 | | | 4.9 | 0.0 | | 96. | |
| | 4.75 | | | 9.8 | 3.3 | | 93.4 | |
| | 2.0 | | | 14.3 | 6.6 | | 90. | |
| | Pan | | | 33.3 | 9.1 | | | |
| and a personal person | | Section 201 | | | and a second second second | | and a special sector starting | (1997) - A. (1) |
| | 0.850 | - | | 2,19 | 13. | 6 | 86.4 | 4 |
| | 0.425 | | | 4.49 | 17. | | 82. | |
| | 0.250 | | | 7.37 | 22. | | 77, | |
| | 0.106 | | | 3.55 | 34 | | 66.0 | |
| | 0.075 | | | 6.92 | 40. | | 59. | |
| | Pan | | | 7.73 | | | | |
| SIEVE | | 0.0 | | K = 0.3% | · · · · | | | |
| | | | | HYDROMETER DA | TA | ight in th | | |
| ELAPSED | TIME | Hs | Hc | Temp. (°C) | DIAMETER | (P) | TOTAL PERCE | NT PASSING |
| ELAPSED 1 | (24 hours) 10:32 | 21,0 | 6.0 | 22.0 | 0.0469 | 30.5 | 27.5 | 5 |
| 2 | 10:33 | 19.0 | 6.0 | 22.0 | 0.0336 | 26.4 | 23. | |
| 5 | 10:36 | 17.0 | 6.0 | 22,0 | 0.0215 | 22.4 | 20.1 | |
| 15 | 10:46 | 15.0 | 6.0 | 22.0 | 0.0126 | 18.3 | 16. | |
| 30 | 11:01 | 14.0 | 6.0 | 22.0 | 0.0090 | 16.3 | 14. | |
| 60 | 11:31 | 13.0 | 6.0 | 22.0 | 0.0064 | 14.2 | 12.1 | |
| 250 | 14:41 | 12.0 | 6.0 | 22.0 | 0.0031 | 12.2 | 11. | |
| 1440 | 10:31 | 11.0 | 6.0 | 22.0 | 0.0013 | 10.2 | 9.2 | |
| and the second | | | 1111 | COMMENTS | | 1 | | |
| loisture Cont | ent = 15.3% | | | 1 | | | | |
| | 2.941 | Curtis Beadow | | | | | Joe Forsyth, P. Eng. | |
| REVIEWED BY: | Lon | An | | APPRO | VED BY: | | great | |



Certificate of Analysis **Client: Paterson Group Consulting Engineers** Client PO: 25691

Order #: 1850490

Report Date: 17-Dec-2018

Order Date: 13-Dec-2018

Project Description: PG4778

| | Client ID: | BH2 SS3 5' - 7' | - | - | - |
|--------------------------|---------------|------------------|---|---|---|
| | Sample Date: | 12/12/2018 11:00 | - | - | - |
| | Sample ID: | 1850490-01 | - | - | - |
| | MDL/Units | Soil | - | - | - |
| Physical Characteristics | | | | | |
| % Solids | 0.1 % by Wt. | 69.7 | - | - | - |
| General Inorganics | - | | | | |
| рН | 0.05 pH Units | 7.47 | - | - | - |
| Resistivity | 0.10 Ohm.m | 43.1 | - | - | - |
| Anions | | | | | |
| Chloride | 5 ug/g dry | 41 | - | - | - |
| Sulphate | 5 ug/g dry | 102 | - | - | - |



APPENDIX 2

FIGURE 1 – KEY PLAN FIGURES 2 & 3 – SEISMIC SHEAR WAVE VELOCITY PROFILES DRAWING PG4783-1 – TEST HOLE LOCATION PLAN DRAWING PG4783-2 – NATIVE SOIL CONTOUR PLAN

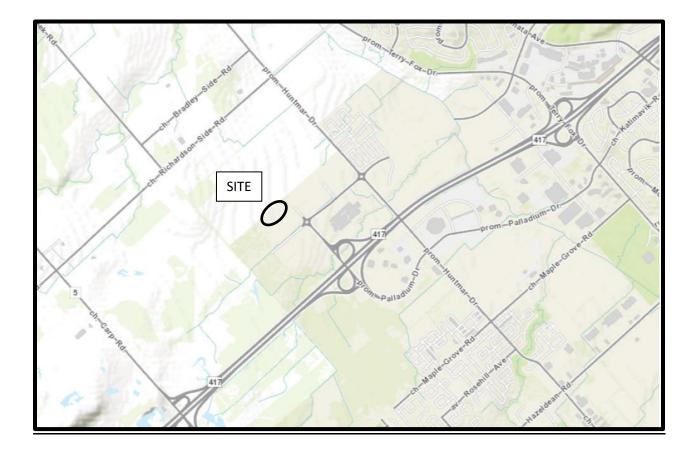


FIGURE 1

KEY PLAN



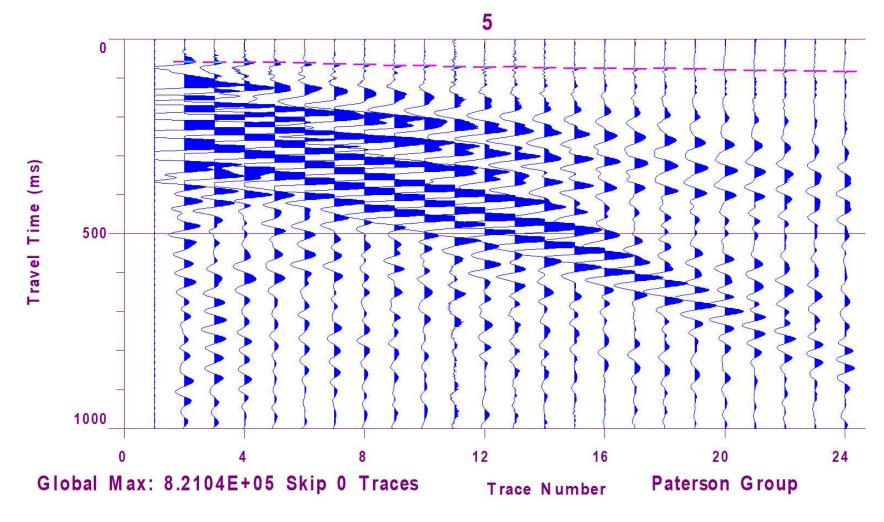


FIGURE 2 - Shear Wave Velocity Profile at Shot Location -15 m

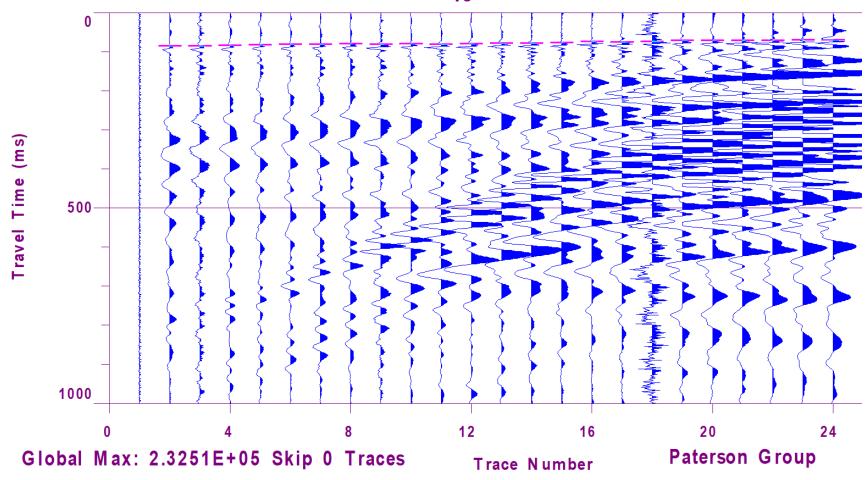
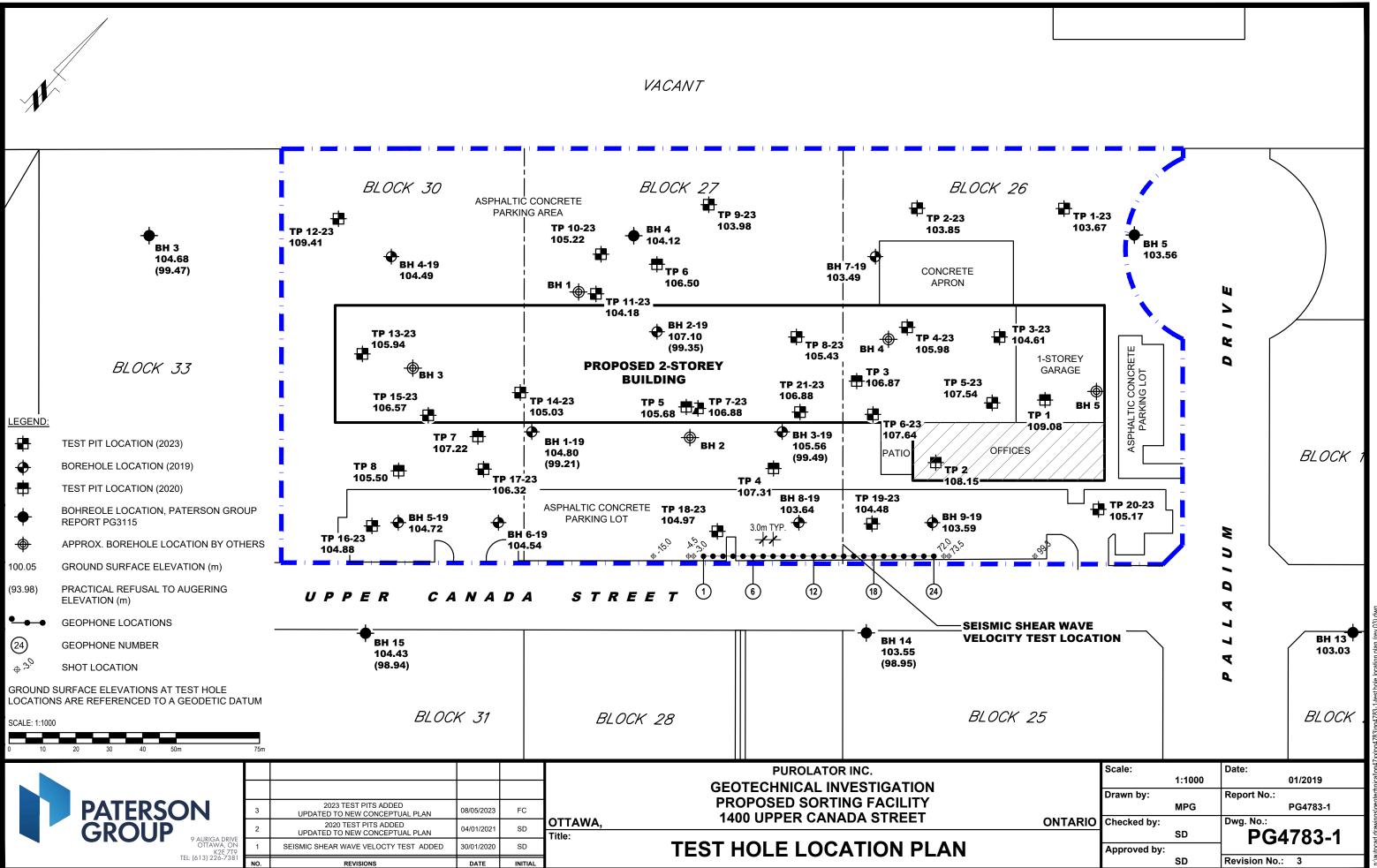
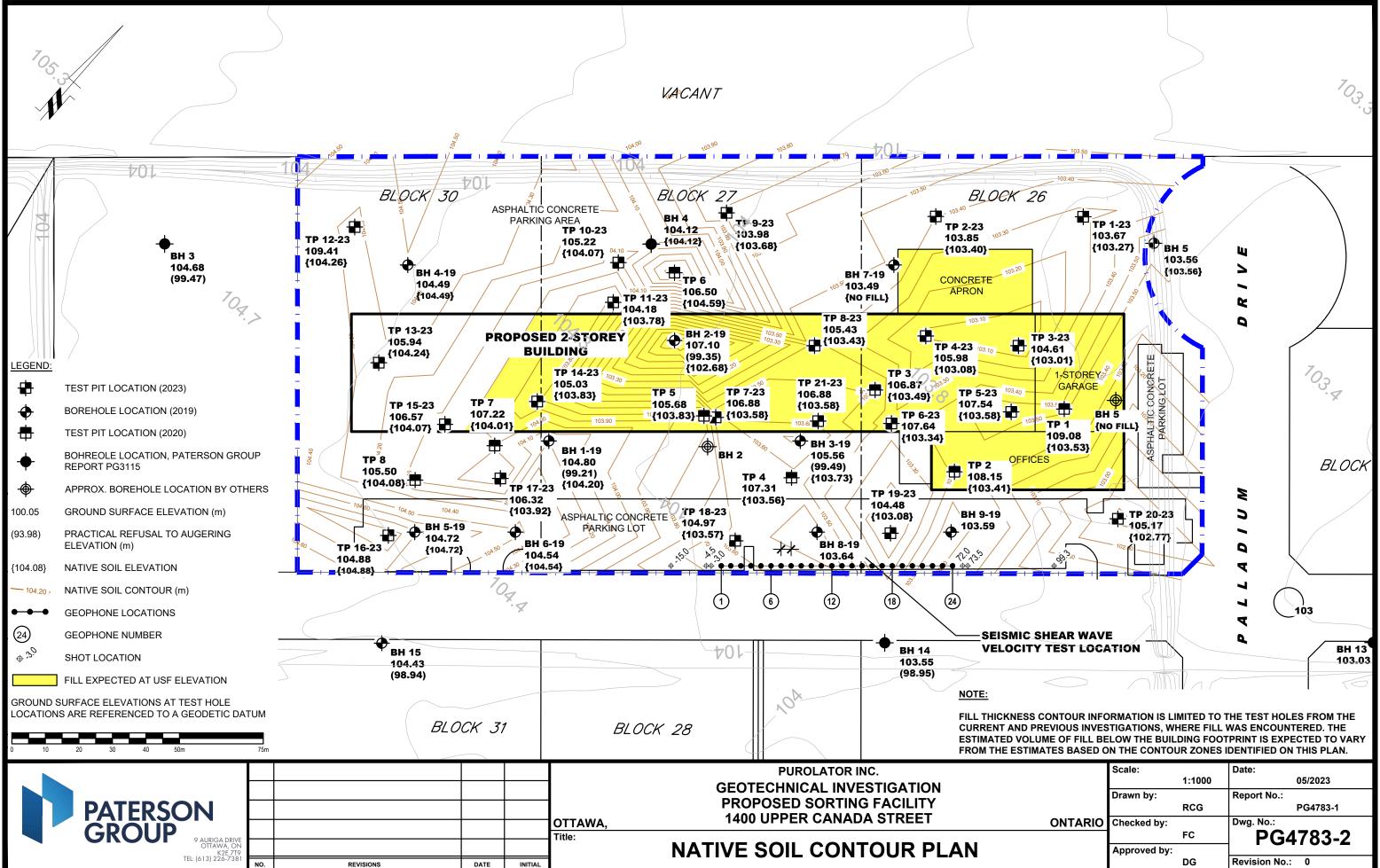


FIGURE 3 – Shear Wave Velocity Profile at Shot Location +72 m

15

patersongroup





| | Scale: | | Date: |
|---------|--------------|--------|-----------------|
| | | 1:1000 | 05/2023 |
| | Drawn by: | | Report No.: |
| | | RCG | PG4783-1 |
| ONTARIO | Checked by: | | Dwg. No.: |
| | | FC | PG4783-2 |
| | Approved by: | | |
| | | DG | Revision No.: 0 |



APPENDIX 3

PE6052-LET.01 - EXCESS SOIL QUALITY ASSESSMENT



May 8, 2023 File: PE6052-LET.01

Purolator c/o Taggart Realty Management 222 Metcalfe Street Ottawa, Ontario K2P 1P9

Attention: Mr. Braden Walker

Subject: Proposed Commercial Development Excess Soil Quality Assessment 1400 Upper Canada Street Ottawa, Ontario **Consulting Engineers**

9 Auriga Drive Ottawa, Ontario K2E 7T9 **Tel: (613) 226-7381**

Geotechnical Engineering Environmental Engineering Hydrogeology Materials Testing Building Science Rural Development Design Retaining Wall Design Noise and Vibration Studies

patersongroup.ca

Dear Sir,

Further to your request and authorization, Paterson Group (Paterson) conducted an excess soil quality assessment at the above-noted site (Project Area). Based on preliminary estimates, approximately 20,000 m³ of excess soil will be generated.

1.0 Background

Based on brief historical research, no known areas of potential environmental concern (APECs) have been identified, other than fill material of unknown quality. Based on the observations made during the site visit and field program it was recommended that the analytical testing parameters include PAHs and EC/SAR beyond the minimum required sampling under O.Reg 406/19 (PHCs, BTEX, and Metals).

The excess soils testing is being completed for due diligence purposes prior to the redevelopment of the property.

2.0 Observations

Paterson conducted a test pit program within the project area on April 17, 2023. A total of 21 test pits were excavated within the project area as shown on drawing PE6052-1-Test Hole Location Plan, appended to this letter.





Mr. Braden Walker Page 2 File: PE6052-LET.01

The soils encountered across the site generally consisted of brown silty clay to clayey silt fill underlain by native brown silty clay or clayey silt encountered in TP6-12 and TP21-23. Asphalt fragments were identified within the fill material in TP10-23 and TP14-23. Additionally, brick fragments were encountered within the fill material in TP17-23. The test pits were excavated to depths ranging from 0.4 to 5.4 m below grade, terminated in native brown silty clay or clayey silt. No other apparent deleterious materials or any visual or olfactory signs of potential contamination were observed in the samples collected during the field program.

All soil samples collected were subject to a preliminary screening procedure, which included visual screening for colour and evidence of deleterious materials, as well as soil vapour screening with a photo ionization detector (PID). The vapour readings were not considered to be representative of volatile organic compound impacts.

3.0 Analytical Test Results

A total of 30 representative soil samples and three duplicate samples (of TP1-23-G1, TP15-23-G1 and TP19-23-G2) were submitted to Paracel Laboratories (Paracel) in Ottawa for bulk analysis of benzene, ethylbenzene, toluene, and xylenes (BTEX), petroleum hydrocarbons (PHCs, Fractions F₁ to F₄), metals, polycyclic aromatic hydrocarbons (PAHs) and EC/SAR. Five representative soil samples were also submitted for pH analysis.

Although a reuse site has not been formally selected, the Ministry of the Environment, Conservation and Parks (MECP) Table 1 Residential standards and Table 2.1 Residential, Parkland and Institutional (RPI), were identified as generic reuse site standards.

The test results obtained during the current investigation are appended to this letter along with the laboratory certificates of analysis.

3.1 Metals

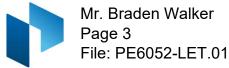
All samples complied with the MECP Table 2.1 RPI reuse standards. Multiple soil samples exceed the MECP Table 1 Residential reuse standards for Barium. The identified Barium concentrations are considered to be naturally occurring.

3.2 PAHs

All samples complied with the MECP Table 1 Residential and MECP Table 2.1 RPI reuse standards.

3.3 BTEX

All samples complied with the MECP Table 1 Residential and MECP Table 2.1 RPI reuse standards.



3.4 PHCs (F₁-F₄)

All samples complied with MECP Table 2.1 RPI reuse standards. All samples complied with the MECP Table 1 Residential reuse standards with the exception of sample TP10-23-G2, which exceeds the selected MECP Table 1 standard for PHC fraction F₄.

3.5 EC/SAR

All samples complied with the MECP Table 1 Residential and MECP Table 2.1 RPI reuse standards.

3.6 pH

Five soil samples, TP1-23-G1, TP5-23-G4, TP6-23-G4, TP12-23-G3, TP13-23-G4, TP14-23-G4, TP19-23-G2 and TP21-23-G1 were submitted for analysis of pH.

The analytical test results were found to be within the pH range of 5.0 and 9.0 and are therefore within the acceptable range for both surface and subsurface soils.

Conclusion

A total of 21 test pits were excavated at the project area to assess the conditions of the soil on site.

Thirty soil samples and three duplicate samples, representative of the excess soil that will be generated from the project area, were submitted for analysis of benzene, toluene, ethylbenzene and xylenes (BTEX), petroleum hydrocarbons (PHCs, Fractions F₁ to F₄), metals, polycyclic aromatic hydrocarbons (PAHs) and EC/SAR. An additional five samples were submitted for pH analysis.

Although a reuse site has not been selected, analytical results were compared to Table 1 Residential and Table 2.1 RPI for general soil management purposes.

All soil samples collected from the test pits advanced on the Project Area were found to comply with MECP Table 2.1 RPI standards. The excess soil generated from the Project Area can beneficially be reused at this type of property and properties with less stringent reuse standards (provided the placement is in accordance with the regulation).

Several soil samples exceed the MECP Table 1 Residential standards for the metal parameter Barium. These exceedances are considered to be naturally occurring and are representative of the native soil conditions throughout the Ottawa Area. A review of the proposed reuse site should be conducted to determine its suitability to accept the naturally elevated Barium concentrations.



Mr. Braden Walker Page 4 File: PE6052-LET.01

Sample TP10-23-G2 exceeded the selected MECP Table 1 standard for PHC fraction F_4 . If the reuse site accepts only Table 1 soil, further delineation of the soil in the area of TP10 is recommended to confirm the boundaries of the PHCs in the soil.

As mentioned in Section 2.1 and identified in the attached test hole logs, discrete areas were identified where asphalt, brick, and other debris are present within the fill material. This soil should be retained onsite wherever possible and/or the deleterious material be removed and appropriately disposed.

Statement of Limitations

A soils investigation of this nature is considered to be a limited sampling program. Should any conditions at the site be encountered which differ from those at the test locations, we request that we be notified immediately in order to permit reassessment of our recommendations/conclusions.

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 Purolator c/o Taggart or their agents, without review by this firm for the applicability of our recommendations to the altered use of the report, is prohibited.

Regards,

Paterson Group Inc.

Samuel Berube, EIT.

Michael Beaudoin, P.Eng. QPesa

Attachments

- Decomposition Plan
- Soil Profile and Test Data Sheets
- □ Laboratory Results Compared to MECP Table 1 Residential
- Laboratory Results Compared to MECP Table 2.1 RPI
- Certificates of Analysis

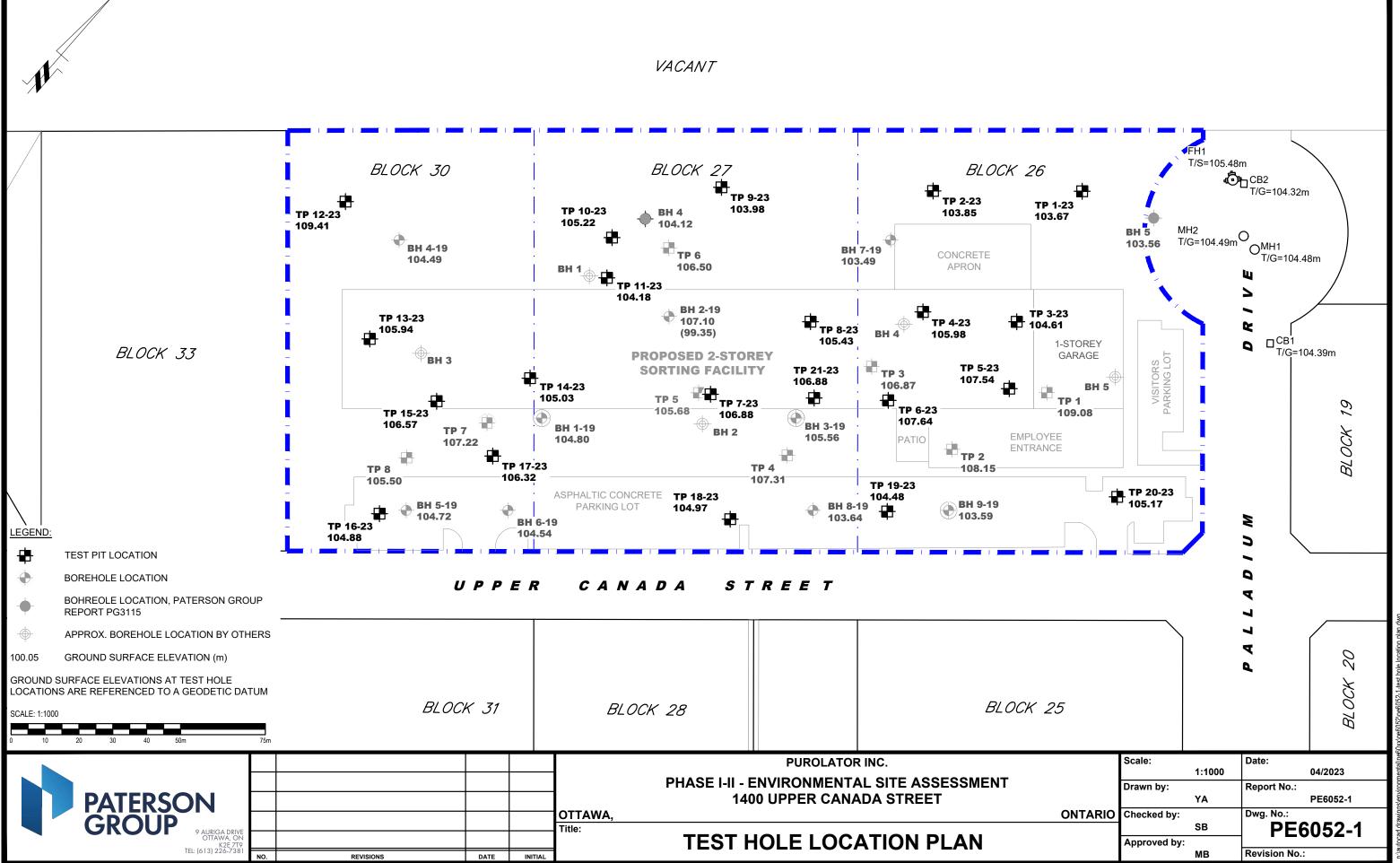
Ottawa Head Office

9 Auriga Drive Ottawa – Ontario – K2E 7T9 Tel: (613) 226-7381

Ottawa Laboratory

28 Concourse Gate Ottawa – Ontario – K2E 7T7 Tel: (613) 226-7381 Northern Office and Laboratory 63 Gibson Street North Bay – Ontario – P1B 8Z4 Tel: (705) 472-5331





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SOIL PROFILE AND TEST DATA

Phase II - Environmental Site Assessment Proposed Sorting Facility - 1400 Upper Canada Street Ottawa, Ontario

FILE NO.

9 Auriga Drive, Ottawa, Ontario K2E 7T9

Geodetic DATUM

| | | | | | | | | | | PE60 | 52 | | |
|--|--------------|----------------------------|--------|---------------|-------------------|-----|---------|--------|---------|-------------|---------------|--------------------------|-----------------|
| REMARKS | | | | | | | | | | HOLE | | | |
| BORINGS BY Excavator | | DATE April 17, 2023 | | | | | | | TP 1-23 | | | | |
| | PLOT | | SAN | IPLE | | | Pho | oto lo | nizatio | on Det | ector | le c | |
| SOIL DESCRIPTION | | | | 1 | 1 | | ELEV. | | | le Organ | | | Monitoring Well |
| | | | Ř | XX B | | (m) | (m) | | | | | | t in |
| | STRATA | ТҮРЕ | NUMBER | ove ove | RC | | | 0 L | ower | Explo | sive L | imit % | nito |
| GROUND SURFACE | S I | H | D N | % RECOVERY | N VALUE of RQD | | | | | | | | <u>ē</u> č |
| | | | | - | | 0- | -103.67 | | 0 | 40 | 60 | 80 | |
| TOPSOIL0.05 FILL: Brown silty clay, trace | XX | | | | | | | | | | | | |
| organice 0.40 | \bigotimes | G | 1 | | | | | • | | | | | |
| Very stiff, brown SILTY CLAY, trace | XX | G | 2 | | | | | | | | | | |
| sand0.60 End of Test Pit | | | | | | | | | | | | | 1 |
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SOIL PROFILE AND TEST DATA

Phase II - Environmental Site Assessment Proposed Sorting Facility - 1400 Upper Canada Street Ottawa, Ontario

FILE NO.

9 Auriga Drive, Ottawa, Ontario K2E 7T9

Geodetic DATUM

| DEMARKO | | | | | | | | | PE | 6052 | | |
|--|-------------------|------------|--------|---------------|-------------------|-------------|--------------|----------|-----------|-----------|------------|-----------------|
| REMARKS | | | | | | | | | | E NO. | | |
| BORINGS BY Excavator | | | | D | DATE | April 17, 2 | 2023 | | | 2-23 | | 1 |
| | Е | | SAN | IPLE | | DEDTU | ELEV. | Photo | loniza | tion Det | ector | |
| SOIL DESCRIPTION | PLOT | | | ы | | | ELEV. (m) | Vol | atile Org | ganic Rdg | (ppm) | |
| | STRATA | ТҮРЕ | NUMBER | % RECOVERY | N VALUE or RQD | | | ○ Low | er Exp | losive L | imit % | Monitoring Well |
| GROUND SURFACE | S S | | N | RE | z ° | | 100.05 | 20 | 40 | 60 | 80 | ž |
| TOPSOIL0.05 | | j. | | | | - 0- | -103.85 | | | | | |
| FILL: Brown silty clay to clayey silt, trace sand and organics | \bigotimes | G | 1 | | | | | | | | | |
| | $\nabla \nabla X$ | ⊨ - | | | | | | | | | | |
| Very stiff to hard, brown SILTY 0.65 | PLL. | G | 2 | | | | | | . <u></u> | | <u> </u> | - |
| End of Test Pit | | ľ | | | | | | | | | | |
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| | | | | | | | | 100 | 200 | 300 | 400 5 | ⊣ 00 |
| | | | | | | | | RKI | Eagle | Rdg. (p | pm) | |
| | | | | | | | | ▲ Full C | Gas Res | p. 🛆 Metl | nane Elim. | |

SOIL PROFILE AND TEST DATA

Phase II - Environmental Site Assessment Proposed Sorting Facility - 1400 Upper Canada Street Ottawa, Ontario

FILE NO.

9 Auriga Drive, Ottawa, Ontario K2E 7T9

DATUM Geodetic

| REMARKS | | | | | | | | | PE6052 | |
|---|----------|------|--------|-------------|-------------------|-------------|----------|-----|--|-----------------|
| BORINGS BY Excavator | | | | г | | April 17, 2 | 2023 | | HOLE NO. TP 3-23 | |
| SOIL DESCRIPTION | PLOT | | SAN | IPLE | | DEPTH | ELEV. | | onization Detector | Well |
| | STRATA F | ТҮРЕ | NUMBER | °8 ©™ERY | N VALUE or RQD | (m) | (m) | | er Explosive Limit % | Monitoring Well |
| GROUND SURFACE | | | | 8 | Z | 0 | -104.61 | 20 | 40 60 80 | 2 |
| T OPSOIL 0.05 | | | | | | | - 104.61 | | | |
| FILL: Brown silty sand to sandy silt, trace clay, organics, occasional cobbles | | _ G | 1 | | | | | • | | - |
| | | G | 2 | | | 1- | -103.61 | • | | |
| Very stiff to hard, brown SILTY CLAY, trace sand 1.80 End of Test Pit | VVX | G | 3 | | | | | • | | |
| | | | | | | | | 100 | 200 300 400 50 | |
| | | | | | | | | | 200 300 400 50 Eagle Rdg. (ppm) as Resp. △ Methane Elim. | |

SOIL PROFILE AND TEST DATA

Phase II - Environmental Site Assessment Proposed Sorting Facility - 1400 Upper Canada Street Ottawa, Ontario

9 Auriga Drive, Ottawa, Ontario K2E 7T9

Geodetic DATUM

| DATUM Geodetic | | | | | | | | | FILE NO. PE6052 | | |
|---|--------------|------|--------|---------------|-------------------|--------------|--------------|--------------------------|---|----|---------------------------------|
| REMARKS | | | | | | | | | HOLE NO. | | |
| BORINGS BY Excavator | | | | D | ATE | April 17, 2 | 2023 | 1 | TP 4-23 | | 1 |
| SOIL DESCRIPTION | PLOT | | | MPLE | | DEPTH (m) | ELEV. (m) | | onization Det tile Organic Rdg. | | ng Well |
| | STRATA | ТҮРЕ | NUMBER | % RECOVERY | N VALUE or RQD | | | Lowe | r Explosive L | | Monitoring Well Construction |
| GROUND SURFACE | | | | 24 | 2 | 0- | 105.98 | 20 | 40 60 | 80 | 2 |
| | | G | 1 | | | | 104.00 | • | | | |
| FILL: Topsoil with some sand, organics, trace clay, occasional cobbles | | G | 2 | | | 1- | -104.98 | • | | | - |
| | | G | 3 | | | 2- | - 103.98 | • | | | |
| Very stiff to hard, brown SILTY CLAY, trace sand 3. End of Test Pit | 90 X 10 1 | G | 4 | | | 3- | -102.98 | • | | | - |
| | | | | | | | | 100 | 200 300 | | - 00 |
| | | | | | | | | | Eagle Rdg. (p as Resp. △ Meth | | |

SOIL PROFILE AND TEST DATA

Phase II - Environmental Site Assessment Proposed Sorting Facility - 1400 Upper Canada Street Ottawa, Ontario

> FILE NO. ----

9 Auriga Drive, Ottawa, Ontario K2E 7T9

Geodetic

| REMARKS | | | | | | | | | | | <u>=60</u> | | | | |
|--|--------------|-------|--------|---------------|-------------------|-------------|---------|---|------------|--------------------------|---------------|---------------|------------|-----|---------------------------------|
| BORINGS BY Excavator | | | | D | ATE | April 17, 2 | 2023 | | | | DLE N D 5- | | | | |
| SOIL DESCRIPTION | PLOT | | SAN | IPLE | | DEPTH | ELEV. | | | loniz latile C | | | | | d Well |
| | STRATA | ТҮРЕ | NUMBER | % RECOVERY | N VALUE or RQD | (m) | (m) | 0 | Low | er Ex | plo | sive | Limi | t % | Monitoring Well Construction |
| GROUND SURFACE | S | | Z | RE | z ^o | 0 | -107.54 | | 20 | 40 | | 60 | 80 | | ž |
| TOPSOIL0.05 | \bigotimes | | | | | 0 | -107.54 | | | | | | | | |
| FILL: Topsoil with dark brown silty sand, some organics, trace clay, occasional cobbles | | G | 1 | | | 1- | -106.54 | | | | | | | | |
| <u>1.25</u> | | G | 2 | | | | • | | | | | | | | |
| FILL: Dark brown silty sand, some silt and clay, trace organics, occasional cobbles | | | | | | 2- | -105.54 | | | | | | | | |
| 2.80 | | G | 3 | | | 3- | -104.54 | | | | | | | | |
| FILL: Light brown to grey silty clay, some organics, trace gravel, occasional cobbles | | G | 4 | | | 4- | -103.54 | | | | | | | | |
| 4.55 Very stiff, light brown SILTY CLAY 4.70 Trace sand End of Test Pit | | G | 5 | | | | • | | | | | | | | |
| | | | | | | | | | 100 RKI | 200 Eagl | | 300 dg. (j | 400 ppm | | 600 |
| | | | | | | | | | | Gas Re | | | | | |

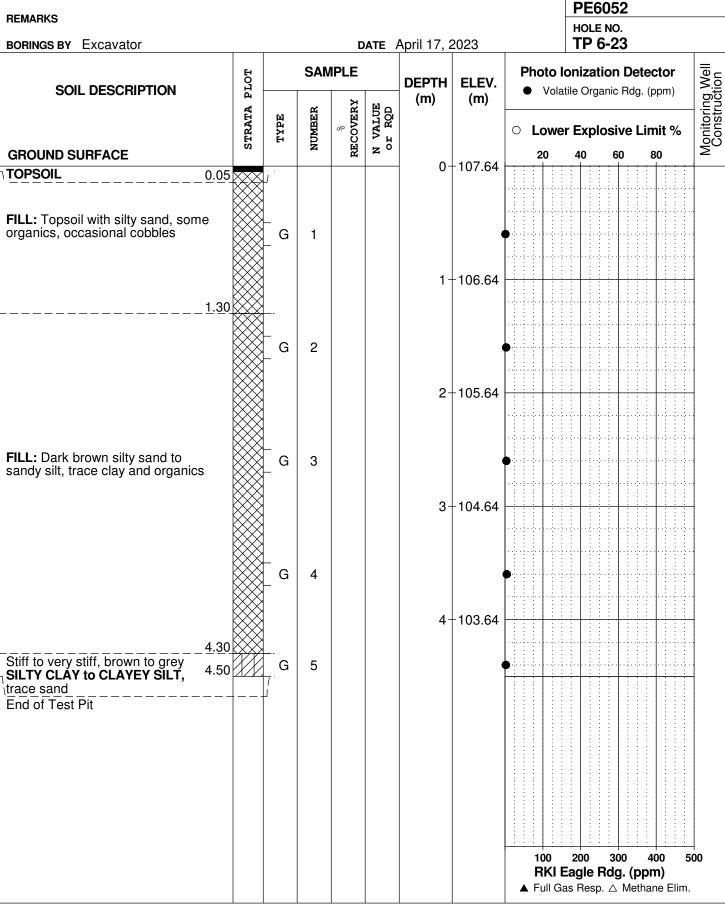
SOIL PROFILE AND TEST DATA

Phase II - Environmental Site Assessment Proposed Sorting Facility - 1400 Upper Canada Street Ottawa, Ontario

FILE NO.

9 Auriga Drive, Ottawa, Ontario K2E 7T9

Geodetic



SOIL PROFILE AND TEST DATA

Phase II - Environmental Site Assessment Proposed Sorting Facility - 1400 Upper Canada Street Ottawa, Ontario

9 Auriga Drive, Ottawa, Ontario K2E 7T9

| DATUM Geodetic | | | | | | | | | FILE NO | | |
|--|--------|--------|--------|---------------|-------------------|--------------|--------------|----|---------|--|---------------------------------|
| REMARKS | | | | | | | | | HOLE N | 0. | |
| BORINGS BY Excavator | | | | D | ATE / | April 17, 2 | 2023 | | TP 7-2 | 23 | |
| SOIL DESCRIPTION | PLOT | | | IPLE | м | DEPTH (m) | ELEV. (m) | | | n Detector ic Rdg. (ppm) | ng Well uction |
| | STRATA | ТҮРЕ | NUMBER | % RECOVERY | N VALUE or RQD | | | | - | sive Limit % | Monitoring Well Construction |
| | | | | Ř | 4 | 0- | 106.88 | 20 | 40 | 60 80 | 2 |
| FILL: Brown silty sand to sandy silt, trace organics, occasional cobbles | | G G | 1 2 | | | 1- | -105.88 | | | | |
| 2.00 | | _ G | 3 | | | 2- | -104.88 | | | | |
| FILL: Light brown silty sand with topsoil, trace organics, occasional cobbles | | G | 5 | | | 3- | - 103.88 | • | | | |
| Hard, brown SILTY CLAY, trace sand End of Test Pit | VVX | G | 6 | | | | | | | | |
| | | | | | | | | | agle Ro | 300 400 50 I g. (ppm) △ Methane Elim. | 00 |

SOIL PROFILE AND TEST DATA

Phase II - Environmental Site Assessment Proposed Sorting Facility - 1400 Upper Canada Street Ottawa, Ontario

9 Auriga Drive, Ottawa, Ontario K2E 7T9

| DATUM Geodetic | | | | | · | | | | FILE NO. PE6052 | | |
|---|----------|-------|--------|---------------|-------------------|--------------|--------------|--------|---|-------|---------|
| REMARKS | | | | | | | | | HOLE NO. | | |
| BORINGS BY Excavator | | | | D | ATE | April 17, 2 | 2023 | | TP 8-23 | | |
| SOIL DESCRIPTION | РГОТ | | SAN | IPLE | | DEPTH (m) | ELEV. (m) | | onization Dete tile Organic Rdg. (| ppm) | iction |
| | STRATA | ТҮРЕ | NUMBER | % RECOVERY | N VALUE or RQD | | | ○ Lowe | r Explosive Lir | mit % | Constru |
| GROUND SURFACE | _ | | 4 | R | zv | 0- | 105.43 | 20 | 40 60 | 80 ≥ | : |
| TOPSOIL0.05 | \times | ۲ | | | | | 100.40 | | | | |
| FILL: Brown silty sand to sandy silt, trace organics, occasional cobbles | | G | 1 | | | | • | • | | | |
| | | G | 2 | | | 1- | -104.43 | | | | |
| | | G | 3 | | | | | | | | |
| 2.00 Very stiff to hard, brown SILTY 2.20 | | G | 4 | | | 2- | -103.43 | | | | |
| CLAYEnd of Test Pit | | Τ. | | | | | | | | | |
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| | | | | | | | | | 200 300 4 Eagle Rdg. (pp as Resp. △ Metha | | |

SOIL PROFILE AND TEST DATA

Phase II - Environmental Site Assessment Proposed Sorting Facility - 1400 Upper Canada Street Ottawa, Ontario

9 Auriga Drive, Ottawa, Ontario K2E 7T9

| DATUM Geodetic | | | | | | | | | FILE NO | | |
|--|--------------|------------------|--------|---------------|-------------------|--------------|--------------|--------|----------------|---|-----------------|
| REMARKS | | | | _ | | | 000 | | HOLE | NO. | |
| BORINGS BY Excavator | | | | D | AIE | April 17, 2 | 2023 | | TP 9- | -23 | 1 |
| SOIL DESCRIPTION | PLOT | | | IPLE | | DEPTH (m) | ELEV. (m) | | | nic Rdg. (ppm) | Nell Mell |
| | STRATA | ТҮРЕ | NUMBER | % RECOVERY | N VALUE or RQD | | | ○ Lowe | r Explo | sive Limit % | Monitoring Well |
| GROUND SURFACE | | | 4 | RI | zv | 0- | -103 98 | 20 | 40 | 60 80 | ≥ |
| TOPSOIL 0.05 FILL: Brown silty clay to clayey silt0.30 trace organics and sand 0.40 Very stiff to hard, brown SILTY CLAY End of Test Pit | \bigotimes | G G G I | 1 2 | | | - 0- | -103.98 | | | | |
| | | | | | | | | | agle R | 300 400 5 dg. (ppm) △ Methane Elim. | 600 |

SOIL PROFILE AND TEST DATA

Phase II - Environmental Site Assessment Proposed Sorting Facility - 1400 Upper Canada Street Ottawa, Ontario

FILE NO.

9 Auriga Drive, Ottawa, Ontario K2E 7T9

Geodetic

| DEMA DIZO | | | | | | | | | | P | E605 | 52 | | |
|--|--------------|------|---------|---------------|-------------------|-------------|---------|------|--------|-------|--------------------------|--------|-------|---------------------------------|
| REMARKS | | | | | | | | | | | | | | |
| BORINGS BY Excavator | | 1 | | D | ATE | April 14, 2 | 2023 | | | T | P10-: | 23 | | -1 |
| SOIL DESCRIPTION | PLOT | | SAN | IPLE | 1 | DEPTH | ELEV. | | | | zatior Organic | | | Mell Mell |
| | STRATA | ТҮРЕ | NUMBER | % RECOVERY | N VALUE or RQD | (m) | (m) | 0 | Low | er E | xplosi | ve Li | mit % | Monitoring Well Construction |
| GROUND SURFACE | LS LS | H | DN N | REC | N N | | | | 20 | 40 | - | 60 | 80 | SQ SQ |
| | | | | | | 0- | -105.22 | | 20 | | | | | - |
| | KXX | Ľ | | | | | | | | | | | | |
| FILL: Brown silty sand with topsoil and gravel, trace organics, asphalt and clay | | G | 1 | | | | • | | | | | | | |
| | \bigotimes | | | | | | | | | | | | | |
| 1.15 | \bigotimes | G | 2 | | | 1- | -104.22 | | | | | | | |
| Very stiff to hard, brown SILTY | | G | 3 | | | | | liii | | | · · · · · · · · · · | | | |
| CLÁY, trace sand1.40 End of Test Pit | <u>pzz</u> | - 4 | 3 | | | | | | | | <u> </u> | | | - |
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SOIL PROFILE AND TEST DATA

Phase II - Environmental Site Assessment Proposed Sorting Facility - 1400 Upper Canada Street Ottawa, Ontario

FILE NO.

9 Auriga Drive, Ottawa, Ontario K2E 7T9

DATUM Geodetic

| DEMARKS | | | | | | | | | | PE60 | 52 | | |
|---|--------------|------|--------|---------------|-------------------|--------------|--------------|---------|------|----------------------------|--------|--------------------------|-----------------|
| REMARKS | | | | | | | | | | HOLE | | | |
| BORINGS BY Excavator | | | | C | DATE | April 14, 2 | 2023 | | | TP11 | -23 | | |
| SOIL DESCRIPTION | РГОТ | | SAN | IPLE | 1 | DEPTH (m) | ELEV. (m) | | | nizatio le Orgar | | | d Well |
| | STRATA | ТҮРЕ | NUMBER | * RECOVERY | N VALUE or RQD | | (11) | 0 L(| ower | Explo | sive L | imit % | Monitoring Well |
| GROUND SURFACE | SI | н | DN | REC | N N | | | 2 | | 40 | 60 | 80 | SC SC |
| | | · · | | | | - 0- | -104.18 | | | | | +++++ | - |
| FILL: Topsoil, some silty sand and | \bigotimes | | | | | | | | | | | | |
| organics 0.40 | XX | G | 1 | | | | | | | | | | |
| Very stiff, brown SILTY CLAY, trace sand | 121 | G | 2 | | | | | P : : : | | | | | 4 |
| End of Test Pit | + | 1 | | | | | | | | | | | |
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| | | | | | | | | 10 | 00 | 200 | 300 | 400 5 | - 500 |
| | | | | | | | | R | KI E | agle Ro | dg. (p | pm) nane Elim. | |
| | 1 | | 1 | 1 | 1 | | 1 | I | | | | | |

patersongroup Consulting Engineers

SOIL PROFILE AND TEST DATA

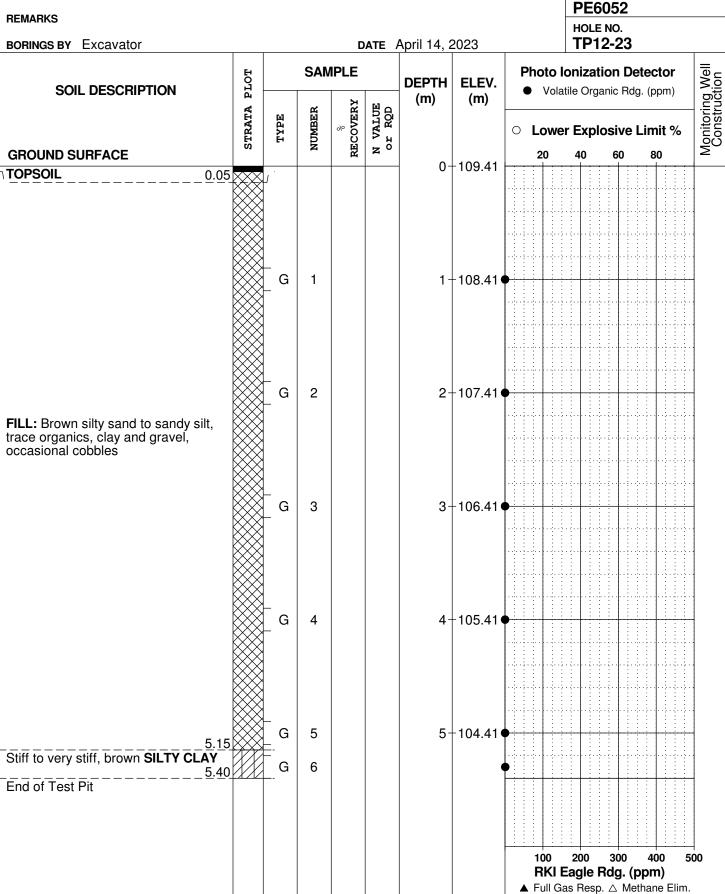
Phase II - Environmental Site Assessment Proposed Sorting Facility - 1400 Upper Canada Street Ottawa, Ontario

FILE NO.

9 Auriga Drive, Ottawa, Ontario K2E 7T9

DATUM Geodetic

REMARKS



SOIL PROFILE AND TEST DATA

Phase II - Environmental Site Assessment Proposed Sorting Facility - 1400 Upper Canada Street Ottawa, Ontario

• Full Gas Resp. \triangle Methane Elim.

9 Auriga Drive, Ottawa, Ontario K2E 7T9

| DATUM Geodetic | | | | | | | | | FILE NO. | 2 | |
|--|--------|------|--------|---------------|-------------------|---------------|--------------|-----|-----------------------------|------------|---------------------------------|
| REMARKS | | | | _ | | Auguil 4.4. (| 2000 | | HOLE NO | | |
| BORINGS BY Excavator | | | | | DATE | April 14, 2 | 2023 | | TP13-2 | | _ |
| SOIL DESCRIPTION | PLOT | | | MPLE 것 | E a | DEPTH (m) | ELEV. (m) | | Ionization atile Organic | | ng Wel uction |
| | STRATA | ТҮРЕ | NUMBER | % RECOVERY | N VALUE or RQD | | | | | ve Limit % | Monitoring Well Construction |
| GROUND SURFACE TOPSOIL 0.05 | | | | Ř | 4 | 0- | 105.94 | 20 | 40 60 |) 80 | 2 |
| TOPSOIL 0.05 FILL: Brown silty sand to sandy silt, some organics, trace clay and gravel | | G | 1 | | | | | | | | |
| 1.50 | | G | 2 | | | 1- | -104.94 | | | | |
| FILL: Brown silty sand with gravel, crushed stone, trace clay 1.70 Hard, brown SILTY CLAY, trace sand 2.00 End of Test Pit | | G | 3 4 | | | 2- | -103.94 | • | | | |
| | | | | | | | | 100 | 200 30 | 0_400_5 | |
| | | | | | | | | RKI | Eagle Rdg | . (ppm) | |

patersongroup Consulting Engineers

SOIL PROFILE AND TEST DATA

Phase II - Environmental Site Assessment Proposed Sorting Facility - 1400 Upper Canada Street Ottawa, Ontario

FILE NO.

9 Auriga Drive, Ottawa, Ontario K2E 7T9

Geodetic

| | | | | | | | | | PE6052 | 2 | |
|--|--------|--------|--------|---------------|----------------|-------------|---------|--------|---------------------------------------|-----------|---------------------------------|
| REMARKS | | | | | | | | | HOLE NO. | _ | |
| BORINGS BY Excavator | | | | D | ATE | April 14, 2 | 2023 | 1 | TP14-2 | 3 | |
| SOIL DESCRIPTION | РГОТ | | SAN | IPLE | 1 | DEPTH | ELEV. | | onization I tile Organic F | | Mell Mell |
| | STRATA | ТҮРЕ | NUMBER | % RECOVERY | VALUE r RQD | (m) | (m) | ○ Lowe | r Explosiv | e Limit % | Monitoring Well Construction |
| GROUND SURFACE | ົ້ | | n n | REC | N OF | | | 20 | 40 60 | 80 | ≥°C |
| | | | | | | 0- | -105.03 | | | | |
| FILL: Topsoil, some gravel and organics | | _ G | 1 | | | | • | • | | | |
| 0.90 | | G | 2 | | | | | • | | | |
| FILL: Light brown silty clay to clayey silt with gravel, crushed stone, trace topsoil and asphalt Hard, brown SILTY CLAY, trace | | G | 3 | | | 1- | -104.03 | | | | - |
| Hard, brown SILTY CLAY, trace sand1.50 End of Test Pit | | G | 4 | | | | • | | | | - |
| (Groundwater infiltration at base of test pit) | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | 200 300 Eagle Rdg. as Resp. △ M | | 00 |

SOIL PROFILE AND TEST DATA

Phase II - Environmental Site Assessment Proposed Sorting Facility - 1400 Upper Canada Street Ottawa, Ontario

9 Auriga Drive, Ottawa, Ontario K2E 7T9

| DATUM Geodetic | | | | | | | | | | FILE NO | | | |
|--|--------|--------|---------|---------------|-------------------|--------------|--------------|----|---|----------------------------|---------|----|-----------------|
| REMARKS BORINGS BY Excavator | | | | _ | ATE | April 14, 2 | 0003 | | | HOLE N | | | |
| | | | ~ ~ ~ ~ | | | -piii 14, 2 | 2023 | _ | I | | | | = |
| SOIL DESCRIPTION | A PLOT | | | IPLE 것 | Що | DEPTH (m) | ELEV. (m) | | | nizatio e Organi | | | Monitoring Well |
| | STRATA | ТҮРЕ | NUMBER | % RECOVERY | N VALUE or RQD | | | | | Explos | | | Monitor |
| GROUND SURFACE | | | | щ | - | 0- | -106.57 | 20 |) | 40 | 60 | 80 | ~ |
| | | | | | | | | | | | | | |
| FILL: Brown silty sand to sandy silt with topsoil, clay, some gravel, occasional cobbles | | _ G | 1 | | | | -105.57 | | | | | | - |
| Vorustiff brown SILTY CLAY trace | | _ G | 2 3 | | | 2- | -104.57 | | | | | | |
| Very stiff, brown SILTY CLAY , trace sand and gravel End of Test Pit | | G T | 4 | | | | | | <i ea<="" th=""><th>gle Ro</th><th>lg. (pp</th><th></th><th>00</th></i> | gle Ro | lg. (pp | | 00 |

SOIL PROFILE AND TEST DATA

Phase II - Environmental Site Assessment Proposed Sorting Facility - 1400 Upper Canada Street Ottawa, Ontario

FILE NO.

9 Auriga Drive, Ottawa, Ontario K2E 7T9

DATUM Geodetic

| DEMA BIZO | | | | | | | | | PE60 | 52 | |
|---|--------|------|--------|---------------|-------------------|-------------|---------|--------|----------|-----------------------------------|-----------------|
| REMARKS | | | | | | | | | HOLE | | |
| BORINGS BY Excavator | | | | D | ATE | April 14, 2 | 2023 | | TP16 | -23 | |
| SOIL DESCRIPTION | PLOT | | SAN | IPLE | 1 | DEPTH | ELEV. | | | n Detect | |
| | STRATA | ТҮРЕ | NUMBER | % RECOVERY | N VALUE or RQD | (m) | (m) | O Lowe | er Explo | sive Limi | Monitoring Well |
| GROUND SURFACE | ES I | H | NN | REC | N N | | | 20 | 40 | 60 80 | N N |
| | | · · | | | | 0- | -104.88 | | | | |
| Very stiff, brown SILTY CLAY to CLAYEY SILT, some gravel, trace _{0.40} organics End of Test Pit | | G | 1 | | | | | • | | | |
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| | | | | | | | | | Eagle Ro | 300 400 dg. (ppm) △ Methane |) |

SOIL PROFILE AND TEST DATA

Phase II - Environmental Site Assessment Proposed Sorting Facility - 1400 Upper Canada Street Ottawa, Ontario

9 Auriga Drive, Ottawa, Ontario K2E 7T9

| DATUM Geodetic | | | | | | | | | FILE NO | | |
|---|--------------|------|--------|---------------|-------------------|--------------|--------------|----|---------|---------------------------------------|---------------------------------|
| REMARKS | | | | | | | | | HOLE NO |). | |
| BORINGS BY Excavator | | | | D | ATE / | April 14, 2 | 2023 | | TP17- | 23 | |
| SOIL DESCRIPTION | PLOT | | | IPLE | | DEPTH (m) | ELEV. (m) | | | n Detector c Rdg. (ppm) | ng Well |
| | STRATA | ТҮРЕ | NUMBER | ∾ RECOVERY | N VALUE or RQD | | | | | ive Limit % | Monitoring Well Construction |
| GROUND SURFACE | | | | Ř | 4 | 0- | -106.32 | 20 | 40 (| 50 80 + | |
| FILL: Brown silty clay, some orgnaics, trace gravel and brick | | G | 1 | | | | -105.32 | | | | |
| | \bigotimes | G | 2 | | | 2- | -104.32 | | | | - |
| 2.40 Very stiff, brown SILTY CLAY, trace sand <u>2.70</u> End of Test Pit | | G | 3 | | | | | | | | |
| | | | | | | | | | agle Rd | 00 400 5 g. (ppm) Methane Elim. | 500 |

SOIL PROFILE AND TEST DATA

Phase II - Environmental Site Assessment Proposed Sorting Facility - 1400 Upper Canada Street Ottawa. Ontario

9 Auriga Drive, Ottawa, Ontario K2E 7T9

| | | | | | | italita, el | | | | | |
|--|--------------|------|--------|------------------------------------|---------|--------------|--------------|--------|------------------------|---------|---------------------------------|
| DATUM Geodetic | | | | | | | | | FILE NO. PE6052 | | |
| REMARKS | | | | | | | | | HOLE NO. | | |
| BORINGS BY Excavator | | | | D | ATE | April 14, 2 | 2023 | | TP18-23 | | |
| SOIL DESCRIPTION | PLOT | | SAN | | | DEPTH (m) | ELEV. (m) | | onization De | | Monitoring Well Construction |
| | STRATA | ТҮРЕ | NUMBER | % RECOVERY N VALUE or RQD | | | (, | ○ Lowe | Limit % | nitorin | |
| GROUND SURFACE | E S | H | ΝŪ | REC | N OL | | | 20 | 40 60 | 80 | δÖ |
| TOPSOIL 0.05 | | | | | | 0- | 104.97 | | | | |
| FILL: Topsoil with silty clay, trace organics and gravel | | G | 1 | | | - | 100.07 | ••••• | | | |
| | \bigotimes | G | 2 | | | 1- | -103.97 | | | | |
| 1.40 | | | | | | | | | | | |
| Very stiff to hard, brown SILTY CLAY, trace sand and gravel 1.60 | VVX | G | 3 | | | | | | | | |
| End of Test Pit | | | | | | | | | | | |

RKI Eagle Rdg. (ppm) • Full Gas Resp. \triangle Methane Elim.

300

400

500

200

100

SOIL PROFILE AND TEST DATA

Phase II - Environmental Site Assessment Proposed Sorting Facility - 1400 Upper Canada Street Ottawa, Ontario

FILE NO.

9 Auriga Drive, Ottawa, Ontario K2E 7T9

Geodetic

| DEMA DIZO | | | | | | | | | PE605 | 2 | | |
|--|--------------|----------|---------|-----------------------|-------------------|-------------|---------|---|-----------------|---------------|---------------------------------|--|
| REMARKS | | | HOLE NO | | | | | | | | | |
| BORINGS BY Excavator | | | | D | ATE | April 14, 2 | 2023 | | TP19- | 23 | 1 | |
| | Б | SAMPLE | | | | DEPTH | ELEV. | Photo | Ionization | Detector | Monitoring Well Construction | |
| SOIL DESCRIPTION | PLOT | | | ы | _ | (m) | (m) | • Vo | atile Organio | Rdg. (ppm) | | |
| | STRATA | 띮 | BER | ° ≈ © © © | N VALUE or RQD | | () | | | | stru | |
| | TR | ТҮРЕ | NUMBER | o∿ oo | L N | | | Lower Explosive Limit % | | | | |
| GROUND SURFACE | 03 | | Z | RE | zo | 0 | -104.48 | 20 | 40 6 | 0 80 | ∑ [°] | |
| TOPSOIL0.05 | \bigotimes | | | | | | -104.40 | | | | | |
| | \bigotimes | | | | | | | | | | | |
| FILL: Topsoil, trace silty clay, organics, crushed stone, sand and | \bigotimes | _ | | | | | | | | | | |
| organics, crushed stone, sand and cobbles | \bigotimes | G | 1 | | | | | | | | | |
| | \bigotimes | | | | | | | | | | | |
| | \bigotimes | G | 2 | | | 1- | -103.48 | | | | - | |
| | \bigotimes | _ G | 2 | | | | | | | | | |
| Stiff to very stiff, brown SILTY | XX | G | 3 | | | | | | | | | |
| CLAY, trace sand | | ~ | | | | | | | | | | |
| End of Test Pit | | | | | | | | | | | | |
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| | | | | | | | | 100 | 200 3 | 00 400 5 | 500 | |
| | | | | | | | | | Eagle Rd | g. (ppm) | 00 | |
| | | | | | | | | | | Methane Elim. | | |

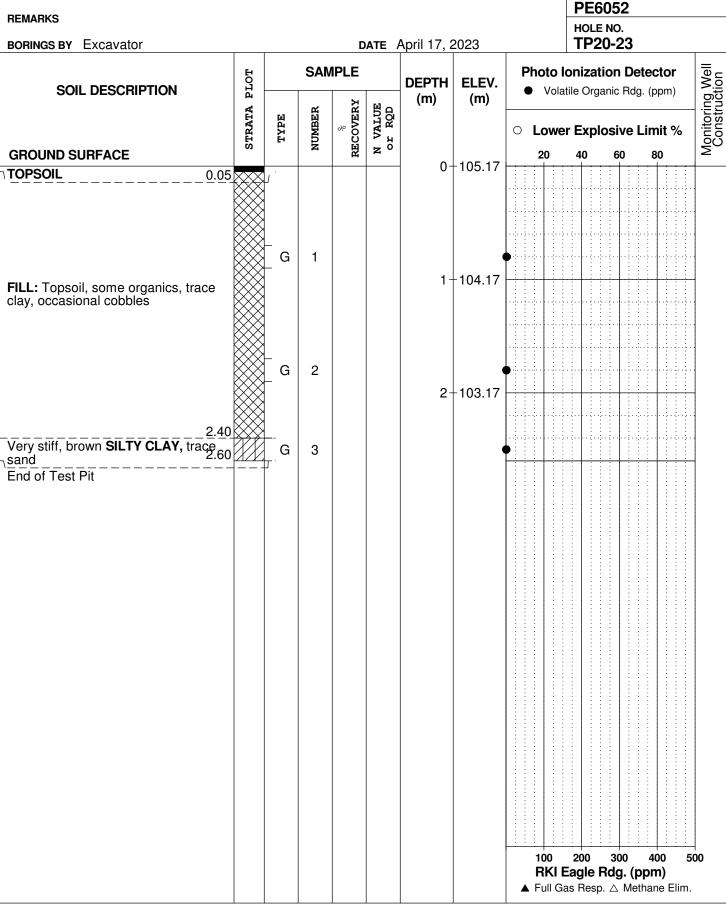
SOIL PROFILE AND TEST DATA

Phase II - Environmental Site Assessment Proposed Sorting Facility - 1400 Upper Canada Street Ottawa, Ontario

FILE NO.

9 Auriga Drive, Ottawa, Ontario K2E 7T9

Geodetic



SOIL PROFILE AND TEST DATA

Phase II - Environmental Site Assessment Proposed Sorting Facility - 1400 Upper Canada Street Ottawa, Ontario

9 Auriga Drive, Ottawa, Ontario K2E 7T9

| DATUM Geodetic | | | | | | | | | FILE NO. PE6052 |
|---|-------------|------|---------|---------------|-------------------|--------------|--------------|--------|---|
| REMARKS | | | | _ | | A muil 17 (| 2000 | | HOLE NO. TP21-23 |
| BORINGS BY Excavator | | | ~ ~ ~ ~ | | AIE | April 17, 2 | 2023 | | |
| SOIL DESCRIPTION | PLOT | | | IPLE 것 | Шо | DEPTH (m) | ELEV. (m) | | er Explosive Limit % |
| | STRATA | ТҮРЕ | NUMBER | % RECOVERY | N VALUE or RQD | | | O Lowe | er Explosive Limit % |
| GROUND SURFACE | | | 4 | RE | zv | 0- | 106.88 | 20 | 40 60 80 ≥ |
| ↑TOPSOIL 0.05 | | G | 1 | | | | | | |
| | | | | | | 1- | - 105.88 | | |
| FILL: Brown silty sand to sandy silt, trace organics, occasional cobbles | | G | 2 | | | 2- | -104.88 | | |
| | | G | 3 | | | | 100.00 | • | |
| Very stiff, light brown to grey CLAYEY SILT to SILTY CLAY, trace sand | VVX | G | 4 | | | 3- | -103.88 | • | |
| End of Test Pit | | | | | | | | | |
| | | | | | | | | | 200 300 400 500 Eagle Rdg. (ppm) as Resp. △ Methane Elim. |

| TABLE 1 | | | son Group Consulting Engineers | | | | | | | | |
|--|----------------------|--------------|---------------------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|--|
| PARACEL LABORATORIES LTD. | | | Aike Beaudoin | | | | | | | | |
| WORKORDER: 2316216 | | PROJECT: PE6 | | | | | | | | | |
| REPORT DATE: 04/24/2023 | | REFERENCE: S | tanding Offer | | | | | | | | |
| Parameter | Units | MDL | Regulation | | | | | | | | |
| | | | | TP1-23-G1 | TP1-23-G2 | TP2-23-G1 | TP3-23-G1 | TP3-23-G2 | TP4-23-G2 | TP5-23-G2 | TP5-23-G4 |
| | | | | 2316216-01 | 2316216-02 | 2316216-03 | 2316216-04 | 2316216-05 | 2316216-06 | 2316216-07 | 2316216-08 |
| Sample Date (m/d/y) | | | Reg 153/04 (2011)-Table 1 Residential | 04/17/2023 09:00 AM |
| Physical Characteristics | | | | | | | | | | • .,, | • ., _, _, • • • • • • • • • • • • • • |
| % Solids | % by Wt. | 0.1 | | 76.0 | 74.8 | 76.6 | 81.2 | 81.5 | 83.5 | 78.8 | 76.7 |
| General Inorganics | | | | | | | | | | | |
| SAR | N/A | 0.01 | 2.4 N/A | 0.15 | 0.15 | 0.07 | 0.10 | 0.16 | 0.18 | 0.18 | 0.15 |
| Conductivity | uS/cm | 5 | 0.57 mS/cm (570 uS/cm) | 111 | 98 | 127 | 206 | 212 | 434 | 227 | 231 |
| pH | pH Units | 0.05 | | 7.15 | N/A | N/A | N/A | N/A | N/A | N/A | 7.12 |
| <i>Metals</i> Antimony | ug/g dry | 1.0 | 1.3 ug/g dry | ND (1.0) |
| Arsenic | ug/g dry ug/g dry | 1.0 | 1.5 ug/g dry 18 ug/g dry | 3.0 | 4.9 | 2.4 | 2.0 | 1.7 | 2.1 | 1.8 | 2.5 |
| Barium | ug/g dry | 1.0 | 220 ug/g dry | 353 | 383 | 2.4 | 101 | 1.7 | 179 | 1.8 | 2.5 |
| Beryllium | ug/g dry | 0.5 | 2.5 ug/g dry | 1.0 | 1.0 | 0.8 | 0.5 | 0.5 | 0.6 | 0.5 | 0.7 |
| Boron | ug/g dry | 5.0 | 36 ug/g dry | 7.2 | 7.6 | 5.9 | ND (5.0) | ND (5.0) | ND (5.0) | ND (5.0) | 6.3 |
| Cadmium | ug/g dry | 0.5 | 1.2 ug/g dry | ND (0.5) |
| Chromium | ug/g dry | 5.0 | 70 ug/g dry | 63.5 | 69.4 | 42.6 | 18.8 | 22.0 | 26.5 | 21.1 | 42.4 |
| Cobalt | ug/g dry | 1.0 | 21 ug/g dry | 16.3 | 20.9 | 11.0 | 5.8 | 6.6 | 7.5 | 6.1 | 11.0 |
| Copper | ug/g dry | 5.0 | 92 ug/g dry | 24.4 | 29.6 | 21.1 | 19.0 | 13.0 | 13.0 | 11.2 | 25.2 |
| Lead Molybdenum | ug/g dry ug/g dry | 1.0 1.0 | 120 ug/g dry 2 ug/g dry | 6.3 ND (1.0) | 6.5 ND (1.0) | 6.1 ND (1.0) | 5.2 ND (1.0) | 4.4 ND (1.0) | 5.5 ND (1.0) | 4.7 ND (1.0) | 6.2 ND (1.0) |
| Nickel | ug/g dry | 5.0 | 82 ug/g dry | 33.1 | 34.9 | 22.2 | 9.6 | 11.4 | 13.5 | 11.4 | 21.6 |
| Selenium | ug/g dry | 1.0 | 1.5 ug/g dry | ND (1.0) |
| Silver | ug/g dry | 0.3 | 0.5 ug/g dry | ND (0.3) |
| Thallium | ug/g dry | 1.0 | 1 ug/g dry | ND (1.0) |
| Uranium | ug/g dry | 1.0 | 2.5 ug/g dry | ND (1.0) |
| Vanadium | ug/g dry | 10.0 | 86 ug/g dry | 74.1 | 82.6 | 49.8 | 30.0 | 32.4 | 37.5 | 32.1 | 53.8 |
| Zinc | ug/g dry | 20.0 | 290 ug/g dry | 89.5 | 98.0 | 71.7 | 39.2 | 38.0 | 47.7 | 37.4 | 75.9 |
| Volatiles | ua (a dru | 0.02 | | ND (0.02) | ND (0.02) | | ND (0.02) | | ND (0.02) | | |
| Benzene Ethylbenzene | ug/g dry ug/g dry | 0.02 | 0.02 ug/g dry 0.05 ug/g dry | ND (0.02) ND (0.05) |
| Toluene | ug/g dry | 0.05 | 0.2 ug/g dry | ND (0.05) |
| m/p-Xylene | ug/g dry | 0.05 | | ND (0.05) |
| o-Xylene | ug/g dry | 0.05 | | ND (0.05) |
| Xylenes, total | ug/g dry | 0.05 | 0.05 ug/g dry | ND (0.05) |
| Hydrocarbons | | | | | | | | | | | |
| F1 PHCs (C6-C10) | ug/g dry | 7 | 25 ug/g dry | ND (7) |
| F2 PHCs (C10-C16) F3 PHCs (C16-C34) | ug/g dry | 4 8 | 10 ug/g dry 240 ug/g dry | ND (4) ND (8) | ND (4) ND (8) | ND (4) 23 | ND (4) 31 | ND (4) 30 | ND (4) 34 | ND (4) 35 | ND (4) 19 |
| F4 PHCs (C34-C50) | ug/g dry ug/g dry | ° 6 | 120 ug/g dry | ND (8) | ND (8) | 11 | 32 | 30 | 41 | 27 | 23 |
| F4G PHCs (gravimetric) | ug/g dry | 50 | 120 ug/g dry | N/A |
| Semi-Volatiles | - 0, 0 w. j | | | | · · · · · | , | , | | | | , |
| Acenaphthene | ug/g dry | 0.02 | 0.072 ug/g dry | ND (0.02) |
| Acenaphthylene | ug/g dry | 0.02 | 0.093 ug/g dry | ND (0.02) |
| Anthracene | ug/g dry | 0.02 | 0.16 ug/g dry | ND (0.02) |
| Benzo[a]anthracene | ug/g dry | 0.02 | 0.36 ug/g dry | ND (0.02) |
| Benzo[a]pyrene Benzo[b]fluoranthene | ug/g dry | 0.02 | 0.3 ug/g dry | ND (0.02) |
| Benzo[g,h,i]perylene | ug/g dry ug/g dry | 0.02 | 0.47 ug/g dry 0.68 ug/g dry | ND (0.02) ND (0.02) |
| Benzo[k]fluoranthene | ug/g dry | 0.02 | 0.08 ug/g dry | ND (0.02) |
| Chrysene | ug/g dry | 0.02 | 2.8 ug/g dry | ND (0.02) |
| Dibenzo[a,h]anthracene | ug/g dry | 0.02 | 0.1 ug/g dry | ND (0.02) |
| Fluoranthene | ug/g dry | 0.02 | 0.56 ug/g dry | 0.03 | ND (0.02) |
| Fluorene | ug/g dry | 0.02 | 0.12 ug/g dry | ND (0.02) |
| Indeno [1,2,3-cd] pyrene | ug/g dry | 0.02 | 0.23 ug/g dry | ND (0.02) |
| 1-Methylnaphthalene | ug/g dry | 0.02 | 0.59 ug/g dry | ND (0.02) |
| 2-Methylnaphthalene Methylnaphthalene (1&2) | ug/g dry ug/g dry | 0.02 0.04 | 0.59 ug/g dry 0.59 ug/g dry | ND (0.02) ND (0.04) |
| Naphthalene | ug/g dry ug/g dry | 0.04 | 0.59 ug/g dry 0.09 ug/g dry | ND (0.04) ND (0.01) |
| Phenanthrene | ug/g dry | 0.01 | 0.69 ug/g dry | ND (0.01) | ND (0.02) | ND (0.01) | ND (0.01) | ND (0.02) | ND (0.01) | ND (0.02) | ND (0.01) ND (0.02) |
| Pyrene | ug/g dry | 0.02 | 1 ug/g dry | 0.02 | ND (0.02) |
| 1 | | | 0/0 %.1 | | | | | | | | |

| | | | | | | | | Sample | | | | |
|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| TP6-23-G4 2316216-09 | TP7-23-G4 2316216-10 | TP8-23-G2 2316216-11 | TP8-23-G4 2316216-12 | TP9-23-G1 2316216-13 | TP10-23-G2 2316216-14 | TP11-23-G1 2316216-15 | TP12-23-G3 2316216-16 | TP13-23-G1 2316216-17 | TP13-23-G4 2316216-18 | TP14-23-G3 2316216-19 | TP14-23-G4 2316216-20 | TP15-23-G2 2316216-21 |
| | 04/17/2023 09:00 AM | 04/17/2023 09:00 AM | 04/17/2023 09:00 AM | 04/17/2023 09:00 AM | 04/14/2023 09:00 AM | 04/14/2023 09:00 AM | 04/14/2023 09:00 AM | | 04/14/2023 09:00 AM | | 04/14/2023 09:00 AM | 04/14/2023 09:00 AM |
| 04/17/2023 05:00 AM | 04/17/2023 05:00 AM | 04/17/2023 05:00 AM | 04/11/2023 05:00 AM | 04/17/2023 03.00 AM | 04/14/2023 05:00 AM | 04/14/2023 03:00 AM | 04/14/2023 03:00 AM | 04/14/2023 05:00 AM | 04/14/2023 03:00 AM | 04/14/2023 03:00 AM | 04/14/2023 05:00 AM | 04/14/2023 05:00 AM |
| 73.9 | 80.0 | 85.2 | 81.4 | 78.1 | 79.8 | 82.7 | 84.4 | 83.5 | 82.1 | 79.8 | 81.2 | 84.2 |
| 0.30 | 0.08 | 0.20 | 0.16 | 0.07 | 0.08 | 0.09 | 0.32 | 0.28 | 0.31 | 0.31 | 0.33 | 0.71 |
| 198 | 175 | 244 | 168 | 109 | 207 | 119 | 375 | 299 | 290 | 236 | 159 | 338 |
| 6.61 | N/A | N/A | N/A | N/A | N/A | N/A | 7.23 | 7.27 | N/A | N/A | 7.25 | N/A |
| ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) |
| 1.5 | 1.9 | 1.7 | 2.3 | 2.2 | 1.8 | 2.2 | 1.6 | 2.0 | 2.3 | 2.1 | 2.0 | 2.3 |
| 62.2 | 90.9 | 81.7 | 361 | 329 | 117 | 326 | 136 | 169 | 378 | 204 | 266 | 124 |
| ND (0.5) ND (5.0) | ND (0.5) ND (5.0) | ND (0.5) ND (5.0) | 0.9 6.7 | 0.9 7.1 | ND (0.5) 5.1 | 0.8 | ND (0.5) ND (5.0) | ND (0.5) 5.4 | 0.8 | 0.6 | 0.6 ND (5.0) | ND (0.5) ND (5.0) |
| ND (0.5) | ND (0.5) | ND (0.5) | ND (0.5) | ND (0.5) | ND (0.5) | ND (0.5) | ND (0.5) |
| 13.1 | 17.0 | 15.5 | 56.2 | 48.2 | 23.7 | 46.4 | 22.6 | 26.3 | 47.7 | 36.5 | 41.8 | 26.8 |
| 4.0 12.8 | 4.9 21.8 | 4.8 10.4 | 14.6 21.0 | 12.6 27.3 | 6.5 16.2 | 12.5 18.9 | 6.2 19.7 | 7.2 | 13.3 18.0 | 9.1 16.0 | 11.3 12.8 | 6.6 13.1 |
| 5.1 | 4.9 | 3.8 | 6.6 | 6.5 | 7.3 | 7.2 | 4.6 | 5.4 | 6.0 | 6.9 | 4.7 | 11.5 |
| ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) |
| 6.2 ND (1.0) | 8.4 ND (1.0) | 7.6 ND (1.0) | 28.9 ND (1.0) | 25.3 ND (1.0) | 13.0 ND (1.0) | 24.0 ND (1.0) | 12.0 ND (1.0) | 14.3 ND (1.0) | 24.9 ND (1.0) | 18.3 ND (1.0) | 22.6 ND (1.0) | 14.1 ND (1.0) |
| ND (0.3) | ND (0.3) | ND (0.3) | ND (0.3) | ND (0.3) | ND (0.3) | ND (0.3) | ND (0.3) |
| ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) |
| ND (1.0) 21.8 | ND (1.0) 28.2 | ND (1.0) 27.8 | ND (1.0) 63.2 | ND (1.0) 54.1 | ND (1.0) 30.6 | ND (1.0) 53.4 | ND (1.0) 30.4 | ND (1.0) 36.9 | ND (1.0) 57.3 | ND (1.0) 45.7 | ND (1.0) 49.3 | ND (1.0) 33.8 |
| 28.5 | 34.4 | 28.0 | 87.1 | 89.5 | 43.3 | 82.0 | 43.8 | 45.3 | 74.6 | 61.7 | 61.0 | 48.4 |
| | | | ND (0.02) | | | | | | | | | ND (0.02) |
| ND (0.02) ND (0.05) | ND (0.02) ND (0.05) | ND (0.02) ND (0.05) | ND (0.02) ND (0.05) | ND (0.02) ND (0.05) | ND (0.02) ND (0.05) | ND (0.02) ND (0.05) | ND (0.02) ND (0.05) |
| ND (0.05) | ND (0.05) | ND (0.05) | ND (0.05) | ND (0.05) | ND (0.05) | ND (0.05) | ND (0.05) |
| ND (0.05) | ND (0.05) | ND (0.05) | ND (0.05) | ND (0.05) | ND (0.05) | ND (0.05) | ND (0.05) |
| ND (0.05) ND (0.05) | ND (0.05) ND (0.05) | ND (0.05) ND (0.05) | ND (0.05) ND (0.05) | ND (0.05) ND (0.05) | ND (0.05) ND (0.05) | ND (0.05) ND (0.05) | ND (0.05) ND (0.05) |
| | | | | | | | | | | | | |
| ND (7) ND (4) | ND (7) ND (4) | ND (7) ND (4) | ND (7) ND (4) | ND (7) ND (4) | ND (7) ND (4) | ND (7) ND (4) | ND (7) ND (4) |
| 43 | 44 | 28 | 12 | 22 | 52 | 28 | 33 | 34 | ND (4) | 19 | ND (4) | 25 |
| 52 | 42 | 20 | 19 | 26 | 168 | 90 | 78 | 88 | ND (6) | 28 | ND (6) | 37 |
| N/A | N/A | N/A | N/A | N/A | 326 | N/A |
| ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) |
| ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) |
| ND (0.02) ND (0.02) | ND (0.02) ND (0.02) | ND (0.02) ND (0.02) | ND (0.02) ND (0.02) | ND (0.02) ND (0.02) | ND (0.02) ND (0.02) | ND (0.02) ND (0.02) | ND (0.02) 0.04 |
| ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | 0.03 |
| ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | 0.04 |
| ND (0.02) ND (0.02) | ND (0.02) ND (0.02) | ND (0.02) ND (0.02) | ND (0.02) ND (0.02) | ND (0.02) ND (0.02) | ND (0.02) ND (0.02) | ND (0.02) ND (0.02) | 0.02 0.03 |
| ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | 0.04 |
| ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) |
| ND (0.02) ND (0.02) | 0.03 ND (0.02) | ND (0.02) ND (0.02) | ND (0.02) ND (0.02) | ND (0.02) ND (0.02) | ND (0.02) ND (0.02) | ND (0.02) ND (0.02) | ND (0.02) ND (0.02) | 0.09 0.03 |
| ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | 0.02 |
| ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) |
| ND (0.02) ND (0.04) | ND (0.02) ND (0.04) | ND (0.02) ND (0.04) | ND (0.02) ND (0.04) | ND (0.02) ND (0.04) | ND (0.02) ND (0.04) | ND (0.02) ND (0.04) | 0.03 0.05 |
| ND (0.01) | ND (0.01) | ND (0.01) | ND (0.01) | ND (0.01) | ND (0.01) | ND (0.01) | 0.08 |
| ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | 0.10 |
| ND (0.02) | 0.03 | ND (0.02) | 0.07 |

| TP16-23-G1 | TP17-23-G2 | TP18-23-G1 | TP19-23-G2 | TP19-23-G3 | TP20-23-G1 | TP20-23-G2 | TP21-23-G1 | TP21-23-G4 | DUP1 | DUP2 | DUP3 |
|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
| 2316216-22 | 2316216-23 | 2316216-24 | 2316216-25 | 2316216-26 | 2316216-27 | 2316216-28 | 2316216-29 | 2316216-30 | 2316216-31 | 2316216-32 | 2316216-33 |
| 04/14/2023 09:00 AM | 04/17/2023 09:00 AM | 04/17/2023 09:00 AM | 04/17/2023 09:00 AM | 04/17/2023 09:00 AM | 04/14/2023 09:00 AM | 04/14/2023 09:00 AM | 04/17/2023 09:00 AM |
| 84.3 | 82.8 | 80.8 | 82.8 | 73.4 | 79.9 | 81.6 | 77.8 | 75.4 | 82.1 | 82.1 | 75.6 |
| 0.20 | 0.75 | 0.13 | 0.16 | 0.18 | 0.09 | 0.21 | 0.08 | 0.24 | 0.35 | 0.16 | 0.17 |
| 166 | 224 | 133 | 346 | 132 | 192 | 376 | 204 | 133 | 160 | 358 | 107 |
| N/A | N/A | N/A | 7.20 | N/A | N/A | N/A | 7.23 | N/A | N/A | N/A | N/A |
| ND (1.0) |
| 1.7 | 1.9 | 1.7 | 1.7 | 2.3 | 1.8 | 1.8 | 1.3 | 2.1 | 2.2 | 1.5 | 2.9 |
| 132 ND (0.5) | 184 0.5 | <u> </u> | 119 ND (0.5) | 299 0.8 | 126 ND (0.5) | 211 ND (0.5) | 42.7 ND (0.5) | 320 0.8 | 291 0.7 | 106 ND (0.5) | 325 0.8 |
| ND (0.5) ND (5.0) | ND (5.0) | ND (5.0) | ND (0.5) ND (5.0) | 7.7 | ND (0.5) ND (5.0) | ND (0.5) ND (5.0) | ND (0.5) ND (5.0) | 5.7 | 5.1 | ND (0.5) ND (5.0) | 6.2 |
| ND (0.5) |
| 23.5 6.6 | 27.7 8.3 | 28.4 7.7 | 18.5 5.4 | 59.8 14.2 | 24.9 6.7 | 30.4 8.6 | 9.9 3.1 | 50.6 13.4 | 45.6 12.0 | 16.4 4.8 | 58.0 15.0 |
| 13.8 | 12.5 | 15.4 | 11.0 | 26.2 | 11.4 | 14.4 | ND (5.0) | 24.2 | 12.0 | 10.1 | 23.2 |
| 3.2 | 5.2 | 5.9 | 4.7 | 5.6 | 4.7 | 4.9 | 4.1 | 5.1 | 4.9 | 4.3 | 6.2 |
| ND (1.0) 13.0 | ND (1.0) 14.3 | ND (1.0) 13.8 | ND (1.0) 9.6 | ND (1.0) 32.2 | ND (1.0) 12.9 | ND (1.0) 16.2 | ND (1.0) ND (5.0) | ND (1.0) 27.0 | ND (1.0) 24.6 | ND (1.0) 8.8 | ND (1.0) 30.8 |
| ND (1.0) | ND (3.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) |
| ND (0.3) |
| ND (1.0) ND (1.0) |
| 35.0 | 38.3 | 37.9 | 27.9 | 67.2 | 33.5 | 39.8 | 18.1 | 56.9 | 52.2 | 25.6 | 68.6 |
| 35.5 | 49.4 | 50.6 | 39.2 | 85.0 | 41.4 | 52.8 | ND (20.0) | 77.7 | 67.8 | 34.2 | 83.0 |
| ND (0.02) |
| ND (0.05) |
| ND (0.05) |
| ND (0.05) ND (0.05) |
| ND (0.05) |
| ND (7) |
| ND (4) | ND (7) | ND (4) |
| ND (8) | 18 | 16 | 38 | ND (8) | 25 | 29 | 12 | ND (8) | ND (8) | 30 | 13 |
| ND (6) N/A | 29 N/A | 19 N/A | 83 N/A | ND (6) N/A | 40 N/A | 52 N/A | 24 N/A | ND (6) N/A | ND (6) | 50 N/A | 17 N/A |
| | | | | | | | | | | | |
| ND (0.02) |
| ND (0.02) ND (0.02) |
| ND (0.02) |
| ND (0.02) |
| ND (0.02) ND (0.02) |
| ND (0.02) |
| ND (0.02) ND (0.02) |
| ND (0.02) | ND (0.02) ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) ND (0.02) | ND (0.02) |
| ND (0.02) |
| ND (0.02) ND (0.02) |
| ND (0.02) |
| ND (0.04) |
| ND (0.01) ND (0.02) |
| ND (0.02) |

| TABLE 1 | | | son Group Consulting Engineers | | | | | | | | |
|--|----------------------|---------------|---|-------------------------------------|------------------------|------------------------|------------------------|-------------------------|------------------------|------------------------|------------------------|
| PARACEL LABORATORIES LTD. | | ATTENTION: N | | | | | | | | | |
| WORKORDER: 2316216 | | PROJECT: PE60 | | | | | | | | | |
| REPORT DATE: 04/24/2023 | | REFERENCE: S | tanding Offer | | | | | | | | |
| Parameter | Units | MDL | Regulation | | | | | | | | |
| | | | - | TP1-23-G1 | TP1-23-G2 | TP2-23-G1 | TP3-23-G1 | TP3-23-G2 | TP4-23-G2 | TP5-23-G2 | TP5-23-G4 |
| | | | | 2316216-01 | 2316216-02 | 2316216-03 | 2316216-04 | 2316216-05 | 2316216-06 | 2316216-07 | 2316216-08 |
| Sample Date (m/d/y) | | | Reg 406/19-Table 2.1 Residential/Parkland/Institutional | 04/17/2023 09:00 AM | 04/17/2023 09:00 AM | 04/17/2023 09:00 AM | 04/17/2023 09:00 AM | 04/17/2023 09:00 AM | 04/17/2023 09:00 AM | 04/17/2023 09:00 AM | 04/17/2023 09:00 AM |
| Physical Characteristics | | | | • ., _, _ = = • • • • • • • • • • • | • .,, | • .,, | | • .,, <u></u> , <u></u> | | | • ., , |
| % Solids | % by Wt. | 0.1 | | 76.0 | 74.8 | 76.6 | 81.2 | 81.5 | 83.5 | 78.8 | 76.7 |
| General Inorganics | | | | | | | | | | | |
| SAR | N/A | 0.01 | 5 N/A | 0.15 | 0.15 | 0.07 | 0.10 | 0.16 | 0.18 | 0.18 | 0.15 |
| Conductivity | uS/cm | 5 | 0.7 mS/cm (700 uS/cm) | 111 | 98 | 127 | 206 | 212 | 434 | 227 | 231 |
| рН Metals | pH Units | 0.05 | 5 pH units (5 pH Units) | 7.15 | N/A | N/A | N/A | N/A | N/A | N/A | 7.12 |
| Antimony | ug/g dry | 1.0 | 7.5 ug/g dry | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) |
| Arsenic | ug/g dry | 1.0 | 18 ug/g dry | 3.0 | 4.9 | 2.4 | 2.0 | 1.7 | 2.1 | 1.8 | 2.5 |
| Barium | ug/g dry | 1.0 | 390 ug/g dry | 353 | 383 | 261 | 101 | 142 | 179 | 100 | 254 |
| Beryllium | ug/g dry | 0.5 | 4 ug/g dry | 1.0 | 1.0 | 0.8 | 0.5 | 0.5 | 0.6 | 0.5 | 0.7 |
| Boron | ug/g dry | 5.0 | 120 ug/g dry | 7.2 | 7.6 | 5.9 | ND (5.0) | ND (5.0) | ND (5.0) | ND (5.0) | 6.3 |
| Cadmium | ug/g dry | 0.5 | 1.2 ug/g dry | ND (0.5) | ND (0.5) | ND (0.5) | ND (0.5) | ND (0.5) | ND (0.5) | ND (0.5) | ND (0.5) |
| Chromium | ug/g dry | 5.0 | 160 ug/g dry | 63.5 | 69.4 | 42.6 | 18.8 | 22.0 | 26.5 | 21.1 | 42.4 |
| Cobalt Copper | ug/g dry ug/g dry | 1.0 5.0 | 22 ug/g dry 140 ug/g dry | 16.3 24.4 | 20.9 29.6 | 11.0 21.1 | 5.8 19.0 | 6.6 13.0 | 7.5 13.0 | 6.1 11.2 | 11.0 25.2 |
| Lead | ug/g dry | 1.0 | 140 ug/g dry | 6.3 | 6.5 | 6.1 | 5.2 | 4.4 | 5.5 | 4.7 | 6.2 |
| Molybdenum | ug/g dry | 1.0 | 6.9 ug/g dry | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) |
| Nickel | ug/g dry | 5.0 | 100 ug/g dry | 33.1 | 34.9 | 22.2 | 9.6 | 11.4 | 13.5 | 11.4 | 21.6 |
| Selenium | ug/g dry | 1.0 | 2.4 ug/g dry | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) |
| Silver | ug/g dry | 0.3 | 20 ug/g dry | ND (0.3) | ND (0.3) | ND (0.3) | ND (0.3) | ND (0.3) | ND (0.3) | ND (0.3) | ND (0.3) |
| Thallium | ug/g dry | 1.0 | 1 ug/g dry | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) | ND (1.0) |
| Uranium Vanadium | ug/g dry | 1.0 10.0 | 23 ug/g dry 86 ug/g dry | ND (1.0) 74.1 | ND (1.0) 82.6 | ND (1.0) 49.8 | ND (1.0) 30.0 | ND (1.0) 32.4 | ND (1.0) 37.5 | ND (1.0) 32.1 | ND (1.0) 53.8 |
| Zinc | ug/g dry ug/g dry | 20.0 | 340 ug/g dry | 89.5 | 98.0 | 71.7 | 39.2 | 32.4 | 47.7 | 37.4 | 75.9 |
| Volatiles | | 20.0 | 546 dB/B dry | 03.5 | 50.0 | , 1., | 55.2 | 30.0 | -7.7 | 57.4 | 73.5 |
| Benzene | ug/g dry | 0.02 | 0.02 ug/g dry | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) |
| Ethylbenzene | ug/g dry | 0.05 | 0.05 ug/g dry | ND (0.05) | ND (0.05) | ND (0.05) | ND (0.05) | ND (0.05) | ND (0.05) | ND (0.05) | ND (0.05) |
| Toluene | ug/g dry | 0.05 | 0.2 ug/g dry | ND (0.05) | ND (0.05) | ND (0.05) | ND (0.05) | ND (0.05) | ND (0.05) | ND (0.05) | ND (0.05) |
| m/p-Xylene | ug/g dry | 0.05 | | ND (0.05) | ND (0.05) | ND (0.05) | ND (0.05) | ND (0.05) | ND (0.05) | ND (0.05) | ND (0.05) |
| o-Xylene Xylenes, total | ug/g dry ug/g dry | 0.05 | 0.091 ug/g dry | ND (0.05) ND (0.05) | ND (0.05) ND (0.05) | ND (0.05) ND (0.05) | ND (0.05) ND (0.05) | ND (0.05) ND (0.05) | ND (0.05) ND (0.05) | ND (0.05) ND (0.05) | ND (0.05) ND (0.05) |
| Hydrocarbons | ug/g ui y | 0.05 | 0.091 úg/g úi ý | ND (0.03) | ND (0.03) | ND (0.03) | ND (0.03) | ND (0.03) | ND (0.03) | ND (0.03) | ND (0.05) |
| F1 PHCs (C6-C10) | ug/g dry | 7 | 25 ug/g dry | ND (7) | ND (7) | ND (7) | ND (7) | ND (7) | ND (7) | ND (7) | ND (7) |
| F2 PHCs (C10-C16) | ug/g dry | 4 | 10 ug/g dry | ND (4) | ND (4) | ND (4) | ND (4) | ND (4) | ND (4) | ND (4) | ND (4) |
| F3 PHCs (C16-C34) | ug/g dry | 8 | 240 ug/g dry | ND (8) | ND (8) | 23 | 31 | 30 | 34 | 35 | 19 |
| F4 PHCs (C34-C50) | ug/g dry | 6 | 2800 ug/g dry | ND (6) | ND (6) | 11 | 32 | 30 | 41 | 27 | 23 |
| F4G PHCs (gravimetric) Semi-Volatiles | ug/g dry | 50 | 2800 ug/g dry | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Acenaphthene | ug/g dry | 0.02 | 2.5 ug/g dry | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) |
| Acenaphthylene | ug/g dry | 0.02 | 0.093 ug/g dry | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) |
| Anthracene | ug/g dry | 0.02 | 0.16 ug/g dry | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) |
| Benzo[a]anthracene | ug/g dry | 0.02 | 0.5 ug/g dry | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) |
| Benzo[a]pyrene | ug/g dry | 0.02 | 0.31 ug/g dry | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) |
| Benzo[b]fluoranthene | ug/g dry | 0.02 | 3.2 ug/g dry | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) |
| Benzo[g,h,i]perylene | ug/g dry | 0.02 | 6.6 ug/g dry | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) |
| Benzo[k]fluoranthene Chrysene | ug/g dry ug/g dry | 0.02 0.02 | 3.1 ug/g dry 7 ug/g dry | ND (0.02) ND (0.02) | ND (0.02) ND (0.02) | ND (0.02) ND (0.02) | ND (0.02) ND (0.02) | ND (0.02) ND (0.02) | ND (0.02) ND (0.02) | ND (0.02) ND (0.02) | ND (0.02) ND (0.02) |
| Dibenzo[a,h]anthracene | ug/g dry | 0.02 | 0.57 ug/g dry | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) |
| Fluoranthene | ug/g dry | 0.02 | 0.69 ug/g dry | 0.03 | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) |
| Fluorene | ug/g dry | 0.02 | 6.8 ug/g dry | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) |
| Indeno [1,2,3-cd] pyrene | ug/g dry | 0.02 | 0.38 ug/g dry | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) |
| 1-Methylnaphthalene | ug/g dry | 0.02 | 0.59 ug/g dry | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) |
| 2-Methylnaphthalene | ug/g dry | 0.02 | 0.59 ug/g dry | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) |
| Methylnaphthalene (1&2) Naphthalene | ug/g dry | 0.04 0.01 | 0.59 ug/g dry 0.2 ug/g dry | ND (0.04) ND (0.01) | ND (0.04) ND (0.01) | ND (0.04) ND (0.01) | ND (0.04) ND (0.01) | ND (0.04) ND (0.01) | ND (0.04) ND (0.01) | ND (0.04) ND (0.01) | ND (0.04) ND (0.01) |
| Phenanthrene | ug/g dry ug/g dry | 0.01 | 0.2 ug/g ary 6.2 ug/g dry | ND (0.01) ND (0.02) | ND (0.01) ND (0.02) | ND (0.01) ND (0.02) | ND (0.01) ND (0.02) | ND (0.01) ND (0.02) | ND (0.01) ND (0.02) | ND (0.01) ND (0.02) | ND (0.01) ND (0.02) |
| Pyrene | ug/g dry | 0.02 | 28 ug/g dry | 0.02 | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) | ND (0.02) |
| | ~0/ b vi j | 0.02 | 20 00/8 01 | 0.02 | (0.02) | | (0.02) | | | (0.02) | |

| | | • | • | - | | | | Sample | | | | • |
|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| TP6-23-G4 | TP7-23-G4 | TP8-23-G2 | TP8-23-G4 | TP9-23-G1 | TP10-23-G2 | TP11-23-G1 | TP12-23-G3 | TP13-23-G1 | TP13-23-G4 | TP14-23-G3 | TP14-23-G4 | TP15-23-G2 |
| 2316216-09 04/17/2023 09:00 AM | 2316216-10 04/17/2023 09:00 AM | 2316216-11 04/17/2023 09:00 AM | 2316216-12 04/17/2023 09:00 AM | 2316216-13 04/17/2023 09:00 AM | 2316216-14 04/14/2023 09:00 AM | 2316216-15 04/14/2023 09:00 AM | 2316216-16 04/14/2023 09:00 AM | 2316216-17 04/14/2023 09:00 AM | 2316216-18 04/14/2023 09:00 AM | 2316216-19 04/14/2023 09:00 AM | 2316216-20 04/14/2023 09:00 AM | 2316216-21 04/14/2023 09:00 AM |
| 04/17/2023 05.00 AN | 04/17/2023 05.00 AN | 04/17/2023 05.00 AN | 04/17/2023 05:00 AW | 04/17/2023 05:00 AN | 04/14/2023 05.00 AN | 04/14/2023 05.00 AN | 04/14/2023 05.00 AN | 04/14/2023 09.00 AW | 04/14/2023 09.00 AW | 04/14/2023 09:00 AW | 04/14/2023 05.00 AW | 04/14/2023 05:00 AW |
| 73.9 | 80.0 | 85.2 | 81.4 | 78.1 | 79.8 | 82.7 | 84.4 | 83.5 | 82.1 | 79.8 | 81.2 | 84.2 |
| 0.30 | 0.08 | 0.20 | 0.16 | 0.07 | 0.08 | 0.09 | 0.32 | 0.28 | 0.31 | 0.31 | 0.33 | 0.71 |
| 198 | 175 | 244 | 168 | 109 | 207 | 119 | 375 | 299 | 290 | 236 | 159 | 338 |
| 6.61 | N/A | N/A | N/A | N/A | N/A | N/A | 7.23 | 7.27 | N/A | N/A | 7.25 | N/A |
| ND (1.0) |
| 1.5 | 1.9 | 1.7 | 2.3 | 2.2 | 1.8 | 2.2 | 1.6 | 2.0 | 2.3 | 2.1 | 2.0 | 2.3 |
| 62.2 | 90.9 | 81.7 | 361 | 329 | 117 | 326 | 136 | 169 | 378 | 204 | 266 | 124 |
| ND (0.5) ND (5.0) | ND (0.5) ND (5.0) | ND (0.5) ND (5.0) | 0.9 6.7 | 0.9 7.1 | ND (0.5) 5.1 | 0.8 | ND (0.5) ND (5.0) | ND (0.5) 5.4 | 0.8 | 0.6 | 0.6 ND (5.0) | ND (0.5) ND (5.0) |
| ND (3.0) ND (0.5) | ND (0.5) | ND (0.5) | ND (0.5) | ND (0.5) | ND (0.5) | ND (0.5) | ND (0.5) | ND (0.5) | ND (0.5) | ND (0.5) | ND (5.0) | ND (0.5) |
| 13.1 | 17.0 | 15.5 | 56.2 | 48.2 | 23.7 | 46.4 | 22.6 | 26.3 | 47.7 | 36.5 | 41.8 | 26.8 |
| 4.0 | 4.9 | 4.8 | 14.6 | 12.6 | 6.5 | 12.5 | 6.2 | 7.2 | 13.3 | 9.1 | 11.3 | 6.6 |
| 12.8 5.1 | 21.8 4.9 | 10.4 3.8 | 21.0 6.6 | 27.3 6.5 | 16.2 7.3 | 18.9 7.2 | 19.7 4.6 | 17.1 5.4 | 18.0 6.0 | 16.0 6.9 | 12.8 4.7 | 13.1 11.5 |
| ND (1.0) |
| 6.2 | 8.4 | 7.6 | 28.9 | 25.3 | 13.0 | 24.0 | 12.0 | 14.3 | 24.9 | 18.3 | 22.6 | 14.1 |
| ND (1.0) ND (0.3) |
| ND (0.0) | ND (0.3) | ND (0.3) | ND (0.3) | ND (0.3) | ND (0.3) ND (1.0) | ND (1.0) | ND (0.3) | ND (0.3) ND (1.0) | ND (0.3) | ND (0.3) | ND (0.3) | ND (0.3) |
| ND (1.0) |
| 21.8 28.5 | 28.2 34.4 | 27.8 28.0 | 63.2 87.1 | 54.1 89.5 | 30.6 43.3 | 53.4 82.0 | 30.4 43.8 | 36.9 45.3 | 57.3 74.6 | 45.7 61.7 | 49.3 61.0 | 33.8 48.4 |
| 26.5 | 54.4 | 28.0 | 87.1 | 69.5 | 43.3 | 82.0 | 43.6 | 45.5 | 74.0 | 01.7 | 01.0 | 40.4 |
| ND (0.02) |
| ND (0.05) | ND (0.05) ND (0.05) | ND (0.05) | ND (0.05) | ND (0.05) | ND (0.05) | ND (0.05) | ND (0.05) | ND (0.05) ND (0.05) | ND (0.05) ND (0.05) | ND (0.05) ND (0.05) | ND (0.05) | ND (0.05) |
| ND (0.05) ND (0.05) | ND (0.05) | ND (0.05) ND (0.05) | ND (0.05) ND (0.05) | ND (0.05) ND (0.05) | ND (0.05) ND (0.05) | ND (0.05) ND (0.05) | ND (0.05) ND (0.05) | ND (0.05) | ND (0.05) | ND (0.05) | ND (0.05) ND (0.05) | ND (0.05) ND (0.05) |
| ND (0.05) |
| ND (0.05) |
| ND (7) |
| ND (4) |
| 43 | 44 | 28 | 12 | 22 | 52 | 28 | 33 | 34 | ND (8) | 19 | ND (8) | 25 |
| 52 N/A | 42 N/A | 20 N/A | 19 N/A | 26 N/A | 168 326 | 90 N/A | 78 N/A | 88 N/A | ND (6) N/A | 28 N/A | ND (6) N/A | 37 N/A |
| | 14/7 | | | | 520 | | | | | | | |
| ND (0.02) |
| ND (0.02) ND (0.02) |
| ND (0.02) | 0.04 |
| ND (0.02) | 0.03 |
| ND (0.02) | 0.04 |
| ND (0.02) ND (0.02) | 0.02 0.03 |
| ND (0.02) | 0.03 |
| ND (0.02) |
| ND (0.02) | ND (0.02) ND (0.02) | ND (0.02) ND (0.02) | ND (0.02) ND (0.02) | ND (0.02) ND (0.02) | 0.03 ND (0.02) | ND (0.02) ND (0.02) | ND (0.02) ND (0.02) | ND (0.02) ND (0.02) | ND (0.02) ND (0.02) | ND (0.02) ND (0.02) | ND (0.02) ND (0.02) | 0.09 0.03 |
| ND (0.02) ND (0.02) | 0.03 |
| ND (0.02) |
| ND (0.02) | 0.03 |
| ND (0.04) ND (0.01) | ND (0.04) ND (0.01) | ND (0.04) ND (0.01) | ND (0.04) ND (0.01) | ND (0.04) | ND (0.04) ND (0.01) | 0.05 |
| ND (0.01) ND (0.02) | 0.08 |
| ND (0.02) | 0.03 | ND (0.02) | 0.07 |

| TP16-23-G1 | TP17-23-G2 | TP18-23-G1 | TP19-23-G2 | TP19-23-G3 | TP20-23-G1 | TP20-23-G2 | TP21-23-G1 | TP21-23-G4 | DUP1 | DUP2 | DUP3 |
|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
| 2316216-22 | 2316216-23 | 2316216-24 | 2316216-25 | 2316216-26 | 2316216-27 | 2316216-28 | 2316216-29 | 2316216-30 | 2316216-31 | 2316216-32 | 2316216-33 |
| 04/14/2023 09:00 AM | 04/17/2023 09:00 AM | 04/17/2023 09:00 AM | 04/17/2023 09:00 AM | 04/17/2023 09:00 AM | 04/14/2023 09:00 AM | 04/14/2023 09:00 AM | 04/17/2023 09:00 AM |
| 04.2 | 02.0 | 00.0 | 02.0 | 72.4 | 70.0 | 91.6 | 0 22 | 75.4 | 92.1 | 00.1 | 75.0 |
| 84.3 | 82.8 | 80.8 | 82.8 | 73.4 | 79.9 | 81.6 | 77.8 | 75.4 | 82.1 | 82.1 | 75.6 |
| 0.20 | 0.75 | 0.13 | 0.16 | 0.18 | 0.09 | 0.21 | 0.08 | 0.24 | 0.35 | 0.16 | 0.17 |
| 166 N/A | 224 N/A | 133 N/A | 346 7.20 | 132 N/A | 192 N/A | 376 N/A | 204 | 133 N/A | 160 N/A | 358 N/A | 107 N/A |
| | 17/5 | N/A | 7.20 | N/A | N/A | N/A | 1.23 | 19/75 | N/A | 176 | N/A |
| ND (1.0) |
| 1.7 132 | 1.9 184 | 1.7 171 | 1.7 119 | 2.3 299 | 1.8 126 | 1.8 211 | 1.3 42.7 | 2.1 320 | 2.2 291 | 1.5 106 | 2.9 325 |
| ND (0.5) | 0.5 | 0.5 | ND (0.5) | 0.8 | ND (0.5) | ND (0.5) | ND (0.5) | 0.8 | 0.7 | ND (0.5) | 0.8 |
| ND (5.0) | ND (5.0) | ND (5.0) | ND (5.0) | 7.7 | ND (5.0) | ND (5.0) | ND (5.0) | 5.7 | 5.1 | ND (5.0) | 6.2 |
| ND (0.5) 23.5 | ND (0.5) 27.7 | ND (0.5) 28.4 | ND (0.5) 18.5 | ND (0.5) 59.8 | ND (0.5) 24.9 | ND (0.5) 30.4 | ND (0.5) 9.9 | ND (0.5) 50.6 | ND (0.5) 45.6 | ND (0.5) 16.4 | ND (0.5) 58.0 |
| 6.6 | 8.3 | 7.7 | 5.4 | 14.2 | 6.7 | 8.6 | 3.1 | 13.4 | 12.0 | 4.8 | 15.0 |
| 13.8 | 12.5 | 15.4 | 11.0 | 26.2 | 11.4 | 14.4 | ND (5.0) | 24.2 | 14.7 | 10.1 | 23.2 |
| 3.2 ND (1.0) | 5.2 ND (1.0) | 5.9 ND (1.0) | 4.7 ND (1.0) | 5.6 ND (1.0) | 4.7 ND (1.0) | 4.9 ND (1.0) | 4.1 ND (1.0) | 5.1 ND (1.0) | 4.9 ND (1.0) | 4.3 ND (1.0) | 6.2 ND (1.0) |
| 13.0 | 14.3 | 13.8 | 9.6 | 32.2 | 12.9 | 16.2 | ND (5.0) | 27.0 | 24.6 | 8.8 | 30.8 |
| ND (1.0) |
| ND (0.3) ND (1.0) |
| ND (1.0) |
| 35.0 | 38.3 | 37.9 | 27.9 | 67.2 | 33.5 | 39.8 | 18.1 | 56.9 | 52.2 | 25.6 | 68.6 |
| 35.5 | 49.4 | 50.6 | 39.2 | 85.0 | 41.4 | 52.8 | ND (20.0) | 77.7 | 67.8 | 34.2 | 83.0 |
| ND (0.02) |
| ND (0.05) |
| ND (0.05) ND (0.05) |
| ND (0.05) |
| ND (0.05) |
| ND (7) |
| ND (4) |
| ND (8) ND (6) | 18 29 | 16 19 | 38 83 | ND (8) ND (6) | 25 40 | 29 52 | 12 24 | ND (8) ND (6) | ND (8) ND (6) | 30 50 | 13 17 |
| N/A |
| | | | | | | | | | | | |
| ND (0.02) ND (0.02) |
| ND (0.02) |
| ND (0.02) |
| ND (0.02) ND (0.02) |
| ND (0.02) |
| ND (0.02) |
| ND (0.02) ND (0.02) |
| ND (0.02) |
| ND (0.02) |
| ND (0.02) ND (0.02) |
| ND (0.02) |
| ND (0.04) |
| ND (0.01) ND (0.02) |
| ND (0.02) |



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Certificate of Analysis

Paterson Group Consulting Engineers

9 Auriga Drive Ottawa, ON K2E 7T9 Attn: Mike Beaudoin

Client PO: 57275 Project: PE6052 Custody:

Report Date: 24-Apr-2023 Order Date: 18-Apr-2023

Order #: 2316216

This Certificate of Analysis contains analytical data applicable to the following samples as submitted :

| - | , | |
|--------------|------------|--|
| Paracel ID | Client ID | |
| 2316216-01 | TP1-23-G1 | |
| 2316216-02 | TP1-23-G2 | |
| 2316216-03 | TP2-23-G1 | |
| 2316216-04 | TP3-23-G1 | |
| 2316216-05 | TP3-23-G2 | |
| 2316216-06 | TP4-23-G2 | |
| 2316216-07 | TP5-23-G2 | |
| 2316216-08 | TP5-23-G4 | |
| 2316216-09 | TP6-23-G4 | |
| 2316216-10 | TP7-23-G4 | |
| 2316216-11 | TP8-23-G2 | |
| 2316216-12 | TP8-23-G4 | |
| 2316216-13 | TP9-23-G1 | |
| 2316216-14 | TP10-23-G2 | |
| 2316216-15 | TP11-23-G1 | |
| 2316216-16 | TP12-23-G3 | |
| 2316216-17 | TP13-23-G1 | |
| 2316216-18 | TP13-23-G4 | |
| 2316216-19 | TP14-23-G3 | |
| 2316216-20 | TP14-23-G4 | |
| 2316216-21 | TP15-23-G2 | |
| 2316216-22 | TP16-23-G1 | |
| 2316216-23 | TP17-23-G2 | |
| 2316216-24 | TP18-23-G1 | |
| 2316216-25 | TP19-23-G2 | |
| 2316216-26 | TP19-23-G3 | |
| 2316216-27 | TP20-23-G1 | |
| 2316216-28 | TP20-23-G2 | |
| 2316216-29 | TP21-23-G1 | |
| 2316216-30 | TP21-23-G4 | |
| Approved By: | Des | |

Dale Robertson, BSc Laboratory Director

Any use of these results implies your agreement that our total liability in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstances be liable to you in connection with this work.



Certificate of Analysis Client: Paterson Group Consulting Engineers Client PO: 57275

| 2316216-31 | DUP1 |
|------------|------|
| 2316216-32 | DUP2 |
| 2316216-33 | DUP3 |

Report Date: 24-Apr-2023 Order Date: 18-Apr-2023 Project Description: PE6052



Certificate of Analysis Client: Paterson Group Consulting Engineers Client PO: 57275

Analysis Summary Table

SAR

Solids, %

| Analysis Summary Table | | | | | | |
|---------------------------------|--|-----------------|---------------|--|--|--|
| Analysis | Method Reference/Description | Extraction Date | Analysis Date | | | |
| BTEX by P&T GC-MS | EPA 8260 - P&T GC-MS | 20-Apr-23 | 20-Apr-23 | | | |
| Conductivity | MOE E3138 - probe @25 °C, water ext | 20-Apr-23 | 21-Apr-23 | | | |
| pH, soil | EPA 150.1 - pH probe @ 25 °C, CaCl buffered ext. | 18-Apr-23 | 20-Apr-23 | | | |
| PHC F1 | CWS Tier 1 - P&T GC-FID | 20-Apr-23 | 20-Apr-23 | | | |
| PHC F4G (gravimetric) | CWS Tier 1 - Extraction Gravimetric | 24-Apr-23 | 24-Apr-23 | | | |
| PHCs F2 to F4 | CWS Tier 1 - GC-FID, extraction | 19-Apr-23 | 21-Apr-23 | | | |
| REG 153: Metals by ICP/MS, soil | EPA 6020 - Digestion - ICP-MS | 20-Apr-23 | 21-Apr-23 | | | |
| REG 153: PAHs by GC-MS | EPA 8270 - GC-MS, extraction | 19-Apr-23 | 21-Apr-23 | | | |

Calculated

CWS Tier 1 - Gravimetric

21-Apr-23

19-Apr-23

Report Date: 24-Apr-2023 Order Date: 18-Apr-2023 Project Description: PE6052

21-Apr-23

20-Apr-23



Certificate of Analysis

Client: Paterson Group Consulting Engineers

Client PO: 57275

Report Date: 24-Apr-2023 Order Date: 18-Apr-2023

Project Description: PE6052

| | Client ID: | TP1-23-G1 | TP1-23-G2 | TP2-23-G1 | TP3-23-G1 |
|--------------------------|----------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
| | Sample Date: Sample ID: | 17-Apr-23 09:00 2316216-01 | 17-Apr-23 09:00 2316216-02 | 17-Apr-23 09:00 2316216-03 | 17-Apr-23 09:00 2316216-04 |
| | MDL/Units | Soil | Soil | Soil | Soil |
| Physical Characteristics | | | 1 | • | |
| % Solids | 0.1 % by Wt. | 76.0 | 74.8 | 76.6 | 81.2 |
| General Inorganics | | | | | |
| SAR | 0.01 N/A | 0.15 | 0.15 | 0.07 | 0.10 |
| Conductivity | 5 uS/cm | 111 | 98 | 127 | 206 |
| рН | 0.05 pH Units | 7.15 | - | - | - |
| Metals | • • • | | • | | |
| Antimony | 1.0 ug/g dry | <1.0 | <1.0 | <1.0 | <1.0 |
| Arsenic | 1.0 ug/g dry | 3.0 | 4.9 | 2.4 | 2.0 |
| Barium | 1.0 ug/g dry | 353 | 383 | 261 | 101 |
| Beryllium | 0.5 ug/g dry | 1.0 | 1.0 | 0.8 | 0.5 |
| Boron | 5.0 ug/g dry | 7.2 | 7.6 | 5.9 | <5.0 |
| Cadmium | 0.5 ug/g dry | <0.5 | <0.5 | <0.5 | <0.5 |
| Chromium | 5.0 ug/g dry | 63.5 | 69.4 | 42.6 | 18.8 |
| Cobalt | 1.0 ug/g dry | 16.3 | 20.9 | 11.0 | 5.8 |
| Copper | 5.0 ug/g dry | 24.4 | 29.6 | 21.1 | 19.0 |
| Lead | 1.0 ug/g dry | 6.3 | 6.5 | 6.1 | 5.2 |
| Molybdenum | 1.0 ug/g dry | <1.0 | <1.0 | <1.0 | <1.0 |
| Nickel | 5.0 ug/g dry | 33.1 | 34.9 | 22.2 | 9.6 |
| Selenium | 1.0 ug/g dry | <1.0 | <1.0 | <1.0 | <1.0 |
| Silver | 0.3 ug/g dry | <0.3 | <0.3 | <0.3 | <0.3 |
| Thallium | 1.0 ug/g dry | <1.0 | <1.0 | <1.0 | <1.0 |
| Uranium | 1.0 ug/g dry | <1.0 | <1.0 | <1.0 | <1.0 |
| Vanadium | 10.0 ug/g dry | 74.1 | 82.6 | 49.8 | 30.0 |
| Zinc | 20.0 ug/g dry | 89.5 | 98.0 | 71.7 | 39.2 |
| Volatiles | | | • | 1 | |
| Benzene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Ethylbenzene | 0.05 ug/g dry | <0.05 | <0.05 | <0.05 | <0.05 |
| Toluene | 0.05 ug/g dry | <0.05 | <0.05 | <0.05 | <0.05 |
| m,p-Xylenes | 0.05 ug/g dry | <0.05 | <0.05 | <0.05 | <0.05 |
| o-Xylene | 0.05 ug/g dry | <0.05 | <0.05 | <0.05 | <0.05 |
| Xylenes, total | 0.05 ug/g dry | <0.05 | <0.05 | <0.05 | <0.05 |
| Toluene-d8 | Surrogate | 116% | 117% | 118% | 115% |
| Hydrocarbons | | | • | • | |
| F1 PHCs (C6-C10) | 7 ug/g dry | <7 | <7 | <7 | <7 |
| F2 PHCs (C10-C16) | 4 ug/g dry | <4 | <4 | <4 | <4 |

OTTAWA . MISSISSAUGA . HAMILTON . KINGSTON . LONDON . NIAGARA . WINDSOR . RICHMOND HILL

Certificate of Analysis Client: Paterson Group Consulting Engineers Client PO: 57275

Report Date: 24-Apr-2023 Order Date: 18-Apr-2023

Order #: 2316216

Project Description: PE6052

| | Client ID: | TP1-23-G1 | TP1-23-G2 | TP2-23-G1 | TP3-23-G1 |
|--------------------------|---------------|-----------------|-----------------|-----------------|-----------------|
| | Sample Date: | 17-Apr-23 09:00 | 17-Apr-23 09:00 | 17-Apr-23 09:00 | 17-Apr-23 09:00 |
| | Sample ID: | 2316216-01 | 2316216-02 | 2316216-03 | 2316216-04 |
| | MDL/Units | Soil | Soil | Soil | Soil |
| F3 PHCs (C16-C34) | 8 ug/g dry | <8 | <8 | 23 [2] | 31 [2] |
| F4 PHCs (C34-C50) | 6 ug/g dry | <6 | <6 | 11 [2] | 32 [2] |
| Semi-Volatiles | | | • | | |
| Acenaphthene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Acenaphthylene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Anthracene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Benzo [a] anthracene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Benzo [a] pyrene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Benzo [b] fluoranthene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Benzo [g,h,i] perylene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Benzo [k] fluoranthene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Chrysene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Dibenzo [a,h] anthracene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Fluoranthene | 0.02 ug/g dry | 0.03 | <0.02 | <0.02 | <0.02 |
| Fluorene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Indeno [1,2,3-cd] pyrene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| 1-Methylnaphthalene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| 2-Methylnaphthalene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Methylnaphthalene (1&2) | 0.04 ug/g dry | <0.04 | <0.04 | <0.04 | <0.04 |
| Naphthalene | 0.01 ug/g dry | <0.01 | <0.01 | <0.01 | <0.01 |
| Phenanthrene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Pyrene | 0.02 ug/g dry | 0.02 | <0.02 | <0.02 | <0.02 |
| 2-Fluorobiphenyl | Surrogate | 98.4% | 87.7% | 99.1% | 75.3% |
| Terphenyl-d14 | Surrogate | 111% | 91.3% | 106% | 61.3% |

Certificate of Analysis Client: Paterson Group Consulting Engineers

Client PO: 57275

Order #: 2316216

Report Date: 24-Apr-2023 Order Date: 18-Apr-2023

Project Description: PE6052

| | Client ID: Sample Date: | TP3-23-G2 | TP4-23-G2 | TP5-23-G2 | TP5-23-G4 17-Apr-23 09:00 2316216-08 |
|--------------------------|----------------------------|------------|-----------------|-----------------|--|
| | | | 17-Apr-23 09:00 | 17-Apr-23 09:00 | |
| | Sample ID: | 2316216-05 | 2316216-06 | 2316216-07 | |
| | MDL/Units | Soil | Soil | Soil | Soil |
| Physical Characteristics | | | 1 | [| 1 |
| % Solids | 0.1 % by Wt. | 81.5 | 83.5 | 78.8 | 76.7 |
| General Inorganics | | | 1 | | 1 |
| SAR | 0.01 N/A | 0.16 | 0.18 | 0.18 | 0.15 |
| Conductivity | 5 uS/cm | 212 | 434 | 227 | 231 |
| рН | 0.05 pH Units | - | - | - | 7.12 |
| Metals | · · · | | | | |
| Antimony | 1.0 ug/g dry | <1.0 | <1.0 | <1.0 | <1.0 |
| Arsenic | 1.0 ug/g dry | 1.7 | 2.1 | 1.8 | 2.5 |
| Barium | 1.0 ug/g dry | 142 | 179 | 100 | 254 |
| Beryllium | 0.5 ug/g dry | 0.5 | 0.6 | 0.5 | 0.7 |
| Boron | 5.0 ug/g dry | <5.0 | <5.0 | <5.0 | 6.3 |
| Cadmium | 0.5 ug/g dry | <0.5 | <0.5 | <0.5 | <0.5 |
| Chromium | 5.0 ug/g dry | 22.0 | 26.5 | 21.1 | 42.4 |
| Cobalt | 1.0 ug/g dry | 6.6 | 7.5 | 6.1 | 11.0 |
| Copper | 5.0 ug/g dry | 13.0 | 13.0 | 11.2 | 25.2 |
| Lead | 1.0 ug/g dry | 4.4 | 5.5 | 4.7 | 6.2 |
| Molybdenum | 1.0 ug/g dry | <1.0 | <1.0 | <1.0 | <1.0 |
| Nickel | 5.0 ug/g dry | 11.4 | 13.5 | 11.4 | 21.6 |
| Selenium | 1.0 ug/g dry | <1.0 | <1.0 | <1.0 | <1.0 |
| Silver | 0.3 ug/g dry | <0.3 | <0.3 | <0.3 | <0.3 |
| Thallium | 1.0 ug/g dry | <1.0 | <1.0 | <1.0 | <1.0 |
| Uranium | 1.0 ug/g dry | <1.0 | <1.0 | <1.0 | <1.0 |
| Vanadium | 10.0 ug/g dry | 32.4 | 37.5 | 32.1 | 53.8 |
| Zinc | 20.0 ug/g dry | 38.0 | 47.7 | 37.4 | 75.9 |
| Volatiles | | | • | I | |
| Benzene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Ethylbenzene | 0.05 ug/g dry | <0.05 | <0.05 | <0.05 | <0.05 |
| Toluene | 0.05 ug/g dry | <0.05 | <0.05 | <0.05 | <0.05 |
| m,p-Xylenes | 0.05 ug/g dry | <0.05 | <0.05 | <0.05 | <0.05 |
| o-Xylene | 0.05 ug/g dry | <0.05 | <0.05 | <0.05 | <0.05 |
| Xylenes, total | 0.05 ug/g dry | <0.05 | <0.05 | <0.05 | <0.05 |
| Toluene-d8 | Surrogate | 116% | 114% | 120% | 121% |
| Hydrocarbons | | | 1 | | |
| F1 PHCs (C6-C10) | 7 ug/g dry | <7 | <7 | <7 | <7 |
| F2 PHCs (C10-C16) | 4 ug/g dry | <4 | <4 | <4 | <4 |

Certificate of Analysis Client: Paterson Group Consulting Engineers Client PO: 57275

Report Date: 24-Apr-2023 Order Date: 18-Apr-2023 Project Description: PE6052

Order #: 2316216

| | | TP3-23-G2 | TP4-23-G2 | TP5-23-G2 | TP5-23-G4 |
|--------------------------|----------------------------|-----------------|-----------------|-----------------|-----------------|
| | Client ID: | 17-Apr-23 09:00 | 17-Apr-23 09:00 | 17-Apr-23 09:00 | 17-Apr-23 09:00 |
| | Sample Date: Sample ID: | 2316216-05 | 2316216-06 | 2316216-07 | 2316216-08 |
| | MDL/Units | Soil | Soil | Soil | Soil |
| F3 PHCs (C16-C34) | 8 ug/g dry | 30 [2] | 34 [2] | 35 [2] | 19 [2] |
| F4 PHCs (C34-C50) | 6 ug/g dry | 30 [2] | 41 [2] | 27 [2] | 23 [2] |
| Semi-Volatiles | | | | | |
| Acenaphthene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Acenaphthylene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Anthracene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Benzo [a] anthracene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Benzo [a] pyrene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Benzo [b] fluoranthene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Benzo [g,h,i] perylene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Benzo [k] fluoranthene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Chrysene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Dibenzo [a,h] anthracene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Fluoranthene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Fluorene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Indeno [1,2,3-cd] pyrene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| 1-Methylnaphthalene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| 2-Methylnaphthalene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Methylnaphthalene (1&2) | 0.04 ug/g dry | <0.04 | <0.04 | <0.04 | <0.04 |
| Naphthalene | 0.01 ug/g dry | <0.01 | <0.01 | <0.01 | <0.01 |
| Phenanthrene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Pyrene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| 2-Fluorobiphenyl | Surrogate | 67.3% | 82.9% | 74.7% | 70.7% |
| Terphenyl-d14 | Surrogate | 60.3% | 67.7% | 112% | 53.3% |



Client PO: 57275

Certificate of Analysis Client: Paterson Group Consulting Engineers

Order #: 2316216

Report Date: 24-Apr-2023 Order Date: 18-Apr-2023

Project Description: PE6052

| | Client ID: Sample Date: Sample ID: | TP6-23-G4 17-Apr-23 09:00 2316216-09 | TP7-23-G4 17-Apr-23 09:00 2316216-10 | TP8-23-G2 17-Apr-23 09:00 2316216-11 | TP8-23-G4 17-Apr-23 09:00 2316216-12 |
|--------------------------|--|--|--|--|--|
| | MDL/Units | Soil | Soil | Soil | Soil |
| Physical Characteristics | | | 1 | 1 | |
| % Solids | 0.1 % by Wt. | 73.9 | 80.0 | 85.2 | 81.4 |
| General Inorganics | 0.01 N/A | 0.00 | 0.00 | 0.00 | 0.40 |
| SAR | 5 uS/cm | 0.30 | 0.08 | 0.20 | 0.16 |
| Conductivity | | 198 | 175 | 244 | 168 |
| рН | 0.05 pH Units | 6.61 | - | - | - |
| Metals | 1.0 ug/g dry | | | | |
| Antimony | | <1.0 | <1.0 | <1.0 | <1.0 |
| Arsenic | 1.0 ug/g dry | 1.5 | 1.9 | 1.7 | 2.3 |
| Barium | 1.0 ug/g dry | 62.2 | 90.9 | 81.7 | 361 |
| Beryllium | 0.5 ug/g dry | <0.5 | <0.5 | <0.5 | 0.9 |
| Boron | 5.0 ug/g dry | <5.0 | <5.0 | <5.0 | 6.7 |
| Cadmium | 0.5 ug/g dry | <0.5 | <0.5 | <0.5 | <0.5 |
| Chromium | 5.0 ug/g dry | 13.1 | 17.0 | 15.5 | 56.2 |
| Cobalt | 1.0 ug/g dry | 4.0 | 4.9 | 4.8 | 14.6 |
| Copper | 5.0 ug/g dry | 12.8 | 21.8 | 10.4 | 21.0 |
| Lead | 1.0 ug/g dry | 5.1 | 4.9 | 3.8 | 6.6 |
| Molybdenum | 1.0 ug/g dry | <1.0 | <1.0 | <1.0 | <1.0 |
| Nickel | 5.0 ug/g dry | 6.2 | 8.4 | 7.6 | 28.9 |
| Selenium | 1.0 ug/g dry | <1.0 | <1.0 | <1.0 | <1.0 |
| Silver | 0.3 ug/g dry | <0.3 | <0.3 | <0.3 | <0.3 |
| Thallium | 1.0 ug/g dry | <1.0 | <1.0 | <1.0 | <1.0 |
| Uranium | 1.0 ug/g dry | <1.0 | <1.0 | <1.0 | <1.0 |
| Vanadium | 10.0 ug/g dry | 21.8 | 28.2 | 27.8 | 63.2 |
| Zinc | 20.0 ug/g dry | 28.5 | 34.4 | 28.0 | 87.1 |
| Volatiles | | | | | |
| Benzene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Ethylbenzene | 0.05 ug/g dry | <0.05 | <0.05 | <0.05 | <0.05 |
| Toluene | 0.05 ug/g dry | <0.05 | <0.05 | <0.05 | <0.05 |
| m,p-Xylenes | 0.05 ug/g dry | <0.05 | <0.05 | <0.05 | <0.05 |
| o-Xylene | 0.05 ug/g dry | <0.05 | <0.05 | <0.05 | <0.05 |
| Xylenes, total | 0.05 ug/g dry | <0.05 | <0.05 | <0.05 | <0.05 |
| Toluene-d8 | Surrogate | 122% | 118% | 114% | 116% |
| Hydrocarbons | | | | | |
| F1 PHCs (C6-C10) | 7 ug/g dry | <7 | <7 | <7 | <7 |
| F2 PHCs (C10-C16) | 4 ug/g dry | <4 | <4 | <4 | <4 |

OTTAWA . MISSISSAUGA . HAMILTON . KINGSTON . LONDON . NIAGARA . WINDSOR . RICHMOND HILL

Certificate of Analysis Client: Paterson Group Consulting Engineers Client PO: 57275

Report Date: 24-Apr-2023 Order Date: 18-Apr-2023 Project Description: PE6052

Order #: 2316216

| | г | | | | |
|--------------------------|----------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
| | Client ID: | TP6-23-G4 | TP7-23-G4 | TP8-23-G2 | TP8-23-G4 |
| | Sample Date: Sample ID: | 17-Apr-23 09:00 2316216-09 | 17-Apr-23 09:00 2316216-10 | 17-Apr-23 09:00 2316216-11 | 17-Apr-23 09:00 2316216-12 |
| | MDL/Units | Soil | Soil | Soil | Soil |
| F3 PHCs (C16-C34) | 8 ug/g dry | 43 [2] | 44 [2] | 28 [2] | 12 [2] |
| F4 PHCs (C34-C50) | 6 ug/g dry | 52 [2] | 42 [2] | 20 [2] | 19 [2] |
| Semi-Volatiles | ++ | | | | |
| Acenaphthene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Acenaphthylene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Anthracene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Benzo [a] anthracene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Benzo [a] pyrene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Benzo [b] fluoranthene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Benzo [g,h,i] perylene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Benzo [k] fluoranthene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Chrysene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Dibenzo [a,h] anthracene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Fluoranthene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Fluorene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Indeno [1,2,3-cd] pyrene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| 1-Methylnaphthalene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| 2-Methylnaphthalene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Methylnaphthalene (1&2) | 0.04 ug/g dry | <0.04 | <0.04 | <0.04 | <0.04 |
| Naphthalene | 0.01 ug/g dry | <0.01 | <0.01 | <0.01 | <0.01 |
| Phenanthrene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Pyrene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| 2-Fluorobiphenyl | Surrogate | 66.1% | 74.0% | 74.7% | 97.3% |
| Terphenyl-d14 | Surrogate | 55.5% | 93.2% | 104% | 85.3% |

OTTAWA - MISSISSAUGA - HAMILTON - KINGSTON - LONDON - NIAGARA - WINDSOR - RICHMOND HILL

Certificate of Analysis

Client: Paterson Group Consulting Engineers

Client PO: 57275

Order #: 2316216

Report Date: 24-Apr-2023 Order Date: 18-Apr-2023

Project Description: PE6052

| | T | TD0 00 04 | TD44.00.04 | 11 22 C1 TD12 22 C2 | | |
|--------------------------|----------------------------|------------|-------------------------------|-------------------------------|------------|--|
| | Client ID: | | TP11-23-G1 14-Apr-23 09:00 | TP12-23-G3 14-Apr-23 09:00 | | |
| | Sample Date: Sample ID: | 2316216-13 | 2316216-14 | 2316216-15 | 2316216-16 | |
| | MDL/Units | Soil | Soil | Soil | Soil | |
| Physical Characteristics | | | | | | |
| % Solids | 0.1 % by Wt. | 78.1 | 79.8 | 82.7 | 84.4 | |
| General Inorganics | · · · | | | | | |
| SAR | 0.01 N/A | 0.07 | 0.08 | 0.09 | 0.32 | |
| Conductivity | 5 uS/cm | 109 | 207 | 119 | 375 | |
| рН | 0.05 pH Units | - | - | - | 7.23 | |
| Metals | | | | | 1 | |
| Antimony | 1.0 ug/g dry | <1.0 | <1.0 | <1.0 | <1.0 | |
| Arsenic | 1.0 ug/g dry | 2.2 | 1.8 | 2.2 | 1.6 | |
| Barium | 1.0 ug/g dry | 329 | 117 | 326 | 136 | |
| Beryllium | 0.5 ug/g dry | 0.9 | <0.5 | 0.8 | <0.5 | |
| Boron | 5.0 ug/g dry | 7.1 | 5.1 | 6.7 | <5.0 | |
| Cadmium | 0.5 ug/g dry | <0.5 | <0.5 | <0.5 | <0.5 | |
| Chromium | 5.0 ug/g dry | 48.2 | 23.7 | 46.4 | 22.6 | |
| Cobalt | 1.0 ug/g dry | 12.6 | 6.5 | 12.5 | 6.2 | |
| Copper | 5.0 ug/g dry | 27.3 | 16.2 | 18.9 | 19.7 | |
| Lead | 1.0 ug/g dry | 6.5 | 7.3 | 7.2 | 4.6 | |
| Molybdenum | 1.0 ug/g dry | <1.0 | <1.0 | <1.0 | <1.0 | |
| Nickel | 5.0 ug/g dry | 25.3 | 13.0 | 24.0 | 12.0 | |
| Selenium | 1.0 ug/g dry | <1.0 | <1.0 | <1.0 | <1.0 | |
| Silver | 0.3 ug/g dry | <0.3 | <0.3 | <0.3 | <0.3 | |
| Thallium | 1.0 ug/g dry | <1.0 | <1.0 | <1.0 | <1.0 | |
| Uranium | 1.0 ug/g dry | <1.0 | <1.0 | <1.0 | <1.0 | |
| Vanadium | 10.0 ug/g dry | 54.1 | 30.6 | 53.4 | 30.4 | |
| Zinc | 20.0 ug/g dry | 89.5 | 43.3 | 82.0 | 43.8 | |
| Volatiles | · · · | | | | | |
| Benzene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 | |
| Ethylbenzene | 0.05 ug/g dry | <0.05 | <0.05 | <0.05 | <0.05 | |
| Toluene | 0.05 ug/g dry | <0.05 | <0.05 | <0.05 | <0.05 | |
| m,p-Xylenes | 0.05 ug/g dry | <0.05 | <0.05 | <0.05 | <0.05 | |
| o-Xylene | 0.05 ug/g dry | <0.05 | <0.05 | <0.05 | <0.05 | |
| Xylenes, total | 0.05 ug/g dry | <0.05 | <0.05 | <0.05 | <0.05 | |
| Toluene-d8 | Surrogate | 120% | 118% | 114% | 114% | |
| Hydrocarbons | + + | | | - | 1 | |
| F1 PHCs (C6-C10) | 7 ug/g dry | <7 | <7 | <7 | <7 | |
| F2 PHCs (C10-C16) | 4 ug/g dry | <4 | <4 | <4 | <4 | |

OTTAWA . MISSISSAUGA . HAMILTON . KINGSTON . LONDON . NIAGARA . WINDSOR . RICHMOND HILL

Certificate of Analysis Client: Paterson Group Consulting Engineers Client PO: 57275

Order #: 2316216

Report Date: 24-Apr-2023 Order Date: 18-Apr-2023 Project Description: PE6052

| | Client ID | TP9-23-G1 | TP10-23-G2 | TP11-23-G1 | TP12-23-G3 |
|--------------------------|---------------|-----------------|-----------------|-----------------|-----------------|
| | Sample Date: | 17-Apr-23 09:00 | 14-Apr-23 09:00 | 14-Apr-23 09:00 | 14-Apr-23 09:00 |
| | Sample ID: | 2316216-13 | 2316216-14 | 2316216-15 | 2316216-16 |
| | MDL/Units | Soil | Soil | Soil | Soil |
| F3 PHCs (C16-C34) | 8 ug/g dry | 22 [2] | 52 [2] | 28 [2] | 33 [2] |
| F4 PHCs (C34-C50) | 6 ug/g dry | 26 [2] | 168 [1] [2] | 90 [2] | 78 [2] |
| F4G PHCs (gravimetric) | 50 ug/g dry | - | 326 | - | - |
| Semi-Volatiles | · · · | | • | | |
| Acenaphthene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Acenaphthylene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Anthracene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Benzo [a] anthracene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Benzo [a] pyrene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Benzo [b] fluoranthene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Benzo [g,h,i] perylene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Benzo [k] fluoranthene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Chrysene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Dibenzo [a,h] anthracene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Fluoranthene | 0.02 ug/g dry | <0.02 | 0.03 | <0.02 | <0.02 |
| Fluorene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Indeno [1,2,3-cd] pyrene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| 1-Methylnaphthalene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| 2-Methylnaphthalene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Methylnaphthalene (1&2) | 0.04 ug/g dry | <0.04 | <0.04 | <0.04 | <0.04 |
| Naphthalene | 0.01 ug/g dry | <0.01 | <0.01 | <0.01 | <0.01 |
| Phenanthrene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Pyrene | 0.02 ug/g dry | <0.02 | 0.03 | <0.02 | <0.02 |
| 2-Fluorobiphenyl | Surrogate | 83.0% | 102% | 87.8% | 93.0% |
| Terphenyl-d14 | Surrogate | 109% | 108% | 86.8% | 106% |

Certificate of Analysis Client: Paterson Group Consulting Engineers

Client PO: 57275

Order #: 2316216

Report Date: 24-Apr-2023 Order Date: 18-Apr-2023

| | Client ID: Sample Date: | TP13-23-G1 14-Apr-23 09:00 2316216-17 | TP13-23-G4 14-Apr-23 09:00 2316216-18 | TP14-23-G3 14-Apr-23 09:00 2316216-19 | TP14-23-G4 14-Apr-23 09:00 2316216-20 |
|--------------------------|----------------------------|---|---|---|---|
| | Sample ID: MDL/Units | Soil | Soil | Soil | Soil |
| Physical Characteristics | MDL/Offits | | | | |
| % Solids | 0.1 % by Wt. | 83.5 | 82.1 | 79.8 | 81.2 |
| General Inorganics | | | | | |
| SAR | 0.01 N/A | 0.28 | 0.31 | 0.31 | 0.33 |
| Conductivity | 5 uS/cm | 299 | 290 | 236 | 159 |
| рН | 0.05 pH Units | 7.27 | - | - | 7.25 |
| Metals | · · · · | | 1 | | |
| Antimony | 1.0 ug/g dry | <1.0 | <1.0 | <1.0 | <1.0 |
| Arsenic | 1.0 ug/g dry | 2.0 | 2.3 | 2.1 | 2.0 |
| Barium | 1.0 ug/g dry | 169 | 378 | 204 | 266 |
| Beryllium | 0.5 ug/g dry | <0.5 | 0.8 | 0.6 | 0.6 |
| Boron | 5.0 ug/g dry | 5.4 | 6.3 | 5.9 | <5.0 |
| Cadmium | 0.5 ug/g dry | <0.5 | <0.5 | <0.5 | <0.5 |
| Chromium | 5.0 ug/g dry | 26.3 | 47.7 | 36.5 | 41.8 |
| Cobalt | 1.0 ug/g dry | 7.2 | 13.3 | 9.1 | 11.3 |
| Copper | 5.0 ug/g dry | 17.1 | 18.0 | 16.0 | 12.8 |
| Lead | 1.0 ug/g dry | 5.4 | 6.0 | 6.9 | 4.7 |
| Molybdenum | 1.0 ug/g dry | <1.0 | <1.0 | <1.0 | <1.0 |
| Nickel | 5.0 ug/g dry | 14.3 | 24.9 | 18.3 | 22.6 |
| Selenium | 1.0 ug/g dry | <1.0 | <1.0 | <1.0 | <1.0 |
| Silver | 0.3 ug/g dry | <0.3 | <0.3 | <0.3 | <0.3 |
| Thallium | 1.0 ug/g dry | <1.0 | <1.0 | <1.0 | <1.0 |
| Uranium | 1.0 ug/g dry | <1.0 | <1.0 | <1.0 | <1.0 |
| Vanadium | 10.0 ug/g dry | 36.9 | 57.3 | 45.7 | 49.3 |
| Zinc | 20.0 ug/g dry | 45.3 | 74.6 | 61.7 | 61.0 |
| Volatiles | | | • | | |
| Benzene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Ethylbenzene | 0.05 ug/g dry | <0.05 | <0.05 | <0.05 | <0.05 |
| Toluene | 0.05 ug/g dry | <0.05 | <0.05 | <0.05 | <0.05 |
| m,p-Xylenes | 0.05 ug/g dry | <0.05 | <0.05 | <0.05 | <0.05 |
| o-Xylene | 0.05 ug/g dry | <0.05 | <0.05 | <0.05 | <0.05 |
| Xylenes, total | 0.05 ug/g dry | <0.05 | <0.05 | <0.05 | <0.05 |
| Toluene-d8 | Surrogate | 116% | 116% | 119% | 116% |
| Hydrocarbons | | | + | | |
| F1 PHCs (C6-C10) | 7 ug/g dry | <7 | <7 | <7 | <7 |
| F2 PHCs (C10-C16) | 4 ug/g dry | <4 | <4 | <4 | <4 |

Certificate of Analysis Client: Paterson Group Consulting Engineers

Client PO: 57275

Order #: 2316216

Report Date: 24-Apr-2023 Order Date: 18-Apr-2023 Project Description: PE6052

| | Client ID | TP13-23-G1 | TP13-23-G4 | TP14-23-G3 | TP14-23-G4 | |
|--------------------------|---------------|-----------------|-----------------|-----------------|-----------------|--|
| | Sample Date: | 14-Apr-23 09:00 | 14-Apr-23 09:00 | 14-Apr-23 09:00 | 14-Apr-23 09:00 | |
| | Sample ID: | 2316216-17 | 2316216-18 | 2316216-19 | 2316216-20 | |
| | MDL/Units | Soil | Soil | Soil | Soil | |
| F3 PHCs (C16-C34) | 8 ug/g dry | 34 [2] | <8 | 19 [2] | <8 | |
| F4 PHCs (C34-C50) | 6 ug/g dry | 88 [2] | <6 | 28 [2] | <6 | |
| Semi-Volatiles | | | | | | |
| Acenaphthene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 | |
| Acenaphthylene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 | |
| Anthracene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 | |
| Benzo [a] anthracene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 | |
| Benzo [a] pyrene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 | |
| Benzo [b] fluoranthene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 | |
| Benzo [g,h,i] perylene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 | |
| Benzo [k] fluoranthene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 | |
| Chrysene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 | |
| Dibenzo [a,h] anthracene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 | |
| Fluoranthene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 | |
| Fluorene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 | |
| Indeno [1,2,3-cd] pyrene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 | |
| 1-Methylnaphthalene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 | |
| 2-Methylnaphthalene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 | |
| Methylnaphthalene (1&2) | 0.04 ug/g dry | <0.04 | <0.04 | <0.04 | <0.04 | |
| Naphthalene | 0.01 ug/g dry | <0.01 | <0.01 | <0.01 | <0.01 | |
| Phenanthrene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 | |
| Pyrene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 | |
| 2-Fluorobiphenyl | Surrogate | 88.7% | 90.4% | 86.0% | 69.1% | |
| Terphenyl-d14 | Surrogate | 97.9% | 80.9% | 105% | 98.5% | |

Certificate of Analysis Client: Paterson Group Consulting Engineers

Client PO: 57275

Report Date: 24-Apr-2023 Order Date: 18-Apr-2023

Project Description: PE6052

| | Client ID: | TP15-23-G2 | TP16-23-G1 | TP17-23-G2 | TP18-23-G1 | |
|--------------------------|---------------|-----------------|-----------------|-----------------|-----------------|--|
| | Sample Date: | 14-Apr-23 09:00 | 14-Apr-23 09:00 | 14-Apr-23 09:00 | 14-Apr-23 09:00 | |
| | Sample ID: | 2316216-21 | 2316216-22 | 2316216-23 | 2316216-24 | |
| | MDL/Units | Soil | Soil | Soil | Soil | |
| Physical Characteristics | | | | | | |
| % Solids | 0.1 % by Wt. | 84.2 | 84.3 | 82.8 | 80.8 | |
| General Inorganics | 0.04 N/A | | | | | |
| SAR | 0.01 N/A | 0.71 | 0.20 | 0.75 | 0.13 | |
| Conductivity | 5 uS/cm | 338 | 166 | 224 | 133 | |
| Metals | 1.0 ug/g dp/ | | | | | |
| Antimony | 1.0 ug/g dry | <1.0 | <1.0 | <1.0 | <1.0 | |
| Arsenic | 1.0 ug/g dry | 2.3 | 1.7 | 1.9 | 1.7 | |
| Barium | 1.0 ug/g dry | 124 | 132 | 184 | 171 | |
| Beryllium | 0.5 ug/g dry | <0.5 | <0.5 | 0.5 | 0.5 | |
| Boron | 5.0 ug/g dry | <5.0 | <5.0 | <5.0 | <5.0 | |
| Cadmium | 0.5 ug/g dry | <0.5 | <0.5 | <0.5 | <0.5 | |
| Chromium | 5.0 ug/g dry | 26.8 | 23.5 | 27.7 | 28.4 | |
| Cobalt | 1.0 ug/g dry | 6.6 | 6.6 | 8.3 | 7.7 | |
| Copper | 5.0 ug/g dry | 13.1 | 13.8 | 12.5 | 15.4 | |
| Lead | 1.0 ug/g dry | 11.5 | 3.2 | 5.2 | 5.9 | |
| Molybdenum | 1.0 ug/g dry | <1.0 | <1.0 | <1.0 | <1.0 | |
| Nickel | 5.0 ug/g dry | 14.1 | 13.0 | 14.3 | 13.8 | |
| Selenium | 1.0 ug/g dry | <1.0 | <1.0 | <1.0 | <1.0 | |
| Silver | 0.3 ug/g dry | <0.3 | <0.3 | <0.3 | <0.3 | |
| Thallium | 1.0 ug/g dry | <1.0 | <1.0 | <1.0 | <1.0 | |
| Uranium | 1.0 ug/g dry | <1.0 | <1.0 | <1.0 | <1.0 | |
| Vanadium | 10.0 ug/g dry | 33.8 | 35.0 | 38.3 | 37.9 | |
| Zinc | 20.0 ug/g dry | 48.4 | 35.5 | 49.4 | 50.6 | |
| Volatiles | | | 1 | | | |
| Benzene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 | |
| Ethylbenzene | 0.05 ug/g dry | <0.05 | <0.05 | <0.05 | <0.05 | |
| Toluene | 0.05 ug/g dry | <0.05 | <0.05 | <0.05 | <0.05 | |
| m,p-Xylenes | 0.05 ug/g dry | <0.05 | <0.05 | <0.05 | <0.05 | |
| o-Xylene | 0.05 ug/g dry | <0.05 | <0.05 | <0.05 | <0.05 | |
| Xylenes, total | 0.05 ug/g dry | <0.05 | <0.05 | <0.05 | <0.05 | |
| Toluene-d8 | Surrogate | 116% | 116% | 117% | 116% | |
| Hydrocarbons | | | | | | |
| F1 PHCs (C6-C10) | 7 ug/g dry | <7 | <7 | <7 | <7 | |
| F2 PHCs (C10-C16) | 4 ug/g dry | <4 | <4 | <4 | <4 | |
| F3 PHCs (C16-C34) | 8 ug/g dry | 25 [2] | <8 | 18 [2] | 16 [2] | |

Certificate of Analysis Client: Paterson Group Consulting Engineers Client PO: 57275

Report Date: 24-Apr-2023 Order Date: 18-Apr-2023

Order #: 2316216

| | Client ID: | TP15-23-G2 | TP16-23-G1 | TP17-23-G2 | TP18-23-G1 |
|--------------------------|---------------|-----------------|-----------------|-----------------|-----------------|
| | Sample Date: | 14-Apr-23 09:00 | 14-Apr-23 09:00 | 14-Apr-23 09:00 | 14-Apr-23 09:00 |
| | Sample ID: | 2316216-21 | 2316216-22 | 2316216-23 | 2316216-24 |
| | MDL/Units | Soil | Soil | Soil | Soil |
| F4 PHCs (C34-C50) | 6 ug/g dry | 37 [2] | <6 | 29 [2] | 19 [2] |
| Semi-Volatiles | | | | | |
| Acenaphthene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Acenaphthylene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Anthracene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Benzo [a] anthracene | 0.02 ug/g dry | 0.04 | <0.02 | <0.02 | <0.02 |
| Benzo [a] pyrene | 0.02 ug/g dry | 0.03 | <0.02 | <0.02 | <0.02 |
| Benzo [b] fluoranthene | 0.02 ug/g dry | 0.04 | <0.02 | <0.02 | <0.02 |
| Benzo [g,h,i] perylene | 0.02 ug/g dry | 0.02 | <0.02 | <0.02 | <0.02 |
| Benzo [k] fluoranthene | 0.02 ug/g dry | 0.03 | <0.02 | <0.02 | <0.02 |
| Chrysene | 0.02 ug/g dry | 0.04 | <0.02 | <0.02 | <0.02 |
| Dibenzo [a,h] anthracene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Fluoranthene | 0.02 ug/g dry | 0.09 | <0.02 | <0.02 | <0.02 |
| Fluorene | 0.02 ug/g dry | 0.03 | <0.02 | <0.02 | <0.02 |
| Indeno [1,2,3-cd] pyrene | 0.02 ug/g dry | 0.02 | <0.02 | <0.02 | <0.02 |
| 1-Methylnaphthalene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| 2-Methylnaphthalene | 0.02 ug/g dry | 0.03 | <0.02 | <0.02 | <0.02 |
| Methylnaphthalene (1&2) | 0.04 ug/g dry | 0.05 | <0.04 | <0.04 | <0.04 |
| Naphthalene | 0.01 ug/g dry | 0.08 | <0.01 | <0.01 | <0.01 |
| Phenanthrene | 0.02 ug/g dry | 0.10 | <0.02 | <0.02 | <0.02 |
| Pyrene | 0.02 ug/g dry | 0.07 | <0.02 | <0.02 | <0.02 |
| 2-Fluorobiphenyl | Surrogate | 93.7% | 75.8% | 81.2% | 60.3% |
| Terphenyl-d14 | Surrogate | 111% | 93.9% | 92.9% | 73.8% |

Certificate of Analysis

Client: Paterson Group Consulting Engineers

Client PO: 57275

Report Date: 24-Apr-2023 Order Date: 18-Apr-2023

Project Description: PE6052

| | Client ID: | TP19-23-G2 | TP19-23-G3 | TP20-23-G1 | TP20-23-G2 | |
|--------------------------|---------------|-----------------|-----------------|-----------------|-----------------|--|
| | Sample Date: | 14-Apr-23 09:00 | 14-Apr-23 09:00 | 17-Apr-23 09:00 | 17-Apr-23 09:00 | |
| | Sample ID: | 2316216-25 | 2316216-26 | 2316216-27 | 2316216-28 | |
| | MDL/Units | Soil | Soil | Soil | Soil | |
| Physical Characteristics | | | | | | |
| % Solids | 0.1 % by Wt. | 82.8 | 73.4 | 79.9 | 81.6 | |
| General Inorganics | | | i i | - i | | |
| SAR | 0.01 N/A | 0.16 | 0.18 | 0.09 | 0.21 | |
| Conductivity | 5 uS/cm | 346 | 132 | 192 | 376 | |
| рН | 0.05 pH Units | 7.20 | - | - | - | |
| Metals | | | - - | - | - | |
| Antimony | 1.0 ug/g dry | <1.0 | <1.0 | <1.0 | <1.0 | |
| Arsenic | 1.0 ug/g dry | 1.7 | 2.3 | 1.8 | 1.8 | |
| Barium | 1.0 ug/g dry | 119 | 299 | 126 | 211 | |
| Beryllium | 0.5 ug/g dry | <0.5 | 0.8 | <0.5 | <0.5 | |
| Boron | 5.0 ug/g dry | <5.0 | 7.7 | <5.0 | <5.0 | |
| Cadmium | 0.5 ug/g dry | <0.5 | <0.5 | <0.5 | <0.5 | |
| Chromium | 5.0 ug/g dry | 18.5 | 59.8 | 24.9 | 30.4 | |
| Cobalt | 1.0 ug/g dry | 5.4 | 14.2 | 6.7 | 8.6 | |
| Copper | 5.0 ug/g dry | 11.0 | 26.2 | 11.4 | 14.4 | |
| Lead | 1.0 ug/g dry | 4.7 | 5.6 | 4.7 | 4.9 | |
| Molybdenum | 1.0 ug/g dry | <1.0 | <1.0 | <1.0 | <1.0 | |
| Nickel | 5.0 ug/g dry | 9.6 | 32.2 | 12.9 | 16.2 | |
| Selenium | 1.0 ug/g dry | <1.0 | <1.0 | <1.0 | <1.0 | |
| Silver | 0.3 ug/g dry | <0.3 | <0.3 | <0.3 | <0.3 | |
| Thallium | 1.0 ug/g dry | <1.0 | <1.0 | <1.0 | <1.0 | |
| Uranium | 1.0 ug/g dry | <1.0 | <1.0 | <1.0 | <1.0 | |
| Vanadium | 10.0 ug/g dry | 27.9 | 67.2 | 33.5 | 39.8 | |
| Zinc | 20.0 ug/g dry | 39.2 | 85.0 | 41.4 | 52.8 | |
| Volatiles | | | • | ł | | |
| Benzene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 | |
| Ethylbenzene | 0.05 ug/g dry | <0.05 | <0.05 | <0.05 | <0.05 | |
| Toluene | 0.05 ug/g dry | <0.05 | <0.05 | <0.05 | <0.05 | |
| m,p-Xylenes | 0.05 ug/g dry | <0.05 | <0.05 | <0.05 | <0.05 | |
| o-Xylene | 0.05 ug/g dry | <0.05 | <0.05 | <0.05 | <0.05 | |
| Xylenes, total | 0.05 ug/g dry | <0.05 | <0.05 | <0.05 | <0.05 | |
| Toluene-d8 | Surrogate | 116% | 119% | 118% | 116% | |
| Hydrocarbons | | | - | - | | |
| F1 PHCs (C6-C10) | 7 ug/g dry | <7 | <7 | <7 | <7 | |
| F2 PHCs (C10-C16) | 4 ug/g dry | <4 | <4 | <4 | <4 | |
| F3 PHCs (C16-C34) | 8 ug/g dry | 38 [2] | <8 | 25 [2] | 29 [2] | |

Certificate of Analysis Client: Paterson Group Consulting Engineers Client PO: 57275

Report Date: 24-Apr-2023

Order #: 2316216

Order Date: 18-Apr-2023

| | Client ID: | TP19-23-G2 | TP19-23-G3 | TP20-23-G1 | TP20-23-G2 |
|--------------------------|---------------|-----------------|-----------------|-----------------|-----------------|
| | Sample Date: | 14-Apr-23 09:00 | 14-Apr-23 09:00 | 17-Apr-23 09:00 | 17-Apr-23 09:00 |
| | Sample ID: | 2316216-25 | 2316216-26 | 2316216-27 | 2316216-28 |
| | MDL/Units | Soil | Soil | Soil | Soil |
| F4 PHCs (C34-C50) | 6 ug/g dry | 83 [2] | <6 | 40 [2] | 52 [2] |
| Semi-Volatiles | | | | | |
| Acenaphthene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Acenaphthylene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Anthracene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Benzo [a] anthracene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Benzo [a] pyrene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Benzo [b] fluoranthene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Benzo [g,h,i] perylene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Benzo [k] fluoranthene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Chrysene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Dibenzo [a,h] anthracene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Fluoranthene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Fluorene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Indeno [1,2,3-cd] pyrene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| 1-Methylnaphthalene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| 2-Methylnaphthalene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Methylnaphthalene (1&2) | 0.04 ug/g dry | <0.04 | <0.04 | <0.04 | <0.04 |
| Naphthalene | 0.01 ug/g dry | <0.01 | <0.01 | <0.01 | <0.01 |
| Phenanthrene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Pyrene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| 2-Fluorobiphenyl | Surrogate | 84.3% | 108% | 117% | 119% |
| Terphenyl-d14 | Surrogate | 97.1% | 130% | 123% | 134% |

Certificate of Analysis

Client: Paterson Group Consulting Engineers

Client PO: 57275

Report Date: 24-Apr-2023 Order Date: 18-Apr-2023

Project Description: PE6052

| | Client ID: Sample Date: | TP21-23-G1 17-Apr-23 09:00 | TP21-23-G4 17-Apr-23 09:00 | DUP1 14-Apr-23 09:00 | DUP2 14-Apr-23 09:00 | | | | |
|--------------------------|----------------------------|-------------------------------|-------------------------------|-------------------------|-------------------------|--|--|--|--|
| | Sample ID: | 2316216-29 | 2316216-30 | 2316216-31 | 2316216-32 | | | | |
| | MDL/Units | Soil | Soil | Soil | Soil | | | | |
| Physical Characteristics | | | | | | | | | |
| % Solids | 0.1 % by Wt. | 77.8 | 75.4 | 82.1 | 82.1 | | | | |
| General Inorganics | | | | | | | | | |
| SAR | 0.01 N/A | 0.08 | 0.24 | 0.35 | 0.16 | | | | |
| Conductivity | 5 uS/cm | 204 | 133 | 160 | 358 | | | | |
| рН | 0.05 pH Units | 7.23 | - | - | - | | | | |
| Metals | | | | | | | | | |
| Antimony | 1.0 ug/g dry | <1.0 | <1.0 | <1.0 | <1.0 | | | | |
| Arsenic | 1.0 ug/g dry | 1.3 | 2.1 | 2.2 | 1.5 | | | | |
| Barium | 1.0 ug/g dry | 42.7 | 320 | 291 | 106 | | | | |
| Beryllium | 0.5 ug/g dry | <0.5 | 0.8 | 0.7 | <0.5 | | | | |
| Boron | 5.0 ug/g dry | <5.0 | 5.7 | 5.1 | <5.0 | | | | |
| Cadmium | 0.5 ug/g dry | <0.5 | <0.5 | <0.5 | <0.5 | | | | |
| Chromium | 5.0 ug/g dry | 9.9 | 50.6 | 45.6 | 16.4 | | | | |
| Cobalt | 1.0 ug/g dry | 3.1 | 13.4 | 12.0 | 4.8 | | | | |
| Copper | 5.0 ug/g dry | <5.0 | 24.2 | 14.7 | 10.1 | | | | |
| Lead | 1.0 ug/g dry | 4.1 | 5.1 | 4.9 | 4.3 | | | | |
| Molybdenum | 1.0 ug/g dry | <1.0 | <1.0 | <1.0 | <1.0 | | | | |
| Nickel | 5.0 ug/g dry | <5.0 | 27.0 | 24.6 | 8.8 | | | | |
| Selenium | 1.0 ug/g dry | <1.0 | <1.0 | <1.0 | <1.0 | | | | |
| Silver | 0.3 ug/g dry | <0.3 | <0.3 | <0.3 | <0.3 | | | | |
| Thallium | 1.0 ug/g dry | <1.0 | <1.0 | <1.0 | <1.0 | | | | |
| Uranium | 1.0 ug/g dry | <1.0 | <1.0 | <1.0 | <1.0 | | | | |
| Vanadium | 10.0 ug/g dry | 18.1 | 56.9 | 52.2 | 25.6 | | | | |
| Zinc | 20.0 ug/g dry | <20.0 | 77.7 | 67.8 | 34.2 | | | | |
| Volatiles | • | | • | | | | | | |
| Benzene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 | | | | |
| Ethylbenzene | 0.05 ug/g dry | <0.05 | <0.05 | <0.05 | <0.05 | | | | |
| Toluene | 0.05 ug/g dry | <0.05 | <0.05 | <0.05 | <0.05 | | | | |
| m,p-Xylenes | 0.05 ug/g dry | <0.05 | <0.05 | <0.05 | <0.05 | | | | |
| o-Xylene | 0.05 ug/g dry | <0.05 | <0.05 | <0.05 | <0.05 | | | | |
| Xylenes, total | 0.05 ug/g dry | <0.05 | <0.05 | <0.05 | <0.05 | | | | |
| Toluene-d8 | Surrogate | 119% | 121% | 118% | 115% | | | | |
| Hydrocarbons | | | • | | • | | | | |
| F1 PHCs (C6-C10) | 7 ug/g dry | <7 | <7 | <7 | <7 | | | | |
| F2 PHCs (C10-C16) | 4 ug/g dry | <4 | <4 | <4 | <4 | | | | |

Certificate of Analysis Client: Paterson Group Consulting Engineers Client PO: 57275

Report Date: 24-Apr-2023 Order Date: 18-Apr-2023

| | Client ID: | TP21-23-G1 | TP21-23-G4 | DUP1 | DUP2 |
|--------------------------|---------------|-----------------|-----------------|-----------------|-----------------|
| | Sample Date: | 17-Apr-23 09:00 | 17-Apr-23 09:00 | 14-Apr-23 09:00 | 14-Apr-23 09:00 |
| | Sample ID: | 2316216-29 | 2316216-30 | 2316216-31 | 2316216-32 |
| | MDL/Units | Soil | Soil | Soil | Soil |
| F3 PHCs (C16-C34) | 8 ug/g dry | 12 [2] | <8 | <8 | 30 [2] |
| F4 PHCs (C34-C50) | 6 ug/g dry | 24 [2] | <6 | <6 | 50 [2] |
| Semi-Volatiles | • • | | • | | • |
| Acenaphthene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Acenaphthylene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Anthracene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Benzo [a] anthracene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Benzo [a] pyrene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Benzo [b] fluoranthene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Benzo [g,h,i] perylene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Benzo [k] fluoranthene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Chrysene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Dibenzo [a,h] anthracene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Fluoranthene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Fluorene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Indeno [1,2,3-cd] pyrene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| 1-Methylnaphthalene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| 2-Methylnaphthalene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Methylnaphthalene (1&2) | 0.04 ug/g dry | <0.04 | <0.04 | <0.04 | <0.04 |
| Naphthalene | 0.01 ug/g dry | <0.01 | <0.01 | <0.01 | <0.01 |
| Phenanthrene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| Pyrene | 0.02 ug/g dry | <0.02 | <0.02 | <0.02 | <0.02 |
| 2-Fluorobiphenyl | Surrogate | 110% | 86.6% | 82.6% | 80.6% |
| Terphenyl-d14 | Surrogate | 126% | 111% | 102% | 93.8% |

Certificate of Analysis

Client PO: 57275

Client: Paterson Group Consulting Engineers

Report Date: 24-Apr-2023

Order Date: 18-Apr-2023

Project Description: PE6052

| Symbol Baymolo1*-4nr-23 (Respond Baymolo1*-4nr-23 (Re | | Client ID: | DUP3 | _ | - |] |
|--|--------------------------|---------------|-------|----------|----------|-------------------|
| Sample Notion23/62/6-33 SolPojcial CharacteristicsPojcial Characteristics% Solids0.5 (M. Solids)0.10 (M. Solids)0.10 (M. Solids)General IoroganicsSar0.01 NA0.17 (M. Solids)0.10 (M. Solids)Conductivity0.80km0.17 (M. Solids)0.10 (M. Solids)Matis10.09 dy0.10 (M. Solids)0.10 (M. Solids)Assnic10.09 dy0.20 (M. Solids)0.10 (M. Solids)Barkin0.50 dy dy0.20 (M. Solids)0.10 (M. Solids)Barkin0.50 dy dy0.20 (M. Solids)0.10 (M. Solids)Borlin0.50 dy dy0.20 (M. Solids)0.10 (M. Solids)Borlin0.50 dy dy0.62 (M. Solids)0.10 (M. Solids)Cohult0.50 dy dy0.62 (M. Solids)0.10 (M. Solids)Cohult10.09 dy0.50 (M. Solids)0.10 (M. Solids) <tr< td=""><td></td><td></td><td></td><td>_</td><td>-</td><td>_</td></tr<> | | | | _ | - | _ |
| Physical Characteristics Nucleoning Project % Solids 0.1% by W. 76.6 0.4 0.1 Seneral longanics 0.01 N.A 0.17 0.4 0.1 SAR 0.01 N.A 0.17 0.4 0.4 0.1 Matain 0.10 N/A 0.17 0.4 0.4 0.1 Matain 10 uglg dy 4.0 0.4 0.1 0.1 Arsenic 10 uglg dy 0.2 0.4 0.4 0.4 Barlum 10 uglg dy 0.8 0.4 0.4 0.4 Barlum 0.5 uglg dy 0.8 0.4 0.4 0.4 Boron 5 uglg dy 0.8 0.4 0.4 0.4 Codmitum 0.5 uglg dy 0.5 0.4 0.4 0.4 Codmitum 0.5 uglg dy 0.5 0.4 0.4 0.4 Codmitum 0.5 uglg dy 0.5 0.4 0.4 0.4 Codmitum 0.5 uglg dy 0.5 <t< td=""><td></td><td></td><td></td><td>-</td><td>-</td><td>-</td></t<> | | | | - | - | - |
| % Solids0.1 % by Wt75.6General InorganicsSAR0.01 NA0.17Conductivity5 uSicon1007Matino1.0 ug'a dyAntimony1.0 ug'a dy.2.9Baryillian0.5 ug'a dy0.8Baryillian0.5 ug'a dy6.2Cadmium0.5 ug'a dy6.2 <th></th> <th>MDL/Units</th> <th>Soil</th> <th>-</th> <th>-</th> <th>-</th> | | MDL/Units | Soil | - | - | - |
| General Inorganics OI NI/A 0.17 . . . SAR 0.01 NI/A 0.17 . . . Conductivity 5 us/cm 107 . . . Mutais Antimony 10 ug/g dy 2.9 . . . Barium 10 ug/g dy 2.5 . . . Barium 0.5 ug/g dy 0.8 . . . Cadmium 0.5 ug/g dy 6.2 Cadmium 5 ug/g dy 58.0 Cobalt 10 ug/g dy 40.5 Cobalt 10 ug/g dy 41.0 Kommum 10 ug/g dy 41.0 Mobdum 10 ug/g dy 41.0 | Physical Characteristics | | | | - | |
| SAR 0.01 NA 0.17 - - - Conductivity 5 uS/cm 107 - - - Metais - - - - - Arsenic 1.0 ug/g dy 2.9 - - - - Barium 10 ug/g dy 325 - - - - Beryllum 0.5 ug/g dy 0.8 - - - - Boron 50 ug/g dy 6.2 - - - - - Cadmlum 0.5 ug/g dy 6.80 - | % Solids | 0.1 % by Wt. | 75.6 | - | - | - |
| Conductivity 5 us/om 107 - - - Antimory 10 ug/og v/ <1.0 | General Inorganics | | | - | | |
| Metals Number of the second seco | SAR | 0.01 N/A | 0.17 | - | - | - |
| Antimony 1.0 uglq dry <1.0 - - - Arsenic 1.0 uglq dry 2.9 - - - Barium 1.0 uglq dry 325 - - - - Beryllium 0.5 uglq dry 0.8 - - - - Boron 5.0 uglq dry 0.6.2 - - - - Cadmium 0.5 uglq dry 40.5 - - - - Chomiun 5.0 uglq dry 40.5 - - - - - Cobalt 1.0 uglq dry 15.0 - - - - - Cobalt 1.0 uglq dry 6.2 - <td>Conductivity</td> <td>5 uS/cm</td> <td>107</td> <td>-</td> <td>-</td> <td>-</td> | Conductivity | 5 uS/cm | 107 | - | - | - |
| Arsenic 1.0 ugl dry 2.9 - - - Barlum 1.0 ugl dry 325 - - - Beryllium 0.5 ugl dry 0.8 - - - Boron 5.0 ugl dry 6.2 - - - Cadmium 0.5 ugl dry 6.2 - - - Chornium 5.0 ugl dry 58.0 - - - Cobalt 1.0 ugl dry 58.0 - - - Cobalt 1.0 ugl dry 6.2 - - - - Copper 50 ugl dry 6.2 - - - - Molybdenum 1.0 ugl dry 6.2 - - - - Selenium 1.0 ugl dry 41.0 - - - - Silver 0.3 ugl dry <1.0 | Metals | | | | | |
| Barium 1 0 ugi dry 325 . . . Beryllium 0.5 ugi dry 0.8 . . . Boron 5.0 ugi dry 6.2 . . . Cadmium 0.5 ugi dry <0.5 | Antimony | 1.0 ug/g dry | <1.0 | - | - | - |
| Beryllum 0.5 ug/g dry 0.8 - - - Boron 5.0 ug/g dry 6.2 - - - Cadmium 0.5 ug/g dry 6.2 - - - Cadmium 5.0 ug/g dry 58.0 - - - Chromium 5.0 ug/g dry 15.0 - - - Cobalt 1.0 ug/g dry 15.0 - - - Cobalt 1.0 ug/g dry 6.2 - - - Molybdenum 1.0 ug/g dry 6.2 - - - Nickel 5.0 ug/g dry 30.8 - - - Selenium 1.0 ug/g dry <1.0 | Arsenic | 1.0 ug/g dry | 2.9 | - | - | - |
| Boron 5.0 ugig dry 6.2 . . . Cadmium 0.5 ugig dry <0.5 | Barium | 1.0 ug/g dry | 325 | - | - | - |
| Cadmium 0.5 ug/g dry <0.5 . . . Chromium 5.0 ug/g dry 58.0 . . . Cobalt 1.0 ug/g dry 15.0 . . . Copper 5.0 ug/g dry 23.2 Lead 1.0 ug/g dry 6.2 Molybdenum 1.0 ug/g dry 6.2 Nickel 5.0 ug/g dry 30.8 Silver 0.3 ug/g dry <1.0 | Beryllium | 0.5 ug/g dry | 0.8 | - | - | - |
| Chromium 5.0 ug/d ry 58.0 - - - Cobalt 1.0 ug/d ry 15.0 - - - Copper 5.0 ug/d ry 23.2 - - - Lead 1.0 ug/d ry 6.2 - - - Molybdenum 1.0 ug/d ry 6.2 - - - Nickel 5.0 ug/d ry 30.8 - - - Selenium 1.0 ug/d ry <1.0 | Boron | 5.0 ug/g dry | 6.2 | - | - | - |
| Cobalt $1.0 ug/g dy$ 15.0 $ -$ Copper $5.0 ug/g dy$ 23.2 $ -$ Lead $1.0 ug/g dy$ 6.2 $ -$ Molybdenum $1.0 ug/g dy$ 6.2 $ -$ Nickel $5.0 ug/g dy$ 30.8 $ -$ Selenium $1.0 ug/g dy$ <1.0 $ -$ Silver $0.3 ug/g dy$ <0.3 $ -$ Militam $1.0 ug/g dy$ <0.3 $ -$ Thallium $1.0 ug/g dy$ <0.3 $ -$ Vanadium $1.0 ug/g dy$ <1.0 $ -$ Vanadium $0.0 ug/g dy$ <0.02 $ -$ Dicene $0.02 ug/g dy$ <0.02 $ -$ Toluene $0.05 ug/g dy$ <0.05 $ 0.5 ug/g dy$ <0.05 $ v_y/enex$, total $0.5 ug/g dy$ <0.05 $ v_y/enex$, total $0.5 ug/g dy$ <0.05 $ v_y/enex$, total $0.5 ug/g dy$ | Cadmium | 0.5 ug/g dry | <0.5 | - | - | - |
| Copper 5.0 ug/g dry 23.2 - - - Lead 1.0 ug/g dry 6.2 - - - Molybdenum 1.0 ug/g dry 30.8 - - - Nickel 5.0 ug/g dry 30.8 - - - Selenium 1.0 ug/g dry <1.0 | Chromium | 5.0 ug/g dry | 58.0 | - | - | - |
| Lead1.0 ug/g dry6.2Molybdenum1.0 ug/g dry <1.0 $<$ $<$ $<$ $<$ Nickel5.0 ug/g dry30.8 $<$ $<$ $<$ $<$ $<$ Selenium1.0 ug/g dry <1.0 $<$ $<$ $<$ $<$ $<$ Silver0.3 ug/g dry <0.3 $<$ $<$ $<$ $<$ $<$ $<$ Thallium1.0 ug/g dry <1.0 $<$ $<$ $<$ $<$ $<$ $<$ $<$ Vanadium1.0 ug/g dry <1.0 $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ $<$ | Cobalt | 1.0 ug/g dry | 15.0 | - | - | - |
| Molybdenum 1.0 ug/d ry <1.0 - - Nickel 5.0 ug/d ry 30.8 - - - Selenium 1.0 ug/d ry <1.0 | Copper | 5.0 ug/g dry | 23.2 | - | - | - |
| Nickel 5.0 ug/g dry 30.8 - - - Selenium 1.0 ug/g dry <1.0 | Lead | 1.0 ug/g dry | 6.2 | - | - | - |
| Nickel 5.0 ug/g dry 30.8 - - - Selenium 1.0 ug/g dry <1.0 | Molybdenum | 1.0 ug/g dry | <1.0 | - | - | - |
| Silver 0.3 ug/g dry <0.3 - - Thallium 1.0 ug/g dry <1.0 | - | 5.0 ug/g dry | 30.8 | - | - | - |
| Silver 0.3 ug/g dry <0.3 - - Thallium 1.0 ug/g dry <1.0 | Selenium | 1.0 ug/g dry | <1.0 | _ | - | - |
| Thallium 1.0 ug/g dry <1.0 - - Uranium 1.0 ug/g dry <1.0 | Silver | | <0.3 | _ | - | - |
| Uranium 1.0 ug/g dry <1.0 . . . Vanadium 10.0 ug/g dry 68.6 Zinc 20.0 ug/g dry 83.0 Volatiles Benzene 0.02 ug/g dry <0.02 | Thallium | | | _ | - | - |
| Vanadium 10.0 ug/g dry 68.6 - - - Zinc 20.0 ug/g dry 83.0 - - - Volatiles Benzene 0.02 ug/g dry <0.02 | | | | _ | - | - |
| Zinc 20.0 ug/g dry 83.0 - - - Volatiles -< | | | | _ | - | - |
| Volatiles Enzene 0.02 ug/g dry <0.02 - - - Benzene 0.05 ug/g dry <0.05 | | | | _ | _ | _ |
| Benzene 0.02 ug/g dry <0.02 - - - Ethylbenzene 0.05 ug/g dry <0.05 | | | 00.0 | | | ļI |
| Toluene 0.05 ug/g dry <0.05 - - - m,p-Xylenes 0.05 ug/g dry <0.05 | | 0.02 ug/g dry | <0.02 | - | - | - |
| Toluene 0.05 ug/g dry <0.05 - - - m,p-Xylenes 0.05 ug/g dry <0.05 | Ethylbenzene | 0.05 ug/g dry | <0.05 | _ | - | - |
| m,p-Xylenes 0.05 ug/g dry <0.05 - - - o-Xylene 0.05 ug/g dry <0.05 | | 0.05 ug/g dry | <0.05 | - | - | - |
| o-Xylene 0.05 ug/g dry <0.05 - - - Xylenes, total 0.05 ug/g dry <0.05 | | 0.05 ug/g dry | | _ | - | - |
| Xylenes, total 0.05 ug/g dry <0.05 - - - Toluene-d8 Surrogate 121% - - - - Hydrocarbons - <td></td> <td></td> <td></td> <td>-</td> <td></td> <td>-</td> | | | | - | | - |
| Toluene-d8 Surrogate 121% - - - Hydrocarbons - - - - - F1 PHCs (C6-C10) 7 ug/g dry <7 | - | | | - | - | - |
| Hydrocarbons F1 PHCs (C6-C10) 7 ug/g dry <7 - - - F2 PHCs (C10-C16) 4 ug/g dry <4 | | | | - | - | _ |
| F1 PHCs (C6-C10) 7 ug/g dry <7 - - - F2 PHCs (C10-C16) 4 ug/g dry <4 | | ļļ | | <u>I</u> | I | <u>ا</u> ـــــــا |
| F2 PHCs (C10-C16) 4 ug/g dry <4 - - - F3 PHCs (C16-C34) 8 ug/g dry 13 [2] - - - | - | 7 ug/g dry | <7 | - | - | - |
| F3 PHCs (C16-C34) 8 ug/g dry 13 [2] | | 4 ug/g dry | <4 | - | - | - |
| | | | | - | - | - |
| F4 PHCs (C34-C50) 6 ug/g dry 17 [2] | | 6 ug/g dry | | - | - | - |



Report Date: 24-Apr-2023

Order Date: 18-Apr-2023

| | Client ID: | DUP3 | - | - | - |
|--------------------------|---------------|-----------------|---|---|---|
| | Sample Date: | 17-Apr-23 09:00 | - | - | - |
| | Sample ID: | 2316216-33 | - | - | - |
| | MDL/Units | Soil | - | - | - |
| Semi-Volatiles | | | | | |
| Acenaphthene | 0.02 ug/g dry | <0.02 | - | - | - |
| Acenaphthylene | 0.02 ug/g dry | <0.02 | - | - | - |
| Anthracene | 0.02 ug/g dry | <0.02 | - | - | - |
| Benzo [a] anthracene | 0.02 ug/g dry | <0.02 | - | - | - |
| Benzo [a] pyrene | 0.02 ug/g dry | <0.02 | - | - | - |
| Benzo [b] fluoranthene | 0.02 ug/g dry | <0.02 | - | - | - |
| Benzo [g,h,i] perylene | 0.02 ug/g dry | <0.02 | - | - | - |
| Benzo [k] fluoranthene | 0.02 ug/g dry | <0.02 | - | - | - |
| Chrysene | 0.02 ug/g dry | <0.02 | - | - | - |
| Dibenzo [a,h] anthracene | 0.02 ug/g dry | <0.02 | - | - | - |
| Fluoranthene | 0.02 ug/g dry | <0.02 | - | - | - |
| Fluorene | 0.02 ug/g dry | <0.02 | - | - | - |
| Indeno [1,2,3-cd] pyrene | 0.02 ug/g dry | <0.02 | - | - | - |
| 1-Methylnaphthalene | 0.02 ug/g dry | <0.02 | - | - | - |
| 2-Methylnaphthalene | 0.02 ug/g dry | <0.02 | - | - | - |
| Methylnaphthalene (1&2) | 0.04 ug/g dry | <0.04 | - | - | - |
| Naphthalene | 0.01 ug/g dry | <0.01 | - | - | - |
| Phenanthrene | 0.02 ug/g dry | <0.02 | - | - | - |
| Pyrene | 0.02 ug/g dry | <0.02 | - | - | - |
| 2-Fluorobiphenyl | Surrogate | 99.5% | - | - | - |
| Terphenyl-d14 | Surrogate | 115% | - | - | - |



Method Quality Control: Blank

Report Date: 24-Apr-2023

Order Date: 18-Apr-2023

Project Description: PE6052

| Analyte | Result | Reporting Limit | Units | Source Result | %REC | %REC Limit | RPD | RPD Limit | Notes |
|--|----------|--------------------|--------------|------------------|------|---------------|-----|--------------|-------|
| General Inorganics | | | | | | | | | |
| Conductivity | ND | 5 | uS/cm | | | | | | |
| Hydrocarbons | | | | | | | | | |
| F1 PHCs (C6-C10) | ND | 7 | ug/g | | | | | | |
| F2 PHCs (C10-C16) | ND | 4 | ug/g | | | | | | |
| F3 PHCs (C16-C34) | ND | 8 | ug/g | | | | | | |
| F4 PHCs (C34-C50) | ND | 6 | ug/g | | | | | | |
| F4G PHCs (gravimetric) | ND | 50 | ug/g | | | | | | |
| Metals | | | | | | | | | |
| Antimony | ND | 1.0 | ug/g | | | | | | |
| Arsenic | ND | 1.0 | ug/g | | | | | | |
| Barium | ND | 1.0 | ug/g | | | | | | |
| Beryllium | ND | 0.5 | ug/g | | | | | | |
| Boron | ND | 5.0 | ug/g | | | | | | |
| Cadmium | ND | 0.5 | ug/g | | | | | | |
| Chromium | ND | 5.0 | ug/g | | | | | | |
| Cobalt | ND | 1.0 | ug/g | | | | | | |
| Copper | ND ND | 5.0 1.0 | ug/g | | | | | | |
| Lead Molybdenum | ND | 1.0 | ug/g ug/g | | | | | | |
| Nickel | ND | 5.0 | ug/g | | | | | | |
| Selenium | ND | 1.0 | ug/g | | | | | | |
| Silver | ND | 0.3 | ug/g | | | | | | |
| Thallium | ND | 1.0 | ug/g | | | | | | |
| Uranium | ND | 1.0 | ug/g | | | | | | |
| Vanadium | ND | 10.0 | ug/g | | | | | | |
| Zinc | ND | 20.0 | ug/g | | | | | | |
| Semi-Volatiles | | | | | | | | | |
| Acenaphthene | ND | 0.02 | ug/g | | | | | | |
| Acenaphthylene | ND | 0.02 | ug/g | | | | | | |
| | ND | 0.02 | ug/g | | | | | | |
| Benzo [a] anthracene | ND ND | 0.02 0.02 | ug/g | | | | | | |
| Benzo [a] pyrene Benzo [b] fluoranthene | ND | 0.02 | ug/g ug/g | | | | | | |
| Benzo [g,h,i] perylene | ND | 0.02 | ug/g ug/g | | | | | | |
| Benzo [k] fluoranthene | ND | 0.02 | ug/g | | | | | | |
| Chrysene | ND | 0.02 | ug/g | | | | | | |
| Dibenzo [a,h] anthracene | ND | 0.02 | ug/g | | | | | | |
| Fluoranthene | ND | 0.02 | ug/g | | | | | | |
| Fluorene | ND | 0.02 | ug/g | | | | | | |
| Indeno [1,2,3-cd] pyrene | ND | 0.02 | ug/g | | | | | | |
| 1-Methylnaphthalene | ND | 0.02 | ug/g | | | | | | |
| 2-Methylnaphthalene | ND | 0.02 | ug/g | | | | | | |
| Methylnaphthalene (1&2) Naphthalene | ND ND | 0.04 0.01 | ug/g | | | | | | |
| Phenanthrene | ND | 0.01 | ug/g ug/g | | | | | | |
| Pyrene | ND | 0.02 | ug/g | | | | | | |
| Surrogate: 2-Fluorobiphenyl | 1.11 | 0.02 | ug/g | | 82.9 | 50-140 | | | |
| Surrogate: Terphenyl-d14 | 1.10 | | ug/g | | 82.7 | 50-140 | | | |
| Volatiles | | | 3-3 | | | | | | |
| Benzene | ND | 0.02 | ug/g | | | | | | |
| Ethylbenzene | ND | 0.05 | ug/g | | | | | | |
| Toluene | ND | 0.05 | ug/g | | | | | | |
| m,p-Xylenes | ND | 0.05 | ug/g | | | | | | |
| o-Xylene | ND | 0.05 | ug/g | | | | | | |
| Xylenes, total | ND | 0.05 | ug/g | | | | | | |
| Surrogate: Toluene-d8 | 8.19 | | ug/g | | 102 | 50-140 | | | |
| | | | | | | | | | |



Client PO: 57275

Method Quality Control: Duplicate

Report Date: 24-Apr-2023

Order Date: 18-Apr-2023 Project Description: PE6052

| | | Reporting | | Source | | %REC | | RPD | |
|-----------------------------|-------------|-----------|----------|--------|------|--------|------|-------|-------|
| Analyte | Result | Limit | Units | Result | %REC | Limit | RPD | Limit | Notes |
| General Inorganics | | | | | | | | | |
| SAR | 0.15 | 0.01 | N/A | 0.15 | | | 0.0 | 30 | |
| Conductivity | 113 | 5 | uS/cm | 111 | | | 1.8 | 5 | |
| pH | 7.16 | 0.05 | pH Units | 7.20 | | | 0.6 | 2.3 | |
| Hydrocarbons | 7.10 | 0.00 | prionito | 7.20 | | | 0.0 | 2.0 | |
| F1 PHCs (C6-C10) | ND | 7 | ug/g | ND | | | NC | 40 | |
| F2 PHCs (C10-C16) | ND | 4 | ug/g | ND | | | NC | 30 | |
| F3 PHCs (C16-C34) | 28 | 8 | ug/g | 34 | | | 18.6 | 30 | |
| F4 PHCs (C34-C50) | 13 | 6 | ug/g | 59 | | | NC | 30 | |
| F4G PHCs (gravimetric) | 1270 | 50 | ug/g | 1090 | | | 15.0 | 30 | |
| Metals | | | 5.5 | | | | | | |
| Antimony | ND | 1.0 | ug/g | ND | | | NC | 30 | |
| Arsenic | 4.5 | 1.0 | ug/g | 4.7 | | | 4.2 | 30 | |
| Barium | 59.5 | 1.0 | ug/g | 66.0 | | | 10.4 | 30 | |
| Beryllium | 0.7 | 0.5 | ug/g | ND | | | NC | 30 | |
| Boron | 5.3 | 5.0 | ug/g | ND | | | NC | 30 | |
| Cadmium | ND | 0.5 | ug/g | ND | | | NC | 30 | |
| Chromium | 22.0 | 5.0 | ug/g | 23.4 | | | 6.5 | 30 | |
| Cobalt | 7.3 | 1.0 | ug/g | 8.0 | | | 9.3 | 30 | |
| Copper | 13.3 | 5.0 | ug/g | 14.4 | | | 8.0 | 30 | |
| Lead | 18.2 | 1.0 | ug/g | 19.5 | | | 7.1 | 30 | |
| Molybdenum | 1.7 | 1.0 | ug/g | 1.8 | | | 4.2 | 30 | |
| Nickel | 15.1 | 5.0 | ug/g | 16.4 | | | 8.5 | 30 | |
| Selenium | ND | 1.0 | ug/g | ND | | | NC | 30 | |
| Silver | ND | 0.3 | ug/g | ND | | | NC | 30 | |
| Thallium | ND | 1.0 | ug/g | ND | | | NC | 30 | |
| Uranium | ND | 1.0 | ug/g | ND | | | NC | 30 | |
| Vanadium | 23.8 | 10.0 | ug/g | 25.7 | | | 7.9 | 30 | |
| Zinc | 49.5 | 20.0 | ug/g | 54.0 | | | 8.8 | 30 | |
| Physical Characteristics | | | | | | | | | |
| % Solids | 75.9 | 0.1 | % by Wt. | 76.0 | | | 0.2 | 25 | |
| Semi-Volatiles | | | | | | | | | |
| Acenaphthene | ND | 0.02 | ug/g | ND | | | NC | 40 | |
| Acenaphthylene | 0.141 | 0.02 | ug/g | 0.209 | | | 38.4 | 40 | |
| Anthracene | 0.088 | 0.02 | ug/g | 0.116 | | | 27.8 | 40 | |
| Benzo [a] anthracene | 0.262 | 0.02 | ug/g | 0.334 | | | 24.4 | 40 | |
| Benzo [a] pyrene | 0.302 | 0.02 | ug/g | 0.490 | | | 47.3 | 40 | QR-04 |
| Benzo [b] fluoranthene | 0.303 | 0.02 | ug/g | 0.561 | | | 59.7 | 40 | QR-04 |
| Benzo [g,h,i] perylene | 0.202 | 0.02 | ug/g | 0.267 | | | 27.5 | 40 | |
| Benzo [k] fluoranthene | 0.170 | 0.02 | ug/g | 0.318 | | | 60.7 | 40 | QR-04 |
| Chrysene | 0.309 | 0.02 | ug/g | 0.312 | | | 1.0 | 40 | |
| Dibenzo [a,h] anthracene | 0.062 | 0.02 | ug/g | 0.095 | | | 41.4 | 40 | QR-04 |
| Fluoranthene | 0.370 | 0.02 | ug/g | 0.283 | | | 26.4 | 40 | |
| Fluorene | ND | 0.02 | ug/g | ND | | | NC | 40 | |
| Indeno [1,2,3-cd] pyrene | 0.187 | 0.02 | ug/g | 0.272 | | | 36.9 | 40 | |
| 1-Methylnaphthalene | ND | 0.02 | ug/g | ND | | | NC | 40 | |
| 2-Methylnaphthalene | ND | 0.02 | ug/g | ND | | | NC | 40 | |
| Naphthalene | ND 0.000 | 0.01 | ug/g | ND | | | NC | 40 | 00.04 |
| Phenanthrene | 0.066 | 0.02 | ug/g | 0.043 | | | 41.6 | 40 | QR-04 |
| Pyrene | 0.359 | 0.02 | ug/g | 0.430 | 05.0 | 50-140 | 18.0 | 40 | |
| Surrogate: 2-Fluorobiphenyl | 1.45 | | ug/g | | 95.2 | | | | |
| Surrogate: Terphenyl-d14 | 1.51 | | ug/g | | 99.2 | 50-140 | | | |
| Volatiles | | | | | | | | | |
| Benzene | ND | 0.02 | ug/g | ND | | | NC | 50 | |
| Ethylbenzene | ND | 0.05 | ug/g | ND | | | NC | 50 | |
| Toluene | ND | 0.05 | ug/g | ND | | | NC | 50 | |
| | | | | | | | | | |



Client PO: 57275

Method Quality Control: Duplicate

| Analyte | Result | Reporting Limit | Units | Source Result | %REC | %REC Limit | RPD | RPD Limit | Notes |
|-----------------------|--------|--------------------|-------|------------------|------|---------------|-----|--------------|-------|
| m,p-Xylenes | ND | 0.05 | ug/g | ND | | | NC | 50 | |
| o-Xylene | ND | 0.05 | ug/g | ND | | | NC | 50 | |
| Surrogate: Toluene-d8 | 11.2 | | ug/g | | 114 | 50-140 | | | |

Report Date: 24-Apr-2023 Order Date: 18-Apr-2023



Method Quality Control: Spike

Report Date: 24-Apr-2023

Order Date: 18-Apr-2023

Project Description: PE6052

| Analyte | Result | Reporting Limit | Units | Source Result | %REC | %REC Limit | RPD | RPD Limit | Notes |
|-----------------------------|--------|--------------------|-------|------------------|------|---------------|-----|--------------|-------|
| Hydrocarbons | | | | | | | | | |
| F1 PHCs (C6-C10) | 166 | 7 | ug/g | ND | 82.9 | 80-120 | | | |
| F2 PHCs (C10-C16) | 121 | 4 | ug/g | ND | 132 | 60-140 | | | |
| F3 PHCs (C16-C34) | 345 | 8 | ug/g | 34 | 139 | 60-140 | | | |
| F4 PHCs (C34-C50) | 235 | 6 | ug/g | 59 | 125 | 60-140 | | | |
| F4G PHCs (gravimetric) | 1050 | 50 | ug/g | ND | 105 | 80-120 | | | |
| Metals | | | | | | | | | |
| Arsenic | 47.1 | 1.0 | ug/g | 1.9 | 90.5 | 70-130 | | | |
| Barium | 70.8 | 1.0 | ug/g | 26.4 | 88.7 | 70-130 | | | |
| Beryllium | 49.0 | 0.5 | ug/g | ND | 97.5 | 70-130 | | | |
| Boron | 48.3 | 5.0 | ug/g | ND | 92.8 | 70-130 | | | |
| Cadmium | 45.8 | 0.5 | ug/g | ND | 91.4 | 70-130 | | | |
| Chromium | 56.3 | 5.0 | ug/g | 9.4 | 93.9 | 70-130 | | | |
| Cobalt | 49.2 | 1.0 | ug/g | 3.2 | 91.9 | 70-130 | | | |
| Copper | 50.0 | 5.0 | ug/g | 5.8 | 88.5 | 70-130 | | | |
| Lead | 50.7 | 1.0 | ug/g | 7.8 | 85.8 | 70-130 | | | |
| Molybdenum | 45.9 | 1.0 | ug/g | ND | 90.4 | 70-130 | | | |
| Nickel | 51.7 | 5.0 | ug/g | 6.6 | 90.2 | 70-130 | | | |
| Selenium | 46.1 | 1.0 | ug/g | ND | 91.8 | 70-130 | | | |
| Silver | 42.1 | 0.3 | ug/g | ND | 84.2 | 70-130 | | | |
| Thallium | 47.2 | 1.0 | ug/g | ND | 94.2 | 70-130 | | | |
| Uranium | 45.2 | 1.0 | ug/g | ND | 89.9 | 70-130 | | | |
| Vanadium | 56.7 | 10.0 | ug/g | 10.3 | 92.8 | 70-130 | | | |
| Zinc | 62.6 | 20.0 | ug/g | 21.6 | 81.9 | 70-130 | | | |
| Semi-Volatiles | | | | | | | | | |
| Acenaphthene | 0.192 | 0.02 | ug/g | ND | 101 | 50-140 | | | |
| Acenaphthylene | 0.190 | 0.02 | ug/g | ND | 93.8 | 50-140 | | | |
| Anthracene | 0.197 | 0.02 | ug/g | ND | 97.3 | 50-140 | | | |
| Benzo [a] anthracene | 0.184 | 0.02 | ug/g | ND | 90.6 | 50-140 | | | |
| Benzo [a] pyrene | 0.187 | 0.02 | ug/g | ND | 92.4 | 50-140 | | | |
| Benzo [b] fluoranthene | 0.279 | 0.02 | ug/g | ND | 137 | 50-140 | | | |
| Benzo [g,h,i] perylene | 0.186 | 0.02 | ug/g | ND | 91.4 | 50-140 | | | |
| Benzo [k] fluoranthene | 0.268 | 0.02 | ug/g | ND | 132 | 50-140 | | | |
| Chrysene | 0.207 | 0.02 | ug/g | ND | 102 | 50-140 | | | |
| Dibenzo [a,h] anthracene | 0.209 | 0.02 | ug/g | ND | 103 | 50-140 | | | |
| Fluoranthene | 0.174 | 0.02 | ug/g | ND | 85.9 | 50-140 | | | |
| Fluorene | 0.196 | 0.02 | ug/g | ND | 96.5 | 50-140 | | | |
| Indeno [1,2,3-cd] pyrene | 0.193 | 0.02 | ug/g | ND | 95.3 | 50-140 | | | |
| 1-Methylnaphthalene | 0.206 | 0.02 | ug/g | ND | 101 | 50-140 | | | |
| 2-Methylnaphthalene | 0.220 | 0.02 | ug/g | ND | 108 | 50-140 | | | |
| Naphthalene | 0.239 | 0.01 | ug/g | ND | 118 | 50-140 | | | |
| Phenanthrene | 0.180 | 0.02 | ug/g | ND | 88.8 | 50-140 | | | |
| Pyrene | 0.173 | 0.02 | ug/g | ND | 85.3 | 50-140 | | | |
| Surrogate: 2-Fluorobiphenyl | 1.81 | | ug/g | | 111 | 50-140 | | | |
| Surrogate: Terphenyl-d14 | 1.88 | | ug/g | | 116 | 50-140 | | | |
| Volatiles | | | | | | | | | |
| Benzene | 3.99 | 0.02 | ug/g | ND | 99.7 | 60-130 | | | |
| Ethylbenzene | 4.00 | 0.05 | ug/g | ND | 100 | 60-130 | | | |
| Toluene | 4.10 | 0.05 | ug/g | ND | 102 | 60-130 | | | |



Report Date: 24-Apr-2023

Order Date: 18-Apr-2023

Project Description: PE6052

Method Quality Control: Spike

| Analyte | Result | Reporting Limit | Units | Source Result | %REC | %REC Limit | RPD | RPD Limit | Notes |
|-----------------------|--------|--------------------|-------|------------------|------|---------------|-----|--------------|-------|
| m,p-Xylenes | 7.77 | 0.05 | ug/g | ND | 97.1 | 60-130 | | | |
| o-Xylene | 3.95 | 0.05 | ug/g | ND | 98.7 | 60-130 | | | |
| Surrogate: Toluene-d8 | 8.00 | | ug/g | | 100 | 50-140 | | | |



Sample Qualifiers :

2: Some peak(s) in the GC-FID Chromatogram are not typical of petroleum hydrocarbon distillates. May be the result of high concentrations of non-mineral based compounds not completely removed by the method cleanup. Results may be biased high.

QC Qualifiers :

QR-04 Duplicate results exceeds RPD limits due to non-homogeneous matrix.

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable ND: Not Detected MDL: Method Detection Limit Source Result: Data used as source for matrix and duplicate samples %REC: Percent recovery. RPD: Relative percent difference. NC: Not Calculated

Soil results are reported on a dry weight basis when the units are denoted with 'dry'. Where %Solids is reported, moisture loss includes the loss of volatile hydrocarbons.

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the
- laboratory. All prescribed quality criteria identified in the method has been met.
- F1 range corrected for BTEX.
- F2 to F3 ranges corrected for appropriate PAHs where available.
- The gravimetric heavy hydrocarbons (F4G) are not to be added to C6 to C50 hydrocarbons.
- In the case where F4 and F4G are both reported, the greater of the two results is to be used for comparison to CWS PHC crite
- When reported, data for F4G has been processed using a silica gel cleanup.

| OPARACEL R IIII | | lace | | 2316216 | Paracel Order Number (Lab Use Only) | | | | | | Chain Of Custody (Lab Use Only) | | | | | | |
|--|---------|------------|----------------|--|--|------------|------|------|---------------|---------|------------------------------------|---------|-----------------------|-------------|----------|------|--|
| Client Name: Patersan Grup | | Proje | ct Ref: | PE6052 | | | | | | | | | 0. | 1 | | | |
| Mike Beaudon | | Quot | e #: | 7 2 00 9 0 | | | | | | | +- | | and the second second | ge <u>(</u> | | | |
| Address: 9 Awrige Drive | | PO #: | 5 | 7275 | | | | | | | $\mathbf{H}_{\mathbf{n}}$ | 1 day | | round | lime 3 c | dau | |
| | | E-ma | il: | | | | | | | □ 2 day | | | ∐ 3 G | | | | |
| Telephone: 613-226-7381 | | | 1 | n bea udoi | @ pate | 'Sen | Sra | ۳ŀ. | ናዓ | | Date Required: | | | | na, ne | guia | |
| REG 153/04 REG 406/19 Other Regulation | | Matrix | Tuma: | E (Soil/Soil) CHUIC | | | | | | | | , no qu | | _ | | | |
| Table 1 Res/Park Med/Fine REG 558 PWQ0 | | SW (St | Irface | S (Soil/Sed.) GW (G Nater) SS (Storm/Sa | nitary Sewer) | | | | | Re | quire | d Anal | lysis | | | | |
| Table 2 Ind/Comm Coarse CCME MISA | | _ | P (1 | Paint) A (Air) O (Oth | er) | X | Γ | | | | | Γ | | | | | |
| Table 3 Agri/Other SU - Sani SU - Storr Table Mun: | n | | ers | | | F1-F4+BTEX | | | 4 | | | | J | | | | |
| For RSC: Yes No Other: | | ame | Containers | Sample | Taken | 1-F4 | | | oy IC | | | | 54 | | | | |
| Sample ID/Location Name | Matrix | Air Volume | of Co | | | PHCs F | vocs | PAHs | Metals by ICP | | 5 | B (HWS) | EG/SAR | 40 | | | |
| 1 TP1-23-61 | S | - | * 2 | Date | Time | - | 2 | _ | _ | 튄 | Š | B | · · | 0 | | | |
| 2 TP1-23-62 | Ť. | + | 6 | April 17/23 | | X | | X | x | | | | X | X | | | |
| 3 TP2-23-61 | + | + | \mathbb{H} | | | ++ | | + | | | | | | | | | |
| 4 TP3-23-61 | ++ | + | ╟ | | | ++- | | _ | | | | | Ц_ | | | | |
| 5 TP3-23-62 | ++ | + | ╟ | | | ++ | | | | | | | 1 | | | | |
| 6 TP4-23- G2 | ₩ | +- | ╟ | | | | | | | | | | | | | | |
| 7 TP5-23-62 | ₩ | + | \mathbb{H} | | | ++- | | | | | | | <u> </u> | | | | |
| 8 T? 5 - 23 - 64 | ₩ | + | | | | ++ | | | | | | | | | | | |
| 9 TP6-23-64 | + | + | 1 | | | ++ | | - | | | | | 4 | K | | | |
| 10 TP7-23-64 | ₩ | - | 3 | 5 | | ł | | 4 | | | | | 1 | X | | | |
| omments: | 1 | | 5 | | | V | | V | V | | | | V | | | | |
| alianda da ser i d | | | | | | | | | | Metho | d of De | livery: | NE! | 1 | NAR | | |
| elinquished By (Sign): | river/D |)epot: | 1 | E | Received at Lab: | K | |) | | Verifie | - | 1 | 1 | | 2 | - | |
| elinquished By (Print). Joshun Darges Date/Time: | 10 | 100 | 1/7 | 151Z | Date/Time:[8] | nul | 22 | R | ETT | Date/T | C | 0 | - I ali | 102 | 1: | | |
| ate/Time: Apon 1872ers Temperature: | 4 | -7 | 12: | | Temperature: | 8 | 2) | 19 | 04 | pH Ver | | 81 | 04 | 25 | 41 | 12 | |
| in of Custody (Blank).xlsx | | | and the second | Revsion 4.0 | | 8, | 1 | Sec. | | PLI VEL | med: | | by: | | | | |

| Name: Paterson Group t Name: Mike Beaudorn s: 9 Anvisa Drive one: 612 - 226 - 7381 EG 153/04 REG 406/19 Other Regulation ole 1 Res/Park Med/Fine REG 558 PWQQ ole 2 Ind/Comm Coarse CCME MISA ole 3 Agri/Other SU-Sani SU-Sto nle Mun: ior RSC: Yes No Other: Sample ID/Location Name | _ | Quot PO #: E-mai | il: N Type: urface | 7E6052 2275 S (Soil/Sed.) GW (G Water) SS (Storm/Sa Paint) A (Air) O (Ott | round Water) initary Sewer) | | ~p., | <i>c</i> < | | | | 1 day 2 day Requ | Turna | ge <u>2</u> d | | |
|---|---------|--------------------------|--------------------------------|---|--------------------------------|------------|----------|------------|---------------|---------|---------|------------------------|--------------|---------------|---------------|--|
| Mike iseaudor S: 2 9 Auvija Divive one: 612 - 226 - 7381 EG 153/04 REG 406/19 Other Regulation ole 1 Res/Park Med/Fine REG 558 PWQO ole 2 Ind/Comm Coarse CCME MISA ole 3 Agri/Other SU - Sani SU - Sto ole Mun: | _ | PO #: E-mai | il: Type: urface P (I | S (Soil/Sed.) GW (G Water) SS (Storm/Sa | round Water) initary Sewer) | | rp. | α | | | | 1 day 2 day | Turna | | Time 🗆 3 day | |
| 9 Annija Drive one: 612 - 226 - 7381 EG 153/04 REG 406/19 Other Regulation ole 1 Res/Park Med/Fine REG 558 PWQQ ole 2 Ind/Comm Coarse CCME MISA ole 3 Agri/Other SU - Sani SU - Stoi ole Mun: Mun: Mun: or RSC: Yes No Other: | _ | E-ma Matrix SW (St | il: Type: urface P (i | s (Soil/Sed.) GW (G Water) SS (Storm/Sa | round Water) initary Sewer) | | rp. | αζ | | | | 1 day 2 day | 1 | | 🗆 3 day | |
| One: G12 - 226 - 738 (EG 153/04 REG 406/19 Other Regulation ole 1 Res/Park Med/Fine REG 558 PWQQ ole 2 Ind/Comm Coarse CCME MISA ole 3 Agri/Other SU - Sani SU - Sto ole Mun: Mun: Mun: | _ | E-ma Matrix SW (St | il: Type: urface P (i | s (Soil/Sed.) GW (G Water) SS (Storm/Sa | round Water) initary Sewer) | | np. | α | | | | 2 day | | | | |
| G() - Wo 738 (EG 153/04 REG 406/19 Other Regulation ole 1 Res/Park Med/Fine REG 558 PWQQ ole 2 Ind/Comm Coarse CCME MISA ole 3 Agri/Other SU - Sani SU - Sto ole Mun: | _ | SW (Su | Type: urface P (i | S (Soil/Sed.) GW (G Water) SS (Storm/Sa | round Water) initary Sewer) | | ~p. | ~ | | | | | | | P- NoBan | |
| ole 1 Res/Park Med/Fine REG 558 PWQO ole 2 Ind/Comm Coarse CCME MISA ole 3 Agri/Other SU - Sani SU - Sto ole 4 Mun: Mun: or RSC: Yes No Other: | _ | SW (Su | urface P (i | Water) SS (Storm/Sa | nitary Sewer) | | | | | | | maqu | | | | |
| ale 2 Ind/Comm Coarse CCME MISA ale 3 Agri/Other SU - Sani SU - Sto ale Mun: Mun: for RSC: Yes No Other: | _ | SW (Su | urface P (i | Water) SS (Storm/Sa | nitary Sewer) | | | | | | | | | | | |
| ale 3 🗌 Agri/Other 🔤 SU - Sani 🔤 SU - Sto ale Mun: for RSC: 🗌 Yes 📄 No 📄 Other: | _ | | P (| | | | | | | Ke | quire | d Anal | lysis | | | |
| le Mun: for RSC: U Yes U No Uther: | _ | ame | lers | | | 10 | | — | | | T | | | П | | |
| or RSC: Yes No Other: | - | a | 1 ž | | | F1-F4+BTEX | | | | | | | | | | |
| | ,č | 1 5 | tair | Sample | Taken | -F4- | | | / ICF | | | | 548 | | | |
| Sample ID/Location Name | | Volt | Con | | | | , si | s | ls by | | | (SM | 3 | | | |
| | Matrix | Air | # of | Date | Time | PHCs | vocs | PAHs | Metals by ICP | БН | CZ | B (HWS) | Ň | | | |
| TP 8 - 23 - 62 | S | | 3 | April 17/23 | | X | | Х | Χ | - | ÷ | - | x | | ++- | |
| 78-23-64 | 1 | | 1 | 1 | | 1 | | 1 | 1 | | | | î | | +-+- | |
| TP9-23-G1 | | | ¥ | 4 | | ++ | | + | + | - | - | | \mathbb{H} | | ++ | |
| TP10-23-62 | | | 2 | April 14/23 | | ++ | | + | | | - | | \vdash | | ++- | |
| 1711-23-61 | | + | , | 1 | | ++- | - | + | | _ | | | + | | | |
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| 713 -23- 64 | ╫ | + | \mathbb{H} | | | ++- | | - | + | | | | 4 | \times | \rightarrow | |
| 7914-23-63 | ++ | + | ┼┼ | | | ++- | | _ | | | | | 4 | | ++ | |
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| ts: | V | | ' | V | | 4 | | ₹V | ¥ | | | | 4 | X | | |
| | | | | | | | | | | Metho | d of De | livery: | | , | 1 | |
| hed By (Sign): | Driver/ | Depot: | | 17 | Received at Lab: | T | C.C.I.S. | 1 | | | _ | CAL | E | . 4 | anter | |
| and your | | / | 1. | Laine | 11. 1. 1. 1. 1. | V | | 5 | | Verifie | a by: | ŧ | = | 2 | | |
| John Verynay | | 104 | 12: | 3 1512 | Date/Time: 18 | 104 | 23 | 15 | 57 | Date/T | ime: [| 81 | 04 | 123 | 442 | |
| Istody (Blark), sisk | re: | - | | °C | Temperature: | 8 | 1 | | | pH Ver | rified: | | By: | | 0.70 | |

| OPARACEL | | | | D: 2 | | Par | rder N Jse Or | umbe 1ly) | r | Chain Of Custody (Lab Use Only) | | | | | | | |
|--|----------------|--------------|-------------|------------|--|------------------|------------------|--------------|-----------|------------------------------------|---------|----------------|----------|-------------|---------------|--------|--|
| Client Name: Paterson Gray | | | Project | t Ref: | 9E6052 | | | | | | | | | Pa | ge 3 0 | f 4 | |
| Contact Name: Mike Beandain | | | Quote #: | | | | | | | | | | 1 | - | round | | |
| Contact Name: Mike Beaudain Address: 9 Anniga Dorine | | | PO #: 57275 | | | | | | | | | 1 day | | | | 3 day | |
| Telephone: 613-226- 7381 | | | E-mail: | p | nbeaudoin | apatzes | enge | up. | ৻ঀ | | | | 2 day | | | Regula | |
| | P 1.1 | | | _ | | | | | | _ | _ | Date Required: | | | | | |
| Table 1 Res/Park Med/Fine REG 558 | r Regulation | | | | S (Soil/Sed.) GW (Gr | | | | | | Re | quired | d Anal | ysis | | | |
| Table 2 Ind/Comm Coarse CCME | pwqo misa | | SW (Su | | Vater) SS (Storm/Sar aint) A (Air) O (Oth | , , | × | | | | | | - | | | | |
| □ Table 3 □ Agri/Other □ SU - Sani | SU-Storm | - | | 0 | | | BIE | | | | | | | | | | |
| TableMun: | | | he | Containers | Sample | Taken | F1-F4+BTEX | | | Metals by ICP | | | | ECISAR | | | |
| For RSC: Yes No Other: | | , i Li | Air Volume | Con | | | | 8 | <u>\$</u> | als b | | | B (HWS) | 3 | | | |
| Sample ID/Location Name | | Matrix | Air | # of | Date | Time | PHCs | VOCS | PAHs | Meti | БН | Cr | B (H | (L | 61 | | |
| 1 TP15-23-62 | | S | | | April 14/23 | | x | | X | x | | | | Χ | | | |
| 2 7715-23-61 | | | | | 1 | | 1 | | 1 | 1 | | | | | | | |
| 3 TP17.23-62 | | | | | | | | | Π | Π | | | | | | | |
| 4 TP18-23- GI | | | | | | | | | \square | IT | | | | | | | |
| 5 TP19-2)-62 | | | | | | | | | IT | 11 | | | | \square | X | | |
| 6 7919-23-63 | | | | | 4 | | | | IT | $^{++}$ | | | \vdash | \square | - | | |
| 7 TP20-23-GI | | H | | | April 17/23 | | ++- | | Ħ | Ħ | | | | \square | | ++- | |
| 8 TP20-23-62 | | Ħ | | | 1 | | ++ | \vdash | ┼┼ | Ħ | | | | \parallel | | ++- | |
| 9 TP21-23-GI | | Ħ | | | | | ++ | \vdash | ++- | ┼┼ | - | | \vdash | H | Z | | |
| 10 TP21-23-64 | | 4 | - | | - | | 4 | \vdash | ł | 1 | - | | | V | 1 | ++- | |
| Comments: | | | 1 | | V | | | L | | | Metho | d of De | elivery: | 1637 | | | |
| | | | | | | | | | | | | - | ER | | La. | TEC | |
| Relinquished By (Sign): | Received By Dr | river/C | epot: | 1 | TROUSE | Received at Lab: | LA | 1 | 2 | | Verifie | ed By: - | 1A | - | | > | |
| Relinquished By (Part): | Date/Time: | 8 | 104 | 1/2 | 3 1517 | Date/Time: 18 | -104 | 12: | 31 | 557 | Date/ | Time: | 181 | OY | 122 | 412 | |
| Date/Time: April 1210 | Temperature: | 7 | -4 | | °C | Temperature: | 0 | 10 | - | | pH Ve | rified | DI DI | By: | | | |

| GPARACEL HIMM | ara | | D: 2 | | | Paracel Order Number (Lab Use Only) | | | | | | Chain Of Custody (Lab Use Only) | | | | | |
|--|--------|------------|---------------|----------------------|------------------|--|--------------|------|---------------|--------|----------|------------------------------------|------------|---------|---------|--|--|
| client Name: Porterson Grup | | Project | Ref: | 9E6052 | J | | | | | | | | Page | e 4_of | 4 | | |
| Contact Name: Mice Peardon | | Quote | | | | | | | | | | 1 | | ound Ti | | | |
| Address: 9 Auriga Drive | | PO #: | 5 | 7275 | | 1 | | | | | 🗆 1 day | | | | 🗆 3 day | | |
| 1 Anviga Drive | | E-mail: | | nbeandain | Q | | | | | | | 2 day | | | ₿KRegul | | |
| Telephone: 613-226 -7381 | | 1 | n | nbeaud ein | apaters | ngr | ~ <i>7</i> . | 69 | | | Date | Requ | ired: | | | | |
| REG 153/04 REG 406/19 Other Regulation | N | latrix T | vne: S | (Soil/Sed.) GW (Gr | ound Water) | | | | | | | | | | | | |
| Table 1 Res/Park Med/Fine REG 558 PWQ0 | | | face W | /ater) SS (Storm/San | itary Sewer) | | | | | Re | quired | Anal | ysis | | | | |
| Table 2 Ind/Comm Coarse CCME MISA | | | P (P | aint) A (Air) O (Oth | er) | Ă | | | | | | | | | | | |
| Table 3 Agri/Other SU - Sani SU - Storm | 5 | | ers | | | F1-F4+BTEX | | | Ь. | | | | 2 | | | | |
| Table Mun: | | a | of Containers | Sample | Taken | 1-1-1-1 | | | Metals by ICP | | | | Side | | | | |
| For RSC: Yes No Other: | Matrix | Air Volume | f Cor | | | | S | R | tals I | | - | B (HWS) | | | | | |
| Sample ID/Location Name | ŝ | Air | 0 # | Date | Time | PHCs | vocs | PAHs | Me | ВН | C_Z | B | (4) | | | | |
| 1 Dupi | S | | 2 | April 14/23 | | X | | χ | Х | | | | X | | | | |
| 2 DUP2 | 1 | | Ą | Ą | | 1 | | | 1 | | | | 1 | | | | |
| 3 DUP3 | ť | | 2 | April 17/23 | | 4 | | ł | V | | | | \$ | | | | |
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| 5 | | | | | | \top | | | | | | \square | \square | + | ++ | | |
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| 10 | | - | - | | | + | - | - | | - | - | - | | + | ++ | | |
| Comments: | | | L | | | | | 1 | L | Meth | od of D | elivery | - arci | 1 | WAR | | |
| Relinquished By (Sign): Received By Driv | iver/D | epot: | / | 5 | Received at Lab: | ŧ | - | / | 2 | Verifi | 1000 | Ł | A | - | > | | |
| Relinquished By (Print: Date/Time: | 0 | - | 1- | COUNE | Date/Time: | 210 | un | 7 | 657 | Date/ | Time | 10 | In | 100 | | | |
| Date/Time: Apo// 10/2023 Temperature: | 2/ | 04 | / | °° | Temperature: | 8 | 4/2 | > | 12.04 | - | erified: | | 104 By: | 123 | 417 | | |