PATERSON GROUP

Phase II – Environmental Site Assessment

1867 Alta Vista Drive
Ottawa, Ontario

Prepared for: TCU Development Corporation

Report: PE6971-2R
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TABLE OF CONTENTS

List of Figures

List of Appendices

EXECUTIVE SUMMARY

Assessment

A Phase II ESA was carried out for the property addressed 1867 Alta Vista Street, in the City of Ottawa, Ontario. The purpose of the Phase II ESA was to address potentially contaminating activities (PCAs) that were identified during the Phase I ESA and considered to result in areas of potential environmental concern (APECs) on the Phase II Property.

The Phase II subsurface investigations were carried out on December 20, 2024, and March 27, 2025, and involved the advancement of seven (7) boreholes and excavation of two (2) test pits on the Phase II Property. Borehole BH2-24 was advanced and cored into the bedrock to depth of 7.80 m bgs, with bedrock encountered at 5.99 m bgs. Boreholes BH3-24 and BH4-25 through BH8-25 were terminated at practical refusal on bedrock at depths ranging from approximately 4.04 m to 6.15 m bgs. BH3-24 was completed with a groundwater monitoring well installation. The test pits were excavated using a backhoe and reached a maximum depth of 2.70m bgs.

The soil stratigraphy generally consists of asphalt or topsoil over fill material or fill material from ground surface. The fill material primarily consists of brown silty sand with gravel and crushed stone or brown silty clay with trace sand and gravel. The fill material extends to depths ranging from approximately 1.45 to 3.73mbgs. Native brown silty sand and/or glacial till was identified beneath the fill material at all borehole locations. The native glacial till was underlain by shale bedrock. Groundwater was encountered within the overburden at depths ranging from approximately 1.10 to 2.27m below the existing ground surface.

Soil

A total of 30 soil samples (including one duplicate) were submitted for analysis of metals (including As, Sb, Se), PAHs, BTEX, PHCs (F1-F4), VOCs, EC, SAR and/or pH.

The fill material impacted with PHC F_3 was identified in a sample from BH5-25 located within asphaltic parking area. The fill material impacted with several PAH parameters was identified in sample from BH6-25 located within the former building footprint.

All remaining parameters for soil samples analysed comply with the MECP Table 3 Residential Standards.

Groundwater

Four groundwater samples (including one duplicate) from monitoring wells installed in BH3-24 (installed as part of current investigation) and from BH6 and BH8 (previously

installed by Fisher Engineering Ltd.) were submitted for laboratory analysis of BTEX, PHCs (F1-F4), VOCs and/or PAHs.

All parameters were non-detect in the groundwater samples analyzed as part of current investigation and comply with the MECP Table 3 Non-Potable Groundwater Standards.

Recommendations

Soil

It is recommended that a soil remediation program be carried out at the Phase II Property in conjunction with the redevelopment of the property. It is our understanding that the site will be redeveloped with a multi-storey, residential building with multiple levels of underground parking. The soil impacts present on the Phase II Property are not considered to pose an immediate concern to the property as it is currently vacant.

Prior to the remediation program a representative sample of impacted soil will require a leachate analysis in accordance with Ontario Regulation 558, for disposal at an approved waste disposal facility. It is recommended that Paterson personnel be on-site at the time of the remediation program in order to direct the segregation and excavation of impacted soils and to conduct confirmatory sampling as required.

In addition to the management of contaminated soil, all clean soil that requires removal from the Phase II Property for construction purposes must be handled in accordance with Ontario Regulation 406/19: On-Site and Excess Soil Management. Further information regarding O. Reg 406/19 can be provided upon request.

Groundwater

It is recommended the monitoring wells be maintained for future sampling purposes. The monitoring wells will be registered with the MECP under Ontario Regulation 903 (Ontario Water Resources Act). At such a time that the monitoring wells are no longer required, they must be decommissioned in accordance with O.Reg. 903.

1.0 INTRODUCTION

At the request of TCU Development Corporation, Paterson Group (Paterson) carried out a Phase II Environmental Site Assessment for the property addressed 1867 Alta Vista Drive, in the City of Ottawa, Ontario.

The purpose of this Phase II-ESA was to address areas of potential environmental concern identified in previous Phase I ESAs, as well as to supplement and update the findings of previous subsurface investigations which are summarized in this report.

1.1 Site Description

Address:	1867 Alta Vista Drive, Ottawa, Ontario
Legal Description:	Part of Lot 15, Concession JG, As IN N561626, Ottawa/Gloucester.
Property Identification Number:	04258-0404
Location:	The Phase II Property is located on the east side of Alta Vista Drive, approximately 65m north of the intersection of Alta Vista Drive and Smyth Road, in the City of Ottawa, Ontario. Refer to Figure 1 - Key Plan in the Figures section following the text.
Latitude and Longitude:	45° 23' 60" N, 75° 39' 41" W

Site Description:

Configuration:	Irregular
Site Area:	0.76 ha (approximate)

1.2 Property Ownership

The Phase II Property is currently owned by 1867 Alta Vista Development GP Corporation. Paterson was engaged to complete the Phase II-ESA at the Phase II property by Mr. Evan Johnson with TCU Development Corporation. Mr. Johnson can be reached by telephone at (343) 550-0055.

1.3 Current and Proposed Future Uses

The Phase II Property is currently vacant land featuring two asphaltic concrete parking areas, which are remnants of a former commercial office building. The remainder of the site consists of grassed and low-lying vegetated areas. It is our understanding that the Phase II Property will be redeveloped with a multi-storey residential building with multiple levels of underground parking.

1.4 Applicable Site Condition Standard

The site condition standards for the property were obtained from Table 3 of the document entitled “Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act”, prepared by the Ontario Ministry of Environment, Conservation and Parks (MECP), April 2011. The MECP selected Table 3 Standards are based on the following considerations:

- ❒ Coarse-grained soil conditions
- ❒ Full depth generic site conditions
- ❒ Non-potable groundwater conditions
- ❒ Residential land use

Section 35 of O.Reg. 153/04 applies to the Phase II Property as the Phase II Property and neighbouring properties are all serviced by municipal water. No potable water wells are considered to be present within the Phase I ESA Study Area.

Section 41 of O.Reg. 153/04 does not apply to the Phase II Property, as the property is not within 30m of an environmentally sensitive area.

Section 43.1 of O.Reg. 153/04 does not apply to the Phase II Property as the Phase II Property is not a Shallow Soil property.

Coarse-grained soil standards were chosen as a conservative approach based on the observed site conditions. Grain size analysis was not completed. The intended use of the Phase II Property is residential; therefore, the Residential Standards have been selected for the purpose of this Phase II ESA.

2.0 BACKGROUND INFORMATION

2.1 Physical Setting

The Phase II Property is on the east side of Alta Vista Drive, approximately 65m north of the intersection of Alta Vista Drive and Smyth Road, in the City of Ottawa, Ontario. The Phase II Property is located in an urban area surrounded by various sized residential and commercial developments. The site slopes downward to the east toward the unnamed creek. The regional topography in the general area of the Phase I Property slopes down in the west/northwest direction towards Rideau River. Site drainage consists of a combination of sheet flow to the catch basins in parking areas and surficial infiltration in grassed/vegetated areas. The Phase II Property is situated in a municipally serviced area.

The Phase II Property boundary excludes the 30m buffer zone along the unnamed creek located to the east of the site, since this will not be subject to development.

2.2 Past Investigations

The following reports were reviewed prior to conducting this assessment:

- ‘Phase I Environmental Site Assessment, 1867 Alta Vista Drive, Ottawa, Ontario’ prepared by Fisher Engineering Ltd., dated December 5, 2022.

A Phase I ESA was completed in 2022 by Fisher Environmental Ltd. (Fisher) for the subject site. According to historical records, the site was first developed with a commercial office building between 1967 and 1969. No environmental concerns were identified in relation to the historical use of the property. As part of the ESA, an Environmental Risk Information Services (ERIS) report identified a gasoline tank spill reported in 1988 near the intersection of Alta Vista Drive and Smyth Road. Although the exact location of the spill was unknown, it was identified as a Potentially Contaminating Activity (PCA). Based on the distance and cross-gradient orientation with respect to the subject site, the identified PCA was not considered to represent an Area of Potential Environmental Concern (APEC) on the subject site.

A surplus soil characterization was conducted by Fisher Environmental Ltd. in conjunction with geotechnical investigations prior to the completion of the Phase I ESA. Fill material was reported across the site, extending to depths of approximately 3.11 to 5.03m below ground surface (mbgs), and was identified as a PCA. Fill material identified onsite was found to be compliant with the selected

MECP Table 3 ICC standards for all parameters. However, soils recovered from the eastern portion of the site within 30m of the unnamed creek were reported to exceed the applicable MECP Table 9 Standards for Selenium. Fisher identified that remediation of the impacted soils, likely in conjunction with redevelopment excavations, and confirmatory sampling would be required to ensure soils on the eastern 30m of the site meet the applicable MECP Table 9 Standards. The identified fill material was not considered an APEC on the subject site.

- ‘Hydrogeological Investigation, 1867 Alta Vista Drive, Ottawa, K1G 5W8 Ontario’ prepared by Fisher Engineering Ltd., dated December 5, 2022.

Fisher Environmental carried out a hydrogeological investigation for the property addressed 1867 Alta Vista Drive for the purposes of evaluating the hydrogeological conditions with respect to redeveloping the site. The investigation involved drilling eight boreholes to approximate depths of 4.60 - 6.20m bgs. Four boreholes were instrumented with groundwater monitoring wells.

Fill material was encountered in all eight boreholes advanced on the subject site, extending to depths ranging from approximately 3.51m to 5.03m bgs. Bedrock was encountered at 3.51m bgs in Borehole BH2, while inferred bedrock depths in the remaining boreholes ranged between 4.60m to 6.20m bgs. Groundwater levels measured on October 7, 2022, ranged from approximately 1.83m to 2.64m bgs.

One groundwater sample was collected from monitoring well BH8 and submitted for laboratory analysis in accordance with the parameters outlined in the Ontario Ottawa Sanitary and Storm Sewer By-Law No. 2003-514 (2003). The analytical results indicated compliance with the by-law standards for all parameters except total suspended solids and manganese.

The results were compared to the MECP Table 3 Non-Potable Groundwater Standards and were found to be in compliance for all tested parameters.

- ‘Soil Investigation, 1867 Alta Vista Drive, Ottawa, Ontario’ prepared by Fisher Engineering Ltd., dated March 7, 2025.

A total of seven test pits were advanced by Fisher Engineering Ltd. on the subject site on February 28, 2025. Fill material was encountered in all test pits to depths of approximately 3 metres. The fill primarily consisted of mixed soils, including silty sand with some gravel and clay, as well as occasional cobbles. Soil samples recovered from the test pits were submitted for laboratory analysis for metals, PHCs, BTEX, and EC/SAR.

According to the results, all analysed soil samples met the MECP Table 3 Standards, with the exception of the EC/SAR parameters.

In their March 2025 report, Fisher Engineering Ltd. Stated: "*Elevated levels of Selenium, previously reported within the 2022 drilling investigations were not identified in the current works. It is expected that the previous findings of Selenium related to analytical interferences attributable to the presence of crushed rock within the soil matrix, and are not representative of actual soil conditions across the Site*".

Accordingly, the previously reported selenium exceedances are not considered to be representative of actual soil conditions and therefore, these selenium results are not contaminants of concern on the Phase I Property.

It should be noted that boreholes BH1, BH2, and BH3 from the December 2022 hydrogeological investigation, as well as test pits TP201, TP205, and TP207 from the March 2025 soil investigation, were completed within the 30m buffer zone adjacent to the creek on the east side, which falls outside the current Phase II Property boundary.

All analytical test results obtained by Fisher Engineering Ltd. from the 2022 surplus soil characterization report and the 2025 soil investigation for the Phase II Property comply with MECP Table 3 Residential Standards (with the exception of selenium in the 2022 investigation, which are not considered representative as discussed above).

- ‘Phase I - Environmental Site Assessment, 1867 Alta Vista Drive, Ottawa, Ontario," prepared by Paterson Group Inc. (Paterson), dated June 2025.

The Phase I ESA was completed in general accordance with the Ontario Regulation (O.Reg.) 153/04, as amended. As part of the 2025 Phase I ESA, a records review and site visit were conducted.

Based on the June 2025 Phase I ESA conducted by Paterson for the Phase II property, historical on-site potentially contaminating activities (PCAs) were considered to result in two (2) areas of potential environmental concern (APECs) on the Phase I and Phase II Property, as presented in Table 1.

Table 1 - Areas of Potential Environmental Concern

Area of Potential Environmental Concern	Location of Area of Potential Environmental Concern with respect to Phase I Property	Potentially Contaminating Activity	Location of PCA (on-site or off-site)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, Soil, and/or Sediment)
APEC 1 Fill Material of Poor Quality	Across the Phase I Property	PCA 30: Importation of Fill Material of Unknown Quality	On-site	Metals (including As, Sb, Se), BTEX/PHCs, PAHs	Soil and/or Groundwater
APEC 2[1] Application of Road Salt for De-icing in Winter Conditions	Northern and southern portion of the Phase I Property	Other: the application of road salt for the safety of vehicular or pedestrian traffic under conditions of snow or ice	On-site	EC SAR	Soil

Note:
1 – In accordance with Section 49.1 of Ontario Regulation 153/04, standards are deemed to be met if an applicable site condition standard is exceeded at a property solely because the qualified person has determined, based on a phase two environmental site assessment, that a substance has been applied to surfaces for the safety of vehicular or pedestrian traffic under conditions of snow or ice or both.

3.0 SCOPE OF INVESTIGATION

3.1 Overview of Site Investigation

The Phase II ESA, carried out in conjunction with a Geotechnical Investigation, included a drilling program and a test pit program carried out on December 20, 2024. A supplemental drilling program was completed on March 27, 2025.

The December 2024 subsurface investigation consisted of drilling 2 boreholes (BH2-24 and BH3-24) and excavation of 2 test pits (TP1-24 and TP2-24) at the Phase II property. The boreholes were drilled to maximum depth of 7.80m below ground surface (bgs). BH3-24 was instrumented with a monitoring well. Test pits were excavated to a maximum depth of 2.70m bgs. These boreholes and test pits were placed to further address APECs identified during the Phase I ESA and provide coverage of the site for Geotechnical purposes.

The March 2025 subsurface investigation consisted of drilling 5 boreholes (BH4-25 to BH8-25) to a maximum depth of 5.03m bgs. These boreholes were placed to further address APECs identified during the Phase I ESA Update.

3.2 Media Investigated

During the subsurface investigation, soil samples and groundwater samples were obtained and submitted for laboratory analysis. The rationale for sampling and analyzing these media is based on the Contaminants of Potential Concern identified during the Phase I ESA Update.

The contaminants of potential concern for the soil and/or groundwater on the Phase II Property include the following:

- ❑ Benzene, Toluene, Ethylbenzene, Xylenes (BTEX)
- ❑ Petroleum Hydrocarbons (PHCs)
- ❑ Metals (including arsenic (As), antimony (Sb), selenium (Se))
- ❑ Polycyclic Aromatic Hydrocarbons (PAHs)
- ❑ Volatile Organic Compounds (VOCs)

In accordance with Section 49.1 of O.Reg.153/04, as amended, electrical conductivity (EC) and sodium adsorption ratio (SAR) are not considered to be CPCs. However, testing for EC and SAR was conducted by Fisher Engineering Ltd., as well as during the current investigation, for the purpose of excess soil qualification.

3.3 Phase I Conceptual Site Model

Geological and Hydrogeological Setting

The Geological Survey of Canada website on the Urban Geology of the National Capital Area was consulted as part of this assessment. Based on the information from NRCAN, bedrock in the area of the site consists of shale of the Carlsbad Formation. Based on the maps, the surficial geology consists of offshore marine sediments with an overburden thickness ranging from 2 to 3m.

Previous subsurface investigations conducted by another consultant at the Phase I Property indicates that the underlying bedrock is shale. The overburden consists of a fill layer of silty sand underlain by glacial till (described as compact silty sand with gravel, cobbles, and boulders). Fill material was encountered on the Phase I Property, extending to depths between approximately 3.11m and 4.97m bgs. Inferred bedrock depths in the boreholes ranged from 4.60m to 6.20m bgs.

Groundwater data collected during the hydrogeological investigation indicated that groundwater on the Phase I Property flows eastward toward the unnamed creek, approximately 30m east of the Phase I Property.

Existing Buildings and Structures

No buildings or structures exist on the Phase I property.

Water Bodies and Areas of Natural and Scientific Interest

No areas of natural and scientific interest (ANSI) were identified on or within 250m of the Phase I Property. An unnamed creek is located approximately 30m to the east of the Phase I Property. The Rideau River situated is approximately 520m west of the Phase I Property.

Drinking Water Wells

There are no domestic wells within the Phase I Study Area. Based on the level of development and the presence of municipal water services in the area, no drinking water wells are expected to be currently used in the Phase I Study Area.

Neighbouring Land Use

Neighbouring land use in the Phase I Study Area consists of commercial (mainly office space), institutional and residential with some vacant land. Current land use and PCAs identified in the Phase I Study Area are presented on Drawing PE6971-2 – Surrounding Land Use Plan.

Potentially Contaminating Activities and Areas of Potential Environmental Concern

As per Table 1 in Section 2.2 of this report, PCAs identified on the Phase II property include fill material of poor quality and use of de-icing salt for safety purposes.

Assessment of Uncertainty and/or Absence of Information

The information available for review as part of the preparation of the Phase I-ESA Update is considered to be sufficient to conclude that there are historical on-site PCAs that have resulted in APECs on the Phase I Property.

Off-site PCAs identified within the study area are not considered to represent APECs on the Phase I Property based on their separation distances and/or orientations relative to the Phase II property.

3.4 Deviations from Sampling and Analysis Plan

The Sampling and Analysis Plan for this project is included in Appendix 1 of this report. No deviations from the sampling and analysis plan were identified during the Phase II ESA.

3.5 Impediments

The borehole locations were constrained by the presence of underground services at the Phase II Property. No other physical impediments or denial of access were encountered during the Phase II ESA.

4.0 INVESTIGATION METHOD

4.1 Subsurface Investigation

The subsurface investigations were conducted on December 20, 2024, and March 27, 2025, and involved the advancement of seven (7) boreholes and excavation of two (2) test pits on the Phase II Property.

Borehole BH2-24 was advanced and cored into the bedrock to depth of 7.80 m bgs, with bedrock encountered at 5.99 m bgs.

Boreholes BH3-24 and BH4-25 through BH8-25 were terminated at practical refusal on bedrock at depths ranging from approximately 4.04 m to 6.15 m bgs. BH3-24 was completed with a groundwater monitoring well installation.

The boreholes were drilled with either track mounted or low clearance drill rig operated by George Downing Estate Drilling of Hawkesbury, Ontario, under full-time supervision of Paterson personnel. The borehole locations are indicated on the attached Drawing PE6971-3- Test Hole Location Plan.

The test pits were excavated using a backhoe under the full-time supervision of Paterson personnel and reached a maximum depth of 2.70m bgs.

Borehole and monitoring well locations from previous investigations completed by Fisher Engineering Ltd. are also presented on Drawing PE6971-3.

4.2 Soil Sampling

A total of 54 soil samples were obtained from the boreholes and test pits by means of grab sampling from auger flights/auger samples and split spoon sampling.

Split spoon samples were taken at approximate 0.76m intervals. Rock core samples were collected with the use of coring equipment. Grab samples in test pits were collected at approximately 0.5m intervals.

The depths at which grab sample, split spoon, auger flight and rock core samples were obtained from the test holes are shown as "**G**", "**SS**", "**AU**" and "**RC**" respectively on the Soil Profile and Test Data Sheets provided in Appendix 2.

The soil stratigraphy generally consists of topsoil or asphalt overlying fill material, underlain by native glacial till. The fill material primarily comprises brown silty sand with gravel and crushed stone, or brown silty clay with trace amounts of sand, cobbles and gravel, extending to depths of approximately 1.45 to 3.73m bgs. Native soils were underlain by shale bedrock.

Borehole locations are shown on Drawing PE6971-3 – Test Hole Location Plan.

4.3 Field Screening Measurements

Soil samples recovered at the time of sampling were placed immediately into airtight plastic bags with nominal headspace. All lumps of soil inside the bags were broken by hand, and the soil was allowed to come to room temperature prior to conducting the vapour survey. Allowing the samples to stabilize to room temperature ensures consistency of readings between samples.

To measure the soil vapours, the analyser probe is inserted into the nominal headspace above the soil sample. A photo ionization detector (PID) was used to measure the vapour concentrations.

The sample is agitated/manipulated gently as the measurement is taken. The peak reading registered within the first 15 seconds is recorded as the vapour measurement.

The measured vapour readings ranged from 1.3 to 6.5 ppm. These vapour readings are not considered to be indicative of potential volatile contamination. The vapour screening can not be relied upon to identify heavier petroleum products. Vapour readings are noted on the Soil Profile and Test Data Sheets in Appendix 1.

4.4 Groundwater Monitoring Well Installation

One groundwater monitoring well (BH3-24) was installed on the Phase II Property as part of the current subsurface investigation.

The monitoring wells consisted of 50 mm Schedule 40 threaded PVC risers and screens. The monitoring well construction details are listed in Table 1: Test Hole Summary Details and in the Soil Profile and Test Data Sheets, appended to this report.

4.5 Field Measurement of Water Quality Parameters

A groundwater sampling event was conducted on January 3, 2025, involving sampling from one monitoring well installed as part of the current investigation (BH3-24) and two monitoring wells previously installed by Fisher Engineering Ltd. (BH6 and BH8). Water quality parameters were measured in the field using a multi-parameter analyzer. Parameters measured in the field included temperature, pH, and electrical conductivity.

Field parameters were measured after each well volume purged. Wells were purged prior to sampling until at least three well volumes had been removed, the field parameters were relatively stable, or the well was dry. Stabilized field parameter values are summarized in Table 2: Stabilized Water Quality Parameters, appended to this report.

4.6 Groundwater Sampling

Groundwater sampling protocols were followed using the MECP document entitled “Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario”, dated May 1996. Groundwater samples were obtained from each monitoring well, using dedicated sampling equipment.

Standing water was purged from each well prior to sampling. Samples were stored in coolers to reduce analyte volatilization during transportation.

Details of our standard operating procedure for groundwater sampling are provided in the Sampling and Analysis Plan in Appendix 1.

4.7 Analytical Testing

Based on the guidelines outlined in the Sampling and Analysis Plan appended to this report, the soil and groundwater samples were submitted for analysis of the parameters listed in Table 3: Soil Testing Summary and Table 4: Groundwater Testing Summary, appended to this report.

The submitted soil samples were selected for analysis based on vapour screening and field observations, in combination with information obtained during previous investigations, to assess APECs and associated CPCs identified in the Phase I – ESA Update.

Paracel Laboratories (Paracel), of Ottawa, Ontario, performed the laboratory analysis on the samples submitted for analytical testing Paracel is a member of the Standards Council of Canada/Canadian Association for Laboratory Accreditation (SCC/CALA). Paracel is accredited and certified by SCC/CALA for specific tests registered with the association.

4.8 Residue Management

All soil cuttings, purge water and fluids from equipment cleaning were retained on-site.

4.9 Elevation Surveying

The ground surface elevations at each test hole location were surveyed by Paterson personnel with a high-precisions GPS unit.

4.10 Quality Assurance and Quality Control Measures

A summary of quality assurance and quality control (QA/QC) measures, including sampling containers, preservation, labelling, handling, and custody, equipment cleaning procedures, and field quality control measurements is provided in the Sampling and Analysis Plan in Appendix 1.

5.0 REVIEW AND EVALUATION

5.1 Geology

The soil stratigraphy generally consists of asphalt or topsoil over fill material or fill material from ground surface. The fill material primarily consists of brown silty sand with gravel and crushed stone or brown silty clay with trace sand and gravel. The fill material extends to depths ranging from approximately 1.45 to 3.73mbgs.

Native brown silty sand and/or glacial till was identified beneath the fill material at all borehole locations. The native glacial till was underlain by shale bedrock.

Site geology details are provided in the Soil Profile and Test Data Sheets provided in Appendix 1.

5.2 Groundwater Elevations, Flow Direction, and Hydraulic Gradient

Groundwater levels were measured during the groundwater sampling event on January 3, 2025, using an electronic water level meter. Groundwater levels were recorded from one monitoring well installed as part of the current investigation (BH3-24) and two monitoring wells previously installed by Fisher Engineering Ltd. (BH6 and BH8). Groundwater levels are summarized in Table 5: Groundwater Levels, appended to this report.

The groundwater at the Phase II ESA Property was encountered within the overburden at depths ranging from approximately 1.1 to 2.27m below the existing ground surface.

Based on the groundwater elevations measured during the January 3, 2025, sampling event, groundwater contour mapping was completed. Groundwater contours are shown on Drawing PE6971-3 – Test Hole Location Plan. Based on the contour mapping, groundwater flow at the Phase II Property is in a north direction. It should be noted that groundwater levels are expected to fluctuate throughout the year with seasonal variations.

A horizontal hydraulic gradient of approximately 0.021 m/m was calculated.

5.3 Fine-Coarse Soil Texture

Grain size analysis was not completed as part of this investigation. Coarse grained soil standards were chosen as a conservative approach.

5.4 Soil: Field Screening

Field screening of the soil samples collected during drilling resulted in vapour readings ranging generally from 1.3 to 6.5 ppm. It should be noted that brick and/or metal fragments were identified in the fill layer of TP1-24, BH6-25 and BH7-25. No other visual or olfactory indications of contaminants, or visual indications of deleterious fill material were identified in the soil samples.

The field screening results of each individual soil sample are provided on the Soil Profile and Test Data Sheets appended to this report.

5.5 Soil Quality

Based on the findings of the field screening in combination with sample depth and location, a total of 30 soil samples (including one duplicate) were submitted for analysis of metals (including As, Sb, Se), PAHs, BTEX, PHCs (F1-F4), VOCs, EC, SAR and/or pH. The results of the analytical testing completed on the Phase II Property are presented in Table 6: Soil Analytical Results, appended to this report. The laboratory Certificates of Analysis are also provided in the Appendix.

Metals (including As, Sb, Se)

All metal parameters analyzed meet the MECP Table 3 Residential Standards. The analytical results for metals (including As, Sb, Se) tested in soil are shown on Drawing PE6971-4– Analytical Testing Plan – Soil (Metals).

VOCs

All VOCs parameters analyzed meet the MECP Table 3 Residential Standards. The analytical results for VOCs tested in soil are shown on Drawing PE6971-5 – Analytical Testing Plan – Soil (BTEX, VOCs).

BTEX

All BTEX parameters analyzed meet the MECP Table 3 Residential Standards. The analytical results for BTEX tested in soil are shown on Drawing PE6971-5 – Analytical Testing Plan – Soil (BTEX, VOCs).

PHCs (F_1-F_4)

The concentration of PHC fraction F_3 in soil sample BH5-25-AU1 exceeds the MECP Table 3 Residential Standards. All remaining PHC parameters identified in each of the soil samples analyzed meet the MECP Table 3 Residential

Standards. The analytical results for PHCs tested in soil are shown on Drawing PE6971-6 – Analytical Testing Plan – Soil (PHCs).

PAHs

The concentrations of several parameters of PAHs in soil sample BH6-25-SS2/3 exceed the MECP Table 3 Residential Standards. All remaining PAH parameters identified in each of the soil samples analyzed meet the MECP Table 3 Residential Standards. The analytical results for PAHs tested in soil are shown on PE6971-7– Analytical Testing Plan – Soil (PAHs).

EC/SAR

In accordance with Section 49.1 of O. Reg 153/04, EC and SAR standards are deemed to be met if an applicable site condition standard is exceeded at a property solely because the qualified person has determined, based on a Phase I-ESA, that a substance has been applied to surfaces for the safety of vehicular or pedestrian traffic under conditions of snow and/or ice. The analytical results for EC and SAR in the tested soil are not shown on the drawings appended to this report as they have been deemed to meet the standard based on Section 49.1 of O. Reg 153/04.

Three soil samples were analyzed for pH, with results ranging from 6.84 to 7.96. These values fall within the acceptable pH range for surface soil, which is between 5.0 and 9.0.

Maximum Soil Parameter Concentrations

The maximum concentrations of each parameter identified in soil samples analyzed on the Phase II Property are presented in Table 6A: Maximum Concentrations - Soil, appended to this report.

5.6 Groundwater Quality

Four groundwater samples (including one duplicate) from monitoring wells installed in BH3-24 (installed as part of current investigation) and from BH6 and BH8 (previously installed by Fisher Engineering Ltd.) were submitted for laboratory analysis of BTEX, PHCs (F1-F4), VOCs and/or PAHs.

The results of all the analytical testing completed on the Phase II Property are presented in Table 7: Groundwater Analytical Results, appended to this report. The laboratory Certificates of Analysis are also provided in the Appendix.

VOCs

All VOC parameters were non-detect in the groundwater samples analyzed as part of this Phase II-ESA and comply with the MECP Table 3 Non-Potable Groundwater Standards. The analytical results for VOCs tested in groundwater are shown on Drawing PE6971-8 – Analytical Testing Plan – Groundwater (BTEX, VOCs, PHCs, PAHs).

BTEX

All BTEX parameters were non-detect in the groundwater samples analyzed as part of this Phase II-ESA and comply with the MECP Table 3 Non-Potable Groundwater Standards. The analytical results for BTEX tested in groundwater are shown on Drawing PE6971-8 – Analytical Testing Plan – Groundwater (BTEX, VOCs, PHCs, PAHs).

PHCs (F_1-F_4)

All PHC parameters were non-detect in the groundwater samples analyzed as part of this Phase II-ESA and comply with the MECP Table 3 Non-Potable Groundwater Standards. The analytical results for PHC tested in groundwater are shown on Drawing PE6971-8 – Analytical Testing Plan – Groundwater (BTEX, VOCs, PHCs, PAHs).

PAHs

All PAH parameters were non-detect in the groundwater samples analyzed as part of this Phase II-ESA and comply with the MECP Table 3 Non-Potable Groundwater Standards. The analytical results for PAH tested in groundwater are shown on Drawing PE6971-8 – Analytical Testing Plan – Groundwater (BTEX, VOCs, PHCs, PAHs).

Maximum Groundwater Parameter Concentrations

All parameters were non-detect in the groundwater samples analyzed as part of this Phase II-ESA.

5.7 Quality Assurance and Quality Control Results

All samples submitted as part of the December 2024, January 2025 and March 2025 sampling events were handled in accordance with the Analytical Protocol with respect to preservation method, storage requirement, and container type. As per Subsection 47(3) of O.Reg. 153/04, as amended, under the Environmental

Protection Act, a Certificate of Analysis has been received for each sample submitted for analysis and all Certificates of Analysis are appended to this report.

A duplicate soil sample of BH5-25-SS2 (DUP1) was submitted for analysis of metals, PHCs, BTEX, and PAHs. A duplicate groundwater sample of BH8-GW1 (DUP1) was submitted for analysis of PHCs and BTEX. The duplicates were collected with the intent of calculating the relative percent difference (RPD) between duplicate sample values, as a way of assessing the quality of the analytical test results.

The RPD calculations for BH5-25-SS2 and its respective duplicate sample are provided in Table 8: QA/QC Calculations -Relative Percent Different, appended to this report. All non-detect parameters in the original and/or the duplicate samples are not included in the tables.

All of the analyzed concentrations in BH8-GW1 and its duplicate sample, were not detected above the laboratory method detection limit; as such these results are not tabulated.

Typically, RPD values below 20% indicate satisfactory quality. The relative percent difference (RPD) results calculated for several soil parameters identified in sample BH5-25-SS2, and its duplicate, fell outside of the acceptable range of 20%. Despite the exceeded RPD values calculated for the soil sample and the corresponding duplicate, it should be noted that the concentrations of the parameters were well within the applicable MECP Table 3 Residential Standards in both samples. As a result, it is our opinion that the decision-making usefulness of the samples is not considered to be impaired, and thus the quality of the collected field data is sufficient to meet the overall objectives of this assessment.

The quality of the field data collected during the Phase II ESA is considered to be sufficient to meet the overall objectives of the assessment.

5.8 Phase II Conceptual Site Model

The following section has been prepared in accordance with the requirements of O.Reg. 153/04, as amended by the Environmental Protection Act. Conclusions and recommendations are discussed in a subsequent section.

Site Description

Potentially Contaminating Activity and Areas of Potential Environmental Concern

Based on the results of the Phase I ESA Update completed for the Phase II property, two (2) PCAs were considered to result in APECs on the Phase II Property. The identified APECs on the Phase II Property are presented in the table below.

Areas of Potential Environmental Concern

Area of Potential Environmental Concern	Location of Area of Potential Environmental Concern with respect to Phase I Property	Potentially Contaminating Activity	Location of PCA (on-site or off-site)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, Soil, and/or Sediment)
APEC 1 Fill Material of Poor Quality	Across the Phase I Property	PCA 30: Importation of Fill Material of Unknown Quality	On-site	Metals (including As, Sb, Se), BTEX/PHCs, VOCs, PAHs	Soil and/or Groundwater
APEC 2[1] Application of Road Salt for De-icing in Winter Conditions	Northern and southern portion of the Phase I Property	Other: the application of road salt for the safety of vehicular or pedestrian traffic under conditions of snow or ice	On-site	EC SAR	Soil

Note:
1 – In accordance with Section 49.1 of Ontario Regulation 153/04, standards are deemed to be met if an applicable site condition standard is exceeded at a property solely because the qualified person has determined, based on a phase two environmental site assessment, that a substance has been applied to surfaces for the safety of vehicular or pedestrian traffic under conditions of snow or ice or both.

The remaining off-site PCAs identified are not considered to result in APECs on the Phase II Property, due to their separation distances and/or cross/down-gradient orientations with respect to the Phase II Property.

According to Section 49.1 of O.Reg. 153/04, if an applicable site condition standard is exceeded at a property solely because of the following reason, the applicable site condition standard is deemed not to be exceeded for the purpose of Part XV.1 of the Act: “The qualified person has determined, based on a phase one environmental site assessment or a phase two environmental site assessment, that a substance has been applied to surfaces for the safety of vehicular or pedestrian traffic under conditions of snow or ice or both.”

In accordance with Section 49.1 of O.Reg. 153/04, any EC and SAR concentrations on the Phase II Property that exceed the MECP Table 3 Standards for a residential/institutional land use are deemed not to be exceeded

for the purpose of Part XV.1 of the Act. This exemption is being relied on for APEC 2.

All APECs are outlined on Drawing PE6971-1 – Site Plan, while all PCAs identified within the Phase I Study Area are presented on Drawing PE6971-2 – Surrounding Land Use Plan in the figures section of this report, following the text.

Contaminants of Potential Concern

The following CPCs are identified with respect to the Phase II Property:

- Metals (including arsenic (As), antimony (Sb), selenium (Se)) (Soil);
- Benzene, Toluene, Ethylbenzene, Xylenes (BTEX) (Soil and/or Groundwater);
- Petroleum Hydrocarbons (PHCs) (Soil and/or Groundwater);
- Polycyclic Aromatic Hydrocarbons (PAHs) (Soil and/or Groundwater); and
- Volatile Organic Compounds (VOCs) (Soil and/or Groundwater)

In accordance with Section 49.1 of O.Reg.153/04, as amended, electrical conductivity (EC) and sodium adsorption ratio (SAR) are not considered to be CPCs.

Subsurface Structures and Utilities

Underground service locates were completed prior to the subsurface investigation. Underground utilities on the Phase II Property include fibreoptic cable, electricity and natural gas. No private wells or septic systems are present on the Phase II Property or within 250m of the Phase II property. No other utilities or subsurface structures are present on the Phase II Property.

Physical Setting

Site Stratigraphy

The stratigraphy of the Phase II Property generally consists of:

- **Topsoil** was identified at ground surface in BH2-24 and BH8-25 and extended to a maximum depth of 0.13 mbgs.
- **Asphalt** was identified at ground surface in BH4-25 and BH5-25 and extended to a maximum depth of 0.05 mbgs.
- **Fill material** consisting of brown silty sand with gravel and crushed stone or brown silty clay with sand and gravel; extending to a maximum depth of

approximately 3.73 mbgs in BH7-25. Shale, metal and brick fragments were identified in the fill layer of TP1-24, metal fragments in the fill layer of BH6-25, and brick fragments in the fill layer of BH7-25.

- **Native silty sand** to sandy silt with trace gravel was identified beneath the fill material at BH4-25 and BH5-25. The silty sand extended to depths of approximately 1.45 to 3.35m below grade.
- **Glacial till** consisting of silty sand with sandy silt, cobbles, boulders and gravel, was identified beneath the fill layer or native silty sand layer. Glacial till extended to depths ranging from 2.21 to 6.15m below grade.
- **Shale bedrock** was encountered beneath glacial till in BH2-24 at approximately 5.99m below grade. Refusal to augering, likely due to inferred bedrock, was encountered in other boreholes at depths ranging from approximately 4.04 to 6.15mbgs.

Site geology details are provided in the Soil Profile and Test Data Sheets provided in Appendix 1.

Hydrogeological Characteristics

The groundwater at the Phase II ESA Property was encountered within the overburden at depths ranging from approximately 1.10 to 2.27m below the existing ground surface.

Based on the groundwater elevations measured during the January 3, 2025, sampling event, groundwater contour mapping was completed. Groundwater contours are shown on Drawing PE6971-3 – Test Hole Location Plan. Based on the contour mapping, groundwater flow at the Phase II Property is in a north direction. It should be noted that groundwater levels are expected to fluctuate throughout the year with seasonal variations.

A horizontal hydraulic gradient of approximately 0.021 m/m was calculated.

Approximate Depth to Bedrock

Based on the results of the Phase II ESA investigation, the approximate depth to bedrock at the Phase II property varies from 4.04 to 6.15mbgs.

Approximate Depth to Water Table

Depth to water table at the Phase II property varies between approximately 1.10 to 2.27m below existing grade.

Sections 41 and 43.1 of the Regulation

Section 41 of the Regulation does not apply to the Phase II Property, in that the Phase II property is not within 30m of an environmentally sensitive area.

Section 43.1 of the Regulation does not apply to the Phase II Property in that the property is not a Shallow Soil property.

Fill Placement

Fill material generally consisting of brown silty sand with gravel and crushed stone or brown silty clay with sand and gravel was identified in each borehole and test pit on the Phase II Property, ranging from 0.00 to 3.73m below ground surface.

Existing Buildings and Structures

There are no buildings or structures present on the Phase II Property, although the asphaltic parking areas associated with the former building remain in place.

Proposed Buildings and Other Structures

The Phase II Property will be redeveloped with 2 multi-storey residential buildings with multiple levels of underground parking.

Environmental Condition

Areas Where Contaminants are Present

Based on the findings of the current Phase II ESA, including the results of past investigations, PHC (Fraction F_3) impacted fill material was identified in BH5-25-AU1 and PAH (several parameters) impacted fill material was identified in BH6-25-SS2/3 both on the southwestern portion of the Phase II Property.

Based on the findings of the Phase II ESA, no impacted groundwater was identified on the Phase II Property.

Types of Contaminants

Based on the results of the Phase II ESA, contaminants include PHCs and PAHs concentrations in the fill.

Contaminated Media

Based on the results of the Phase II ESA, impacted fill exceeding MECP Table 3 Residential Standards was identified in the southwestern portion beneath the Phase II Property.

What Is Known About Areas Where Contaminants Are Present

The impacted soil identified in BH5-25 is interpreted to have originated from the historical use of the area as a parking lot. The impacted soil in BH6-25 is interpreted to be associated with demolition debris from the former commercial building on site. Historically, a commercial building was located near BH6-25, and a parking area is present at the vicinity of BH5-25.

Distribution and Migration of Contaminants

Based on the findings of the Phase II ESA, the fill material in the area of BH5-25 and BH6-25 is impacted with PHC or PAH parameters. The fill material layer ranges from ground surface to approximately 2.97mbgs in the area. Based on the observations made during the field program, in conjunction with analytical test results, it is expected that the impacted material is limited to the fill material at these locations on the Phase II Property.

Discharge of Contaminants

Based on the analytical test results, the PHC impacted fill material identified in BH5-25 is suspected to be the result of historical use of the area as a parking lot. The PAH impacted fill material identified in BH6-25 is suspected to be the result of demolition debris associated with the former commercial building on site.

Climatic and Meteorological Conditions

In general, climatic and meteorological conditions have the potential to affect contaminant distribution. Two ways by which climatic and meteorological conditions may affect contaminant distribution include the downward leaching of contaminants by means of the infiltration of precipitation, and the migration of contaminants via groundwater levels and/or flow, which may fluctuate seasonally.

Based on the results of the Phase II ESA, downward leaching does not appear to have affected contaminant distribution at the Phase II Property.

Potential for Vapour Intrusion

There are no buildings currently on the Phase II Property and therefore no potential for vapour intrusion. All contaminated soil will be removed from the Phase II Property as part of the redevelopment of the site. As such, there is no anticipated potential for future vapour intrusion on the Phase II property.

6.0 CONCLUSIONS

Assessment

A Phase II ESA was carried out for the property addressed 1867 Alta Vista Street, in the City of Ottawa, Ontario. The purpose of the Phase II ESA was to address potentially contaminating activities (PCAs) that were identified during the Phase I ESA and considered to result in areas of potential environmental concern (APECs) on the Phase II Property.

The Phase II subsurface investigations were carried out on December 20, 2024, and March 27, 2025, and involved the advancement of seven (7) boreholes and excavation of two (2) test pits on the Phase II Property. Borehole BH2-24 was advanced and cored into the bedrock to depth of 7.80 m bgs, with bedrock encountered at 5.99 m bgs. Boreholes BH3-24 and BH4-25 through BH8-25 were terminated at practical refusal on bedrock at depths ranging from approximately 4.04 m to 6.15 m bgs. BH3-24 was completed with a groundwater monitoring well installation. The test pits were excavated using a backhoe and reached a maximum depth of 2.70m bgs.

The soil stratigraphy generally consists of asphalt or topsoil over fill material or fill material from ground surface. The fill material primarily consists of brown silty sand with gravel and crushed stone or brown silty clay with trace sand and gravel. The fill material extends to depths ranging from approximately 1.45 to 3.73mbgs. Native brown silty sand and/or glacial till was identified beneath the fill material at all borehole locations. The native glacial till was underlain by shale bedrock. Groundwater was encountered within the overburden at depths ranging from approximately 1.10 to 2.27m below the existing ground surface.

Soil

A total of 30 soil samples (including one duplicate) were submitted for analysis of metals (including As, Sb, Se), PAHs, BTEX, PHCs (F1-F4), VOCs, EC, SAR and/or pH.

The fill material impacted with PHC F_3 was identified in a sample from BH5-25 located within asphaltic parking area. The fill material impacted with several PAH parameters was identified in sample from BH6-25 located within the former building footprint.

All remaining parameters for soil samples analysed comply with the MECP Table 3 Residential Standards.

Groundwater

Four groundwater samples (including one duplicate) from monitoring wells installed in BH3-24 (installed as part of current investigation) and from BH6 and BH8 (previously installed by Fisher Engineering Ltd.) were submitted for laboratory analysis of BTEX, PHCs (F1-F4), VOCs and/or PAHs.

All parameters were non-detect in the groundwater samples analyzed as part of current investigation and comply with the MECP Table 3 Non-Potable Groundwater Standards.

Recommendations

Soil

It is recommended that a soil remediation program be carried out at the Phase II Property in conjunction with the redevelopment of the property. It is our understanding that the site will be redeveloped with a multi-storey, residential building with multiple levels of underground parking. The soil impacts present on the Phase II Property are not considered to pose an immediate concern to the property as it is currently vacant.

Prior to the remediation program a representative sample of impacted soil will require a leachate analysis in accordance with Ontario Regulation 558, for disposal at an approved waste disposal facility. It is recommended that Paterson personnel be on-site at the time of the remediation program in order to direct the segregation and excavation of impacted soils and to conduct confirmatory sampling as required.

In addition to the management of contaminated soil, all clean soil that requires removal from the Phase II Property for construction purposes must be handled in accordance with Ontario Regulation 406/19: On-Site and Excess Soil Management. Further information regarding O. Reg 406/19 can be provided upon request.

Groundwater

It is recommended the monitoring wells be maintained for future sampling purposes. The monitoring wells will be registered with the MECP under Ontario Regulation 903 (Ontario Water Resources Act). At such a time that the monitoring wells are no longer required, they must be decommissioned in accordance with O.Reg. 903.

7.0 STATEMENT OF LIMITATIONS

This Phase II - Environmental Site Assessment report has been prepared under the supervision of a Qualified Person, in general accordance with O. Reg 153/04. The conclusions presented herein are based on information gathered from a limited sampling and testing program. The test results represent conditions at specific test locations at the time of the field program.

The client should be aware that any information pertaining to soils and all test hole logs are furnished as a matter of general information only and test hole descriptions or logs are not to be interpreted as descriptive of conditions at locations other than those of the test holes themselves.

Should any conditions be encountered at the Phase II property and/or historical information that differ from our findings, we request that we be notified immediately in order to allow for a reassessment.

This report was prepared for the sole use of TCU Development Corporation. Notification from TCU Development Corporation and Paterson Group will be required to release this report to any other party.

Paterson Group Inc.

Kuldeep Panchal, M. Eng.

Mark D'Arcy, P.Eng., Q.P.ESA

Report Distribution:

- ❒ TCU Development Corporation
- ❒ Paterson Group

FIGURES

FIGURE 1 – KEY PLAN

DRAWING PE6971-1 – SITE PLAN

DRAWING PE6971-2 – SURROUNDING LAND USE PLAN

DRAWING PE6971-3 – TEST HOLE LOCATION PLAN

DRAWING PE6971-4 – ANALYTICAL TESTING PLAN – SOIL - METALS

DRAWING PE6971-5 – ANALYTICAL TESTING PLAN – SOIL - BTEX, VOCS

DRAWING PE6971-6 – ANALYTICAL TESTING PLAN – SOIL - PHCS

DRAWING PE6971-7 – ANALYTICAL TESTING PLAN – SOIL - PAHS

DRAWING PE6971-8 – ANALYTICAL TESTING PLAN - GROUNDWATER – BTEX, VOCS, PHCS, PAHS

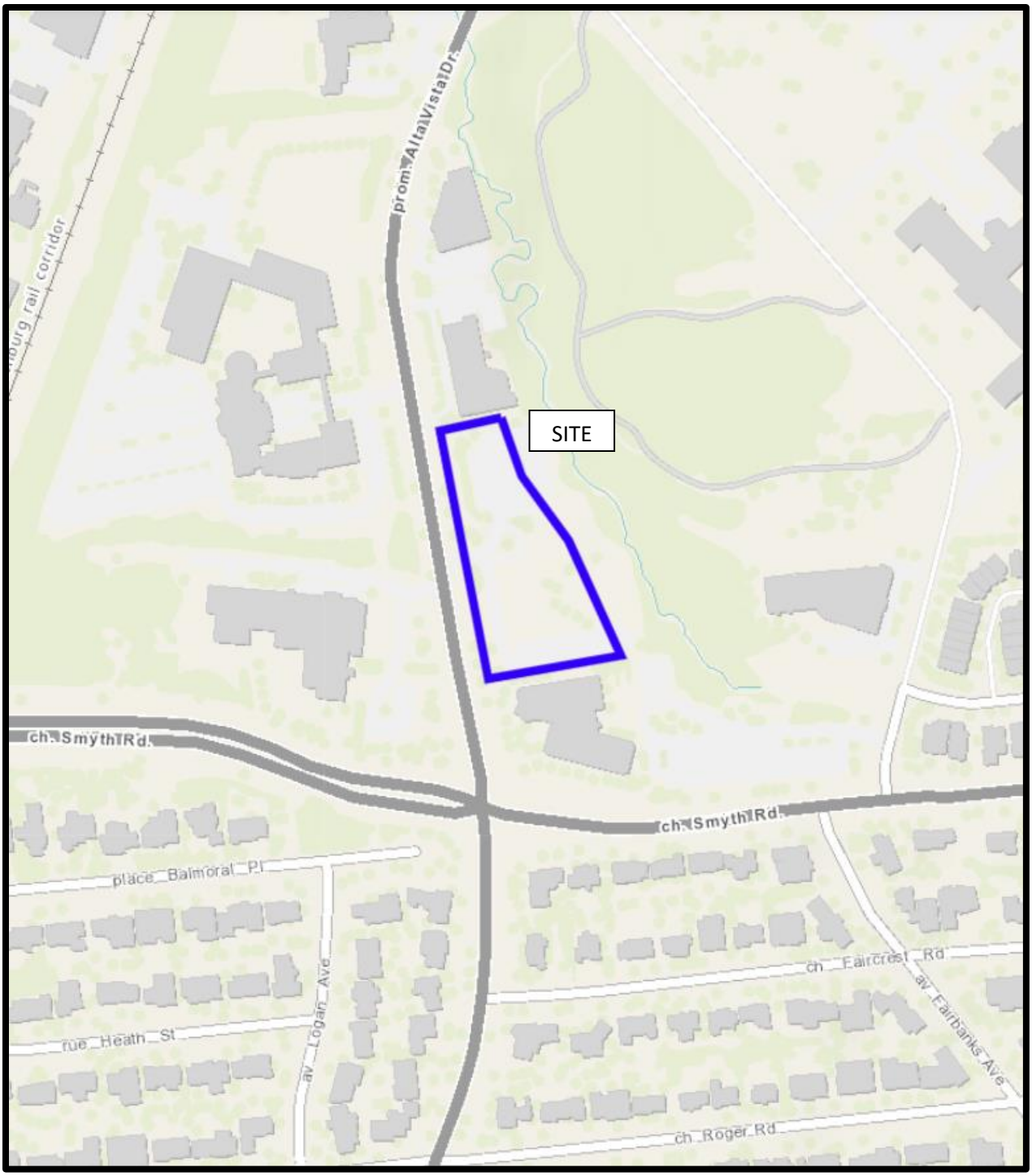
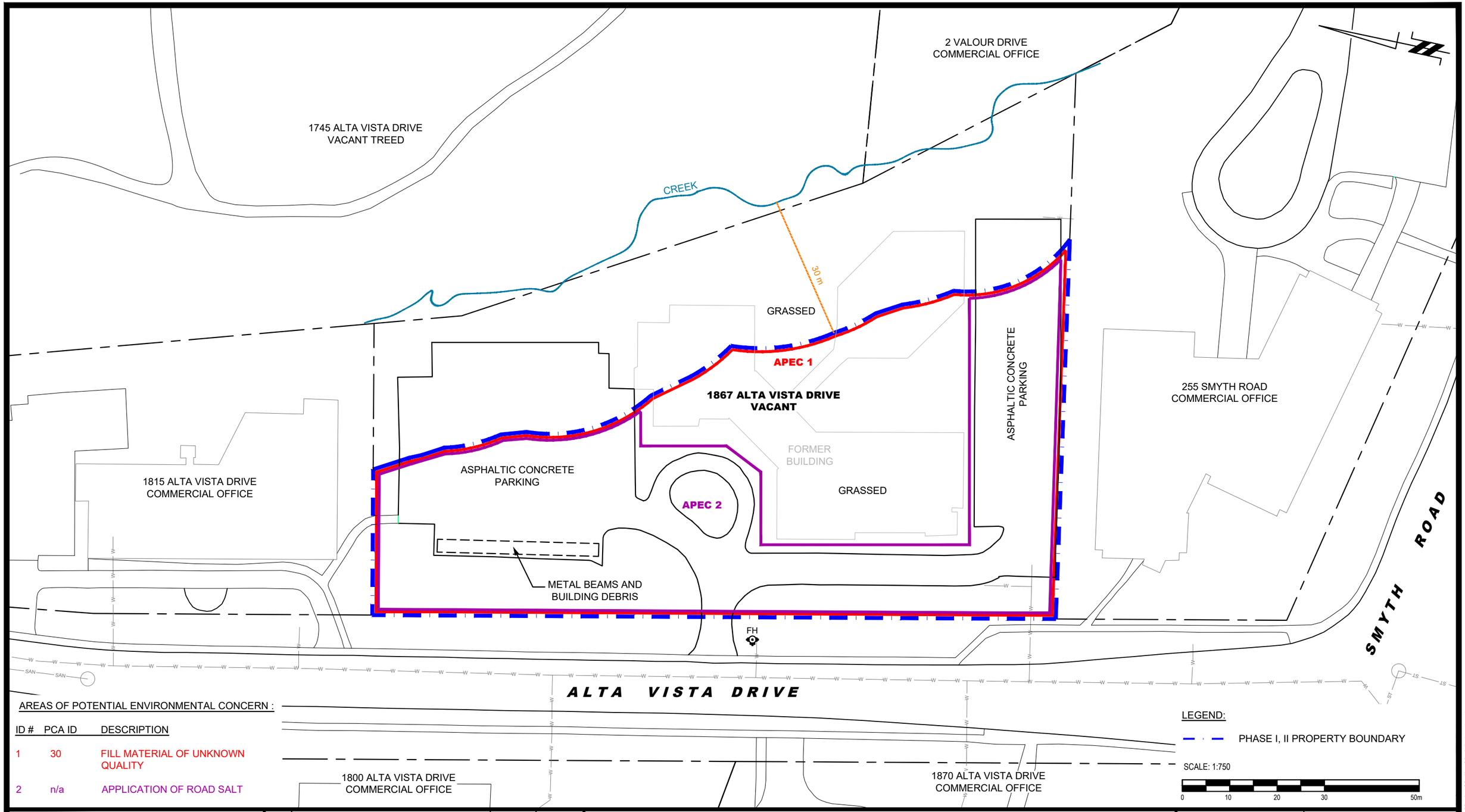


FIGURE 1

KEY PLAN

PATERSON GROUP



AREAS OF POTENTIAL ENVIRONMENTAL CONCERN :

ID #	PCA ID	DESCRIPTION
1	30	FILL MATERIAL OF UNKNOWN QUALITY
2	n/a	APPLICATION OF ROAD SALT

LEGEND:

PHASE I, II PROPERTY BOUNDARY

SCALE: 1:750

0 10 20 30 50m

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

NO.	REVISIONS	DATE	INITIAL

TCU DEVELOPMENT CORPORATION

PHASE I - ENVIRONMENTAL SITE ASSESSMENT
1867 ALTA VISTA DRIVE

OTTAWA, ONTARIO

Title:

SITE PLAN

Scale: 1:750	Date: 04/2025
Drawn by: GK	Report No.: PE6971-1
Checked by: KMP	Dwg. No.: PE6971-1
Approved by: MSD	Revision No.:

11x17

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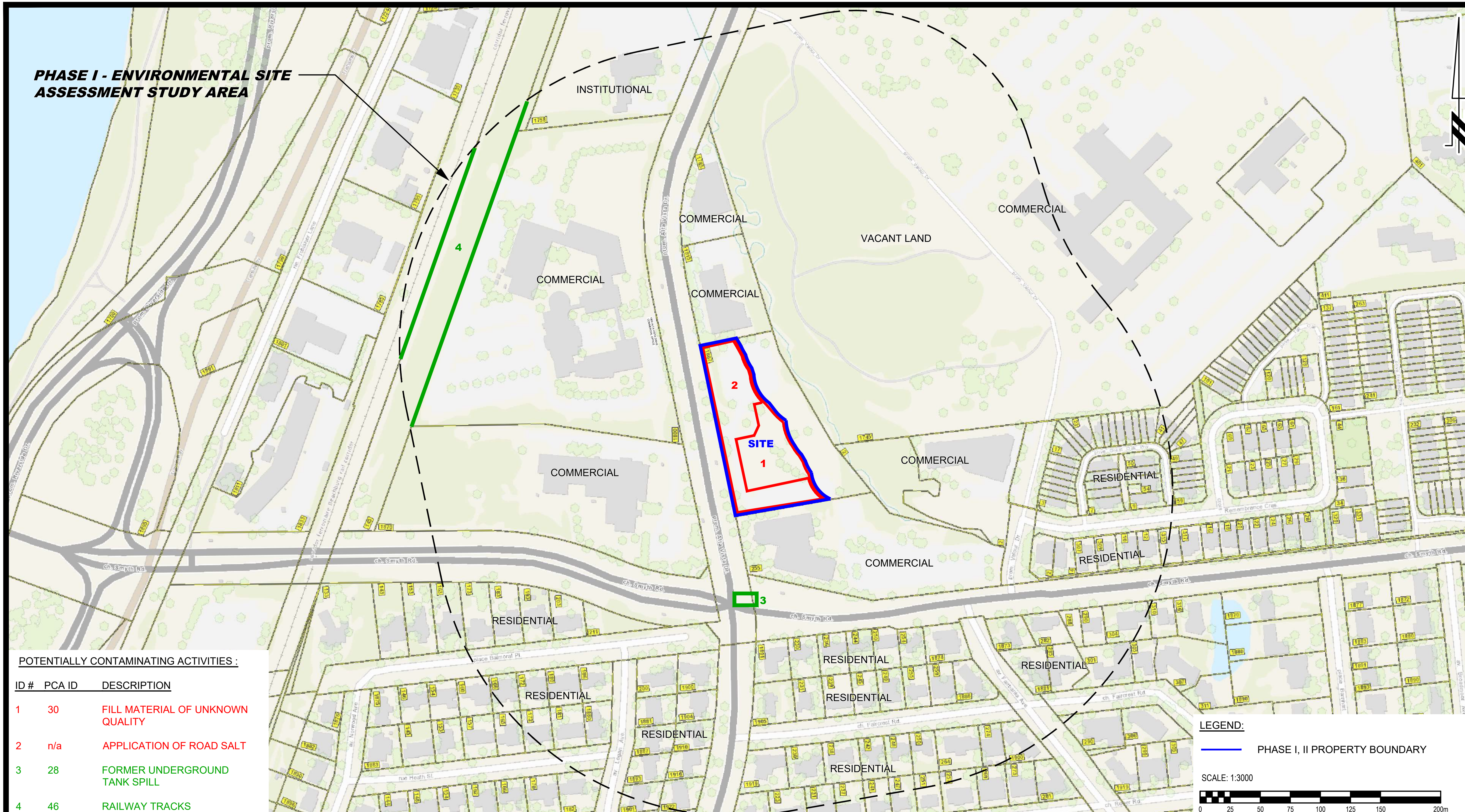

POTENTIALLY CONTAMINATING ACTIVITIES :

ID #	PCA ID	DESCRIPTION
1	30	FILL MATERIAL OF UNKNOWN QUALITY
2	n/a	APPLICATION OF ROAD SALT
3	28	FORMER UNDERGROUND TANK SPILL
4	46	RAILWAY TRACKS

LEGEND:

PHASE I, II PROPERTY BOUNDARY

SCALE: 1:3000

0 25 50 75 100 125 150 200m

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

NO.	REVISIONS	DATE	INITIAL

TCU DEVELOPMENT CORPORATION

PHASE I - ENVIRONMENTAL SITE ASSESSMENT
1867 ALTA VISTA DRIVE

OTTAWA, ONTARIO

Title:

SURROUNDING LAND USE PLAN

Scale: 1:3000	Date: 04/2025
Drawn by: GK	Report No.: PE6971-1
Checked by: KMP	Dwg. No.: PE6971-2
Approved by: MSD	Revision No.:

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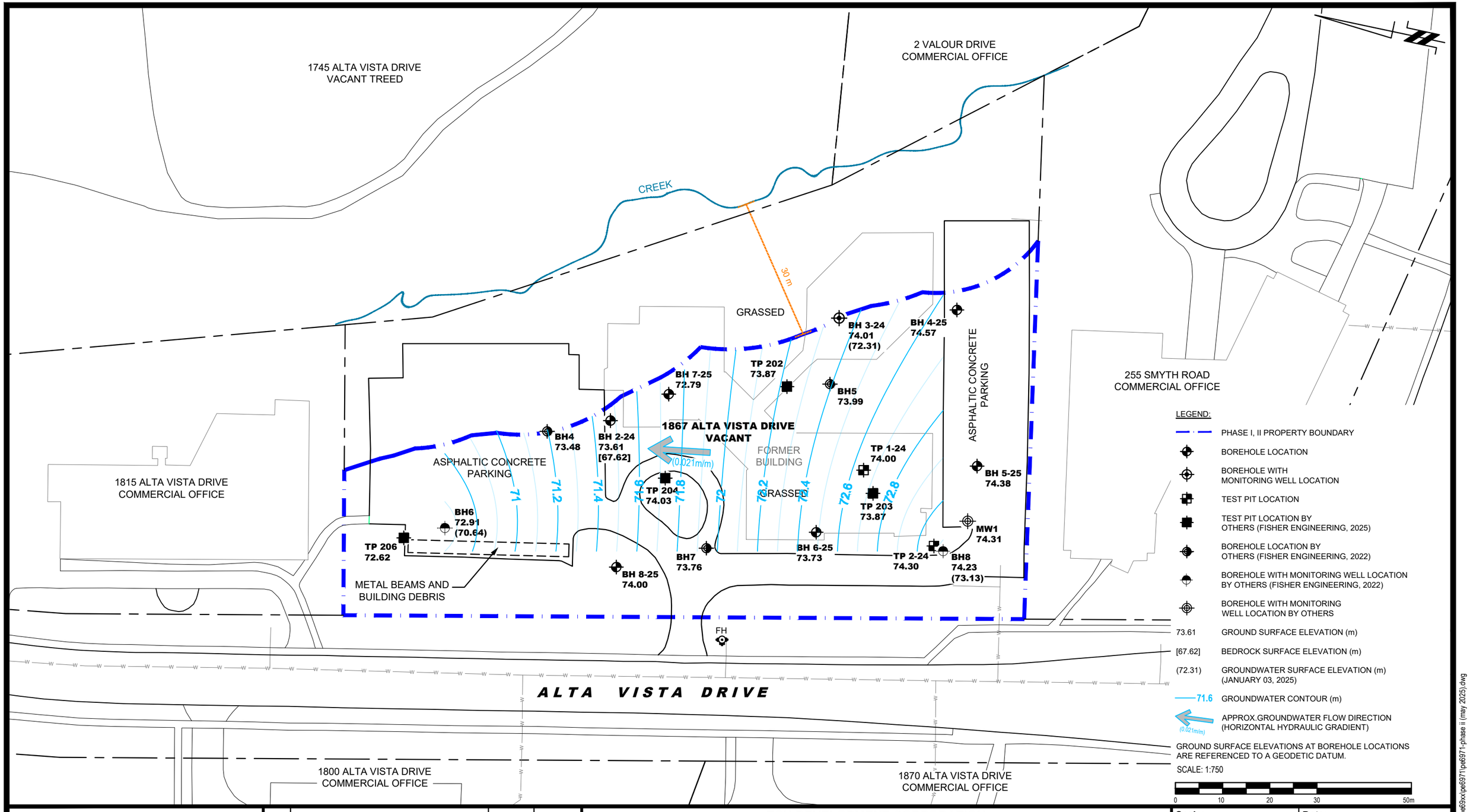

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TCU DEVELOPMENT CORPORATION

PHASE II - ENVIRONMENTAL SITE ASSESSMENT
1867 ALTA VISTA DRIVE

OTTAWA, ONTARIO

Title:

TEST HOLE LOCATION PLAN

Scale: 1:750	Date: 05/2025
Drawn by: YA	Report No.: PE6971-2
Checked by: KMP	Dwg. No.: PE6971-3
Approved by: MSD	Revision No.:

11x17

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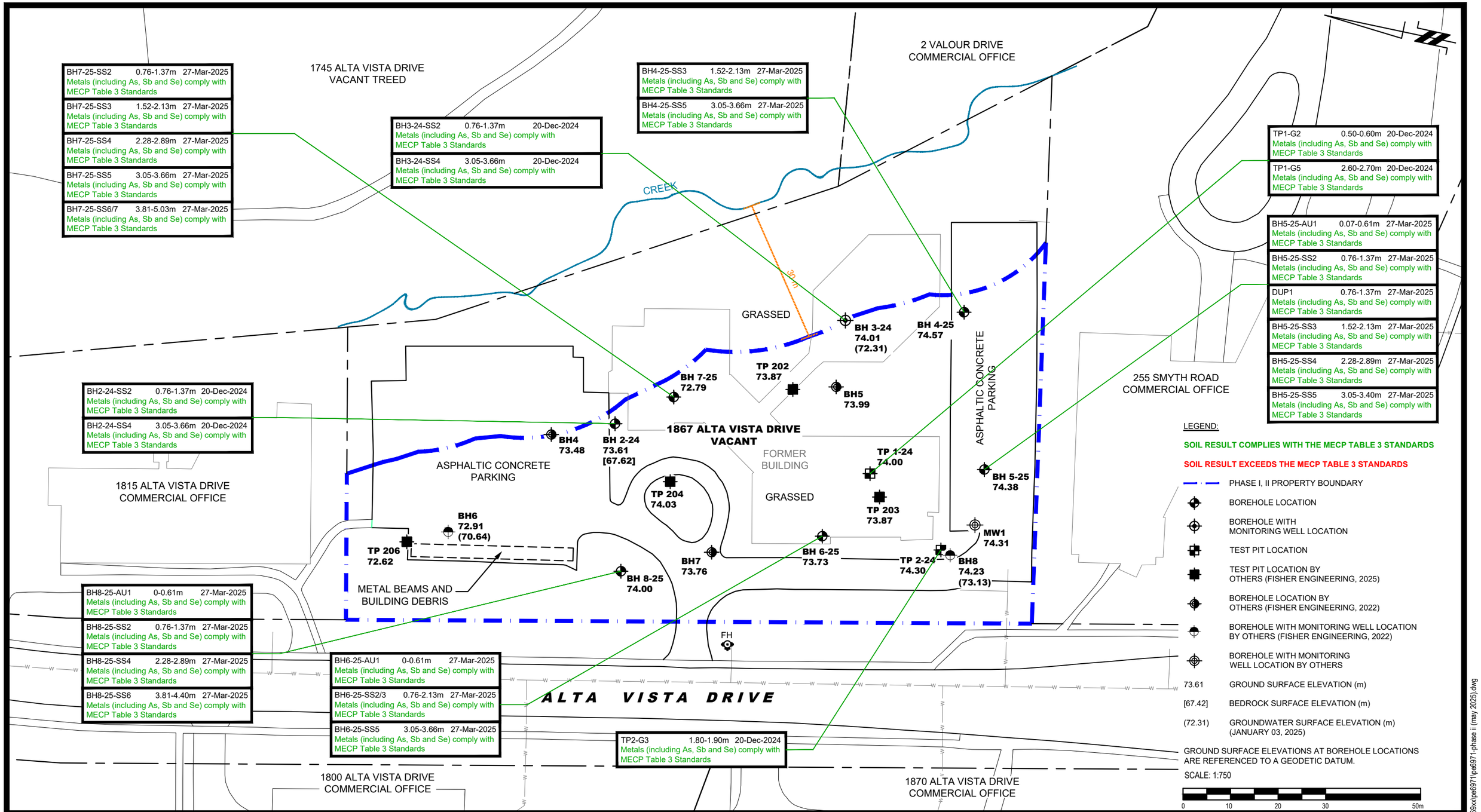

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NO.	REVISIONS	DATE	INITIAL

TCU DEVELOPMENT CORPORATION

PHASE II - ENVIRONMENTAL SITE ASSESSMENT
1867 ALTA VISTA DRIVE

OTTAWA, ONTARIO

Title:

ANALYTICAL TESTING PLAN - SOIL (METALS INCLUDING As, Se, Sb)

Scale: 1:750	**Date:** 05/2025
Drawn by: YA	**Report No.:** PE6971-2
Checked by: KMP	**Dwg. No.:** PE6971-4
Approved by: MSD	**Revision No.:**

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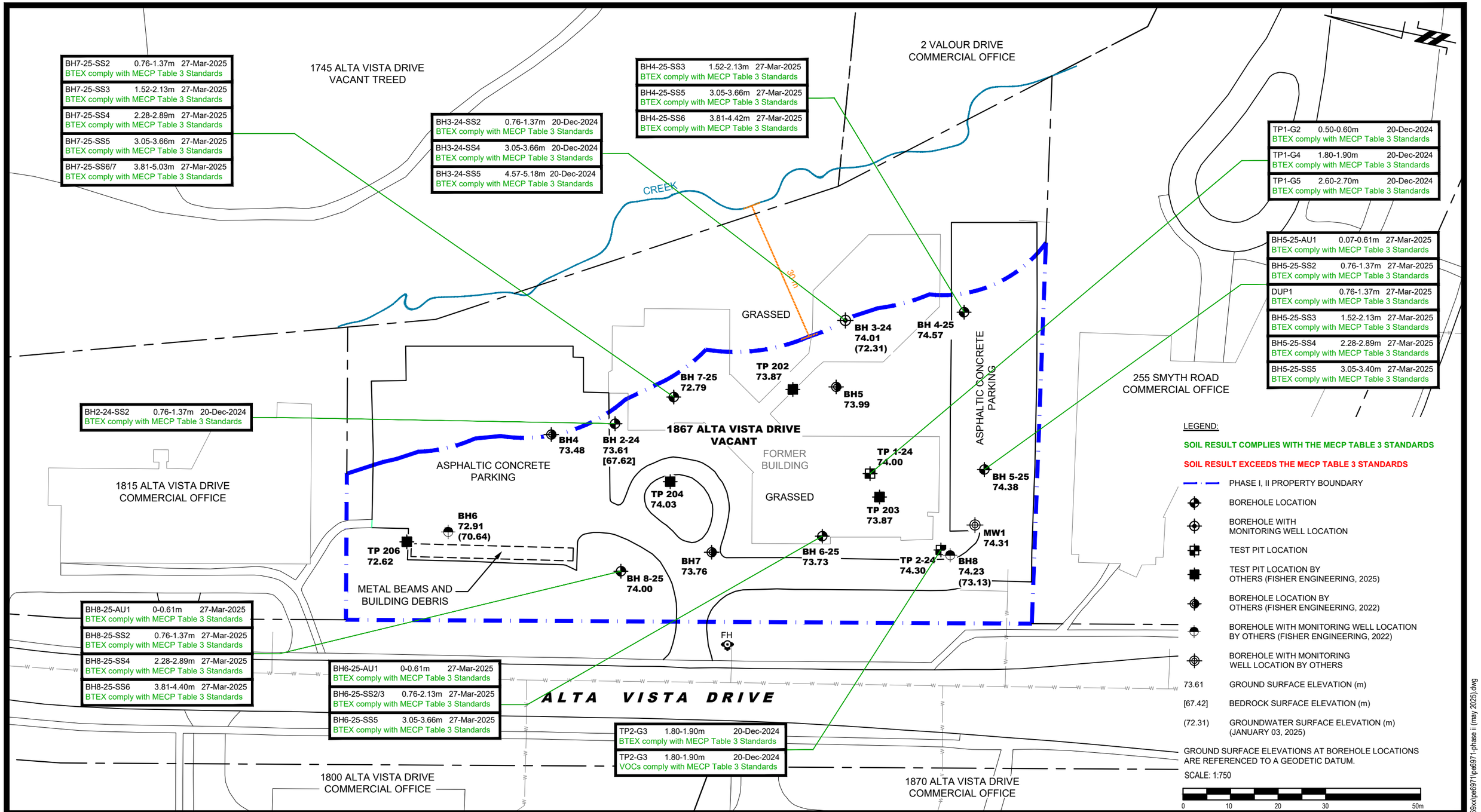

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NO.	REVISIONS	DATE	INITIAL

TCU DEVELOPMENT CORPORATION

PHASE II - ENVIRONMENTAL SITE ASSESSMENT
1867 ALTA VISTA DRIVE

OTTAWA, ONTARIO

Title:

ANALYTICAL TESTING PLAN - SOIL (BTEX, VOCs)

Scale: 1:750	Date: 05/2025
Drawn by: YA	Report No.: PE6971-2
Checked by: KMP	Dwg. No.: PE6971-5
Approved by: MSD	Revision No.:

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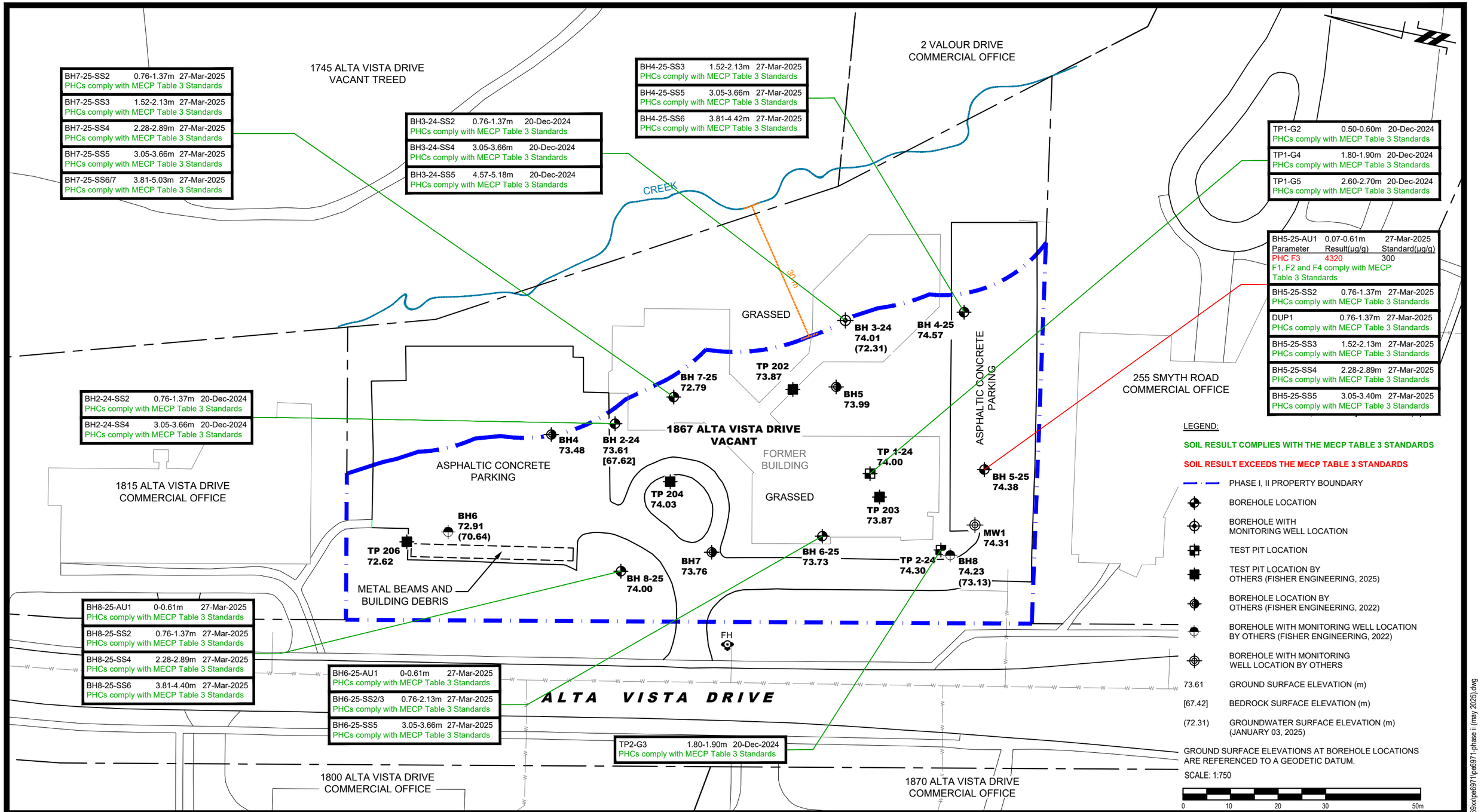

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TEL: (613) 226-7381

NO.	REVISIONS	DATE	INITIAL

TCU DEVELOPMENT CORPORATION

PHASE II - ENVIRONMENTAL SITE ASSESSMENT
1867 ALTA VISTA DRIVE

OTTAWA, **ONTARIO**

Title:

ANALYTICAL TESTING PLAN - SOIL (PHCs)

Scale: 1:750	**Date:** 05/2025
Drawn by: YA	**Report No.:** PE6971-2
Checked by: KMP	**Dwg. No.:** PE6971-6
Approved by: MSD	**Revision No.:**

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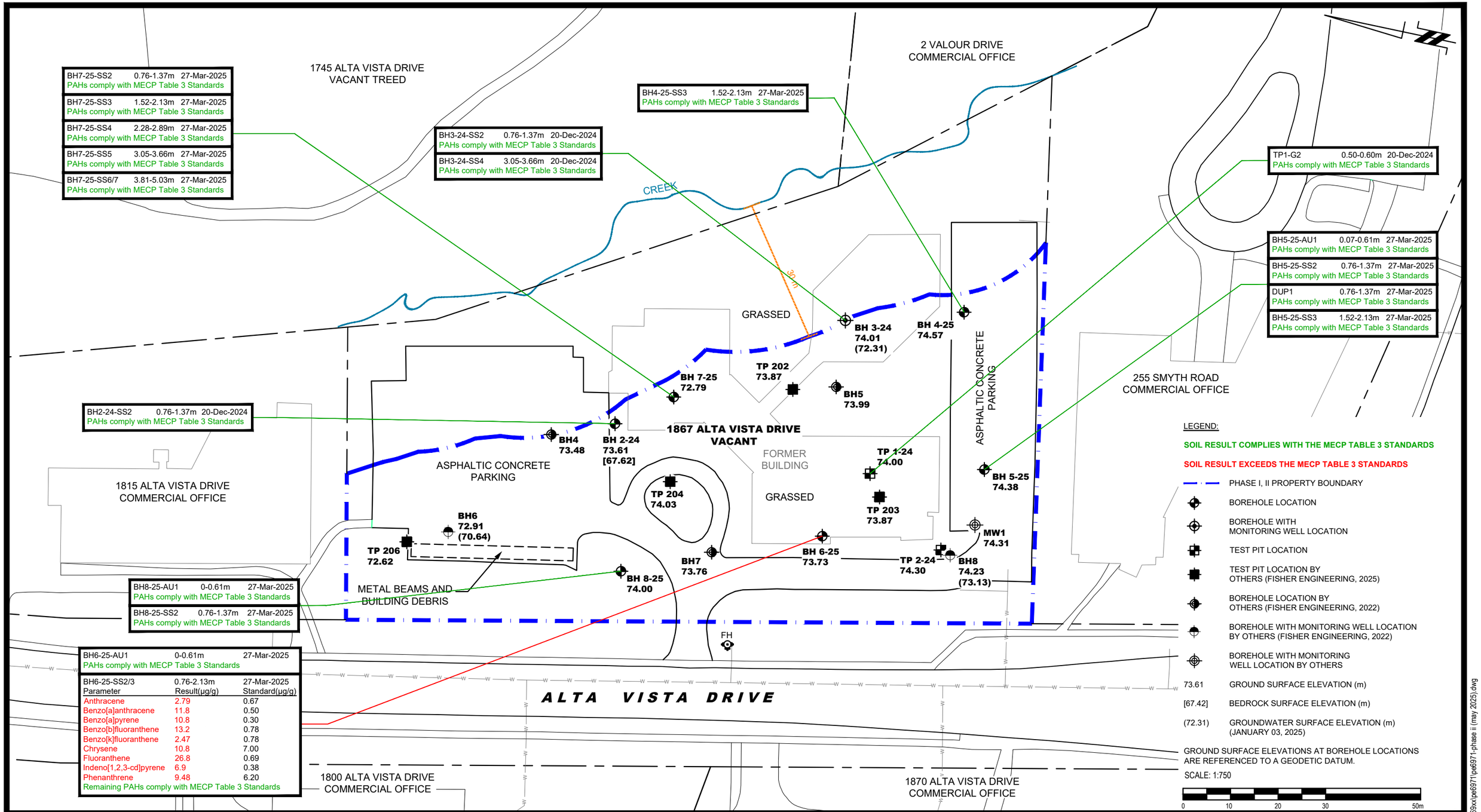

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NO.	REVISIONS	DATE	INITIAL

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PHASE II - ENVIRONMENTAL SITE ASSESSMENT
1867 ALTA VISTA DRIVE

OTTAWA, ONTARIO

Title: **ANALYTICAL TESTING PLAN - SOIL (PAHs)**

Scale: 1:750	**Date:** 05/2025
Drawn by: YA	**Report No.:** PE6971-2
Checked by: KMP	**Dwg. No.:** PE6971-7
Approved by: MSD	**Revision No.:**

11x17

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1745 ALTA VISTA DRIVE
VACANT TREED

2 VALOUR DRIVE
COMMERCIAL OFFICE

BH3-24-GW1 1.52-4.57m 3-Jan-2025
VOCs comply with MECP Table 3 Standards

BH3-24-GW1 1.52-4.57m 3-Jan-2025
BTEX comply with MECP Table 3 Standards

BH3-24-GW1 1.52-4.57m 3-Jan-2025
PHCs comply with MECP Table 3 Standards

BH3-24-GW1 1.52-4.57m 3-Jan-2025
PAHs comply with MECP Table 3 Standards

CREEK

BH6-GW1 1.52-4.57m 3-Jan-2025
BTEX comply with MECP Table 3 Standards

BH6-GW1 1.52-4.57m 3-Jan-2025
PHCs comply with MECP Table 3 Standards

1815 ALTA VISTA DRIVE
COMMERCIAL OFFICE

GRASSED

BH 3-24
74.01
(72.31)

BH 4-25
74.57

TP 202
73.87

BH 7-25
72.79

BH5
73.99

1867 ALTA VISTA DRIVE
VACANT

ASPHALTIC CONCRETE
PARKING

BH4
73.48

BH 2-24
73.61
[67.62]

FORMER
BUILDING

TP 1-24
74.00

TP 204
74.03

GRASSED

TP 203
73.87

BH 5-25
74.38

BH6
72.91
(70.64)

MW1
74.31

TP 206
72.62

BH7
73.76

BH 6-25
73.73

TP 2-24
74.30

BH8
74.23
(73.13)

BH 8-25
74.00

METAL BEAMS AND
BUILDING DEBRIS

FH

BH8-GW1 1.52-4.57m 3-Jan-2025
VOCs comply with MECP Table 3 Standards

BH8-GW1 1.52-4.57m 3-Jan-2025
BTEX comply with MECP Table 3 Standards

DUP1 1.52-4.57m 3-Jan-2025
BTEX comply with MECP Table 3 Standards

BH8-GW1 1.52-4.57m 3-Jan-2025
PHCs comply with MECP Table 3 Standards

DUP1 1.52-4.57m 3-Jan-2025
PHCs comply with MECP Table 3 Standards

1800 ALTA VISTA DRIVE
COMMERCIAL OFFICE

1870 ALTA VISTA DRIVE
COMMERCIAL OFFICE

255 SMYTH ROAD
COMMERCIAL OFFICE

LEGEND:

GROUNDWATER RESULT COMPLIES WITH THE MECP TABLE 3 STANDARDS

- PHASE I, II PROPERTY BOUNDARY
- BOREHOLE LOCATION
- BOREHOLE WITH MONITORING WELL LOCATION
- TEST PIT LOCATION
- TEST PIT LOCATION BY OTHERS (FISHER ENGINEERING, 2025)
- BOREHOLE LOCATION BY OTHERS (FISHER ENGINEERING, 2022)
- BOREHOLE WITH MONITORING WELL LOCATION BY OTHERS (FISHER ENGINEERING, 2022)
- BOREHOLE WITH MONITORING WELL LOCATION BY OTHERS

73.61 GROUND SURFACE ELEVATION (m)

[67.42] BEDROCK SURFACE ELEVATION (m)

(72.31) GROUNDWATER SURFACE ELEVATION (m) (JANUARY 03, 2025)

GROUND SURFACE ELEVATIONS AT BOREHOLE LOCATIONS ARE REFERENCED TO A GEODETIC DATUM.

SCALE: 1:750

0 10 20 30 50m

PATERSON GROUP
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NO.	REVISIONS	DATE	INITIAL

TCU DEVELOPMENT CORPORATION

PHASE II - ENVIRONMENTAL SITE ASSESSMENT
1867 ALTA VISTA DRIVE

OTTAWA, ONTARIO

Title: **ANALYTICAL TESTING PLAN - GROUNDWATER (BTEX, VOCs, PHCs, PAHs)**

Scale: 1:750	Date: 05/2025
Drawn by: YA	Report No.: PE6971-2
Checked by: KMP	Dwg. No.: PE6971-8
Approved by: MSD	Revision No.:

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APPENDIX 1

SAMPLING AND ANALYSIS PLAN

SOIL PROFILE AND TEST DATA SHEETS

SYMBOLS AND TERMS

ANALYTICAL TEST RESULTS TABLES

LABORATORY CERTIFICATES OF ANALYSIS

PATERSON GROUP

Sampling and Analysis Plan

1867 Alta Vista Drive

Ottawa, Ontario

Prepared for TCU Development Corporation

Report: PE6971-SAP
Date: December 13, 2024

TABLE OF CONTENTS

1.0 SAMPLING PROGRAM

Paterson Group Inc. (Paterson) was commissioned by TCU Development Corporation to conduct a Phase II – Environmental Site Assessment (Phase II ESA) at 1867 Alta Vista Drive, in the City of Ottawa, Ontario.

Based on the findings of the Phase I ESA Update, the following subsurface investigation program was developed. It should be noted that the Phase II ESA was carried out in conjunction with a geotechnical investigation and incorporates work completed from several previous investigations.

Borehole	Location & Rationale	Proposed Depth & Rationale
BH2-24	Placed on the central-eastern portion of the Phase II Property to assess for potential soil impacts resulting from the identified APECs and for horizontal and/or vertical delineation purposes.	Collect samples till practical auger refusal. Rock core samples were collected for Geotechnical purposes.
BH3-24	Placed on the south-eastern portion of the Phase II Property to assess for potential soil and groundwater impacts resulting from the identified APECs and for horizontal and/or vertical delineation purposes.	6-7 m; Drill to intercept water table for monitoring well installation in bedrock.
TP1-24	Placed on the south-western portion of the Phase II Property to assess for potential soil impacts resulting from the identified APECs and for horizontal and/or vertical delineation purposes.	2-3 m; Collect samples of fill material.
TP2-24	Placed on the southern portion of the Phase II Property to assess for potential soil impacts resulting from the identified APECs and for horizontal and/or vertical delineation purposes.	2-3 m; Collect samples of fill material.
BH4-25	Placed on the south-eastern portion of the Phase II Property to assess for potential soil impacts resulting from the identified APECs and for horizontal and/or vertical delineation purposes.	Collect samples till practical auger refusal.
BH5-25	Placed on the southern portion of the Phase II Property to assess for potential soil impacts resulting from the identified APECs and for horizontal and/or vertical delineation purposes.	Collect samples till practical auger refusal.
BH6-25	Placed on the western portion of the Phase II Property to assess for potential soil impacts resulting from the identified APECs and for horizontal and/or vertical delineation purposes.	Collect samples till practical auger refusal.
BH7-25	Placed on the central-eastern portion of the Phase II Property to assess for potential soil impacts resulting from the identified APECs and for horizontal and/or vertical delineation purposes.	Collect samples till practical auger refusal.
BH8-25	Placed on the central-western portion of the Phase II Property to assess for potential soil impacts resulting from the identified APECs and for horizontal and/or vertical delineation purposes.	Collect samples till practical auger refusal.

Borehole and test pit locations are shown on Drawing PE6971-3 – Test Hole Location Plan, appended to the main report.

At each borehole, split-spoon samples of the overburden soils will be obtained at 0.76 m (2'6") intervals until practical refusal to augering.

All soil samples will be retained, and samples will be selected for submission following a preliminary screening analysis.

Following the borehole drilling, groundwater monitoring wells will be installed in one borehole (BH3-24) for the collection of groundwater samples.

It should be noted that monitoring wells (BH6 and BH8) installed by Fisher Engineering Ltd. in 2022 will be utilized to collect groundwater sample.

2.0 ANALYTICAL TESTING PROGRAM

The analytical testing program for soil at the subject site is based on the following general considerations:

- ❒ At least one sample from each borehole should be submitted, in order to delineate the horizontal extent of contamination across the site.
- ❒ At least one sample from each stratigraphic unit should be submitted, in order to delineate the vertical extent of contamination at the site.
- ❒ In boreholes where there is visual or olfactory evidence of contamination, or where organic vapour meter or photoionization detector readings indicate the presence of contamination, the 'worst-case' sample from each borehole should be submitted for comparison with MECP site condition standards.
- ❒ In boreholes with evidence of contamination as described above, a sample should be submitted from the stratigraphic unit below the 'worst-case' sample to determine whether the contaminant(s) have migrated downward.
- ❒ Parameters analyzed should be consistent with the Contaminants of Potential Concern identified in the Phase I ESA.

The analytical testing program for groundwater at the subject site is based on the following general considerations:

- ❒ Groundwater monitoring wells should be installed in all boreholes with visual or olfactory evidence of soil contamination, in stratigraphic units where soil contamination was encountered, where those stratigraphic units are at or below the water table (i.e. a water sample can be obtained).
- ❒ Groundwater monitoring well screens should straddle the water table at sites where the contaminants of concern are suspected to be LNAPLs.
- ❒ At least one groundwater monitoring well should be installed in a stratigraphic unit below the suspected contamination, where said stratigraphic unit is water-bearing.
- ❒ Parameters analyzed should be consistent with the Contaminants of Concern identified in the Phase I ESA and with the contaminants identified in the soil samples.

3.0 STANDARD OPERATING PROCEDURES

3.1 Environmental Drilling Procedure

Purpose

The purpose of environmental boreholes is to identify and/or delineate contamination within the soil and/or to install groundwater monitoring wells in order to identify contamination within the groundwater.

Equipment

The following is a list of equipment that is in addition to regular drilling equipment stated in the geotechnical drilling SOP:

- ❒ Glass soil sample jars
- ❒ two buckets
- ❒ cleaning brush (toilet brush works well)
- ❒ dish detergent
- ❒ methyl hydrate
- ❒ water (if not available on site - water jugs available in trailer)
- ❒ latex or nitrile gloves (depending on suspected contaminant)
- ❒ RKI Eagle organic vapour meter or MiniRae photoionization detector (depending on contamination suspected)

Determining Borehole Locations

If conditions on site are not as suspected, and planned borehole locations cannot be drilled, **call the office to discuss**. Alternative borehole locations will be determined in conversation with the field technician and supervising engineer.

After drilling is completed a plan with the borehole locations must be provided. Distances and orientations of boreholes with respect to site features (buildings, roadways, etc.) must be provided. Distances should be measured using a measuring tape or wheel rather than paced off. Ground surface elevations at each borehole should be surveyed relative to a geodetic benchmark, if one is available, or a temporary site benchmark which can be tied in at a later date if necessary.

Drilling Procedure

The actual drilling procedure for environmental boreholes is the same as geotechnical boreholes (see SOP for drilling and sampling) with a few exceptions as follows:

- ❒ Continuous split spoon samples (every 0.6 m or 2') or semi-continuous (every 0.76 m or 2'6") are required.
- ❒ Make sure samples are well sealed in plastic bags with no holes prior to screening and are kept cool but unfrozen.
- ❒ If sampling for VOCs, BTEX, or PHCs F_1, a soil core from each soil sample, which may be analyzed, must be taken and placed in the laboratory-provided methanol vial.
- ❒ Note all and any odours or discolouration of samples.
- ❒ Split spoon samplers must be washed between samples.
- ❒ If obvious contamination is encountered, continue sampling until vertical extent of contamination is delineated.
- ❒ As a general rule, environmental boreholes should be deep enough to intercept the groundwater table (unless this is impossible/impractical - call project manager to discuss).
- ❒ If at all possible, soil samples should be submitted to a preliminary screening procedure on site, either using a RKI Eagle, PID, etc. depending on type of suspected contamination.

Spoon Washing Procedure

All sampling equipment (spilt spoons, etc.) must be washed between samples in order to prevent cross contamination of soil samples.

- ❒ Obtain two buckets of water (preferably hot if available)
- ❒ Add a small amount of dish soap to one bucket
- ❒ Scrub spoons with brush in soapy water, inside and out, including tip
- ❒ Rinse in clean water
- ❒ Apply a small amount of methyl hydrate to the inside of the spoon. (A spray bottle or water bottle with a small hole in the cap works well)
- ❒ Allow to dry (takes seconds)
- ❒ Rinse with distilled water, a spray bottle works well.

The methyl hydrate eliminates any soap residue that may be on the spoon and is especially important when dealing with suspected VOCs.

Screening Procedure

The RKI Eagle is used to screen most soil samples, particularly where petroleum hydrocarbon contamination is suspected. The MiniRae is used when VOCs are suspected, however it also can be useful for detecting petroleum. These tools are for screening purposes only and cannot be used in place of laboratory testing. Vapour results obtained from the RKI Eagle and the PID are relative and must be interpreted.

Screening equipment should be calibrated on an approximately monthly basis, more frequently if heavily used.

- ❒ Samples should be brought to room temperature; this is specifically important in colder weather. Soil must not be frozen.
- ❒ Turn instrument on and allow to come to zero - calibrate if necessary
- ❒ If using RKI Eagle, ensure instrument is in methane elimination mode unless otherwise directed.
- ❒ Ensure measurement units are ppm (parts per million) initially. RKI Eagle will automatically switch to %LEL (lower explosive limit) if higher concentrations are encountered.
- ❒ Break up large lumps of soil in the sample bag, taking care not to puncture bag.
- ❒ Insert probe into soil bag, creating a seal with your hand around the opening.
- ❒ Gently manipulate soil in bag while observing instrument readings.
- ❒ Record the highest value obtained in the first 15 to 25 seconds
- ❒ Make sure to indicate scale (ppm or LEL); also note which instrument was used (RKI Eagle 1 or 2, or MiniRae).
- ❒ Jar samples and refrigerate as per Sampling and Analysis Plan.

3.2 Monitoring Well Installation Procedure

Equipment

- ❒ 5' x 2" threaded sections of Schedule 40 PVC slotted well screen (5' x 1 ¼" if installing in cored hole in bedrock)
- ❒ 5' x 2" threaded sections of Schedule 40 PVC riser pipe (5' x 1 ¼" if installing in cored hole in bedrock)
- ❒ Threaded end-cap
- ❒ Slip-cap or J-plug
- ❒ Asphalt cold patch or concrete
- ❒ Silica Sand
- ❒ Bentonite chips (Holeplug)
- ❒ Steel flushmount casing

Procedure

- ❒ Drill borehole to required depth, using drilling and sampling procedures described above.
- ❒ If borehole is deeper than required monitoring well, backfill with bentonite chips to required depth. This should only be done on wells where contamination is not suspected, in order to prevent downward migration of contamination.
- ❒ Only one monitoring well should be installed per borehole.
- ❒ Monitoring wells should not be screened across more than one stratigraphic unit to prevent potential migration of contaminants between units.
- ❒ Where LNAPLs are the suspected contaminants of concern, monitoring wells should be screened straddling the water table in order to capture any free product floating on top of the water table.
- ❒ Thread the end cap onto a section of screen. Thread second section of screen if required. Thread risers onto screen. Lower into borehole to required depth. Ensure slip-cap or J-plug is inserted to prevent backfill materials entering well.
- ❒ As drillers remove augers, backfill borehole annulus with silica sand until the level of sand is approximately 0.3 m above the top of the screen.
- ❒ Backfill with holeplug until at least 0.3 m of holeplug is present above the top of the silica sand.
- ❒ Backfill remainder of borehole with holeplug or with auger cuttings (if contamination is not suspected).
- ❒ Install flushmount casing. Seal space between flushmount and borehole annulus with concrete, cold patch, or holeplug to match surrounding ground surface.

3.3 Monitoring Well Sampling Procedure

Equipment

- ❒ Water level metre or interface probe on hydrocarbon/LNAPL sites
- ❒ Spray bottles containing water and methanol to clean water level tape or interface probe
- ❒ Peristaltic pump
- ❒ Polyethylene tubing for peristaltic pump
- ❒ Flexible tubing for peristaltic pump
- ❒ Latex or nitrile gloves (depending on suspected contaminant)
- ❒ Allen keys and/or 9/16" socket wrench to remove well caps
- ❒ Graduated bucket with volume measurements
- ❒ pH/Temperature/Conductivity combo pen
- ❒ Laboratory-supplied sample bottles

Sampling Procedure

- ❒ Locate well and use socket wrench or Allan key to open metal flush mount protector cap. Remove plastic well cap.
- ❒ Measure water level, with respect to existing ground surface, using water level meter or interface probe. If using interface probe on suspected NAPL site, measure the thickness of free product.
- ❒ Measure total depth of well.
- ❒ Clean water level tape or interface probe using methanol and water. Change gloves between wells.
- ❒ Calculate volume of standing water within well and record.
- ❒ Insert polyethylene tubing into well and attach to peristaltic pump. Turn on peristaltic pump and purge into graduated bucket. Purge at least three well volumes of water from the well. Measure and record field chemistry. Continue to purge, measuring field chemistry after every well volume purged, until appearance or field chemistry stabilizes.
- ❒ Note appearance of purge water, including colour, opacity (clear, cloudy, silty), sheen, presence of LNAPL, and odour. Note any other unusual features (particulate matter, effervescence (bubbling) of dissolved gas, etc.).
- ❒ Fill required sample bottles. If sampling for metals, attach 75-micron filter to discharge tube and filter metals sample. If sampling for VOCs, use low flow rate to ensure continuous stream of non-turbulent flow into sample bottles. Ensure no headspace is present in VOC vials.
- ❒ Replace well cap and flushmount casing cap.

4.0 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

The QA/QC program for this Phase II-ESA is as follows:

- ❒ All non-dedicated sampling equipment (split spoons) will be decontaminated according to the SOPs listed above.
- ❒ All groundwater sampling equipment is dedicated (polyethylene and flexible peristaltic tubing is replaced for each well).
- ❒ Where groundwater samples are to be analyzed for VOCs, one laboratory-provided trip blank will be submitted for analysis with every laboratory submission.
- ❒ Approximately one (1) field duplicate will be submitted for every ten (10) samples submitted for laboratory analysis. A minimum of one (1) field duplicate per project will be submitted. Field duplicates will be submitted for soil and groundwater samples.
- ❒ Where combo pens are used to measure field chemistry, they will be calibrated on an approximately monthly basis, according to frequency of use.

5.0 DATA QUALITY OBJECTIVES

The purpose of setting data quality objectives (DQOs) is to ensure that the level of uncertainty in data collected during the Phase II ESA is low enough that decision-making is not affected, and that the overall objectives of the investigation are met.

The quality of data is assessed by comparing field duplicates with original samples. If the relative percent difference (RPD) between the duplicate and the sample is within 20%, the data are considered to be of sufficient quality so as not to affect decision-making. The RPD is calculated as follows:

$$RPD = \left| \frac{x_1 - x_2}{(x_1 + x_2)/2} \right| \times 100\%$$

Where x_1 is the concentration of a given parameter in an original sample and x_2 is the concentration of that same parameter in the field duplicate sample.

For the purpose of calculating the RPD, it is desirable to select field duplicates from samples for which parameters are present in concentrations above laboratory detection limits, i.e. samples which are expected to be contaminated. If parameters are below laboratory detection limits for selected samples or duplicates, the RPD may be calculated using a concentration equal to one half the laboratory detection limit.

It is also important to consider data quality in the overall context of the project. For example, if the DQOs are not met for a given sample, yet the concentrations of contaminants in both the sample and the duplicate exceed the MOE site remediation standards by a large margin, the decision-making usefulness of the sample may not be considered to be impaired. The proximity of other samples which meet the DQOs must also be considered in developing the Phase II Conceptual Site Model; often there are enough data available to produce a reliable Phase II Conceptual Site Model even if DQOs are not met for certain individual samples.

These considerations are discussed in the body of the report.

6.0 PHYSICAL IMPEDIMENTS TO SAMPLING & ANALYSIS PLAN

Physical impediments to the Sampling and Analysis plan may include:

- ❒ The location of underground utilities
- ❒ Poor recovery of split-spoon soil samples
- ❒ Insufficient groundwater volume for groundwater samples
- ❒ Breakage of sampling containers following sampling or while in transit to the laboratory
- ❒ Elevated detection limits due to matrix interference (generally related to soil colour or presence of organic material)
- ❒ Elevated detection limits due to high concentrations of certain parameters, necessitating dilution of samples in laboratory
- ❒ Drill rig breakdowns
- ❒ Winter conditions
- ❒ Other site-specific impediments

Site-specific impediments to the Sampling and Analysis plan are discussed in the body of the Phase II-ESA report.

SOIL PROFILE AND TEST DATA

Phase II Environmental Site Assessment

1867 Alta Vista Drive, Ottawa, Ontario

COORD. SYS.: MTM ZONE 9 **EASTING:** 370459.66 **NORTHING:** 5029249.36 **ELEVATION:** 73.61

PROJECT: Phase II Environmental Site Assessment

ADVANCED BY: CME-55 Track Mounted Drill Rig

REMARKS:

DATE: December 20, 2024

FILE NO. : PE6971

HOLE NO. : BH 2-24

SAMPLE DESCRIPTION	STRATA PLOT	DEPTH (m)	SAMPLE TYPE AND NO.	SAMPLE RECOVERY (%)	SAMPLE N OR RQD	SAMPLE ANALYTICAL TESTS	GASTECH (ppm) / GASTECH (% LEL) 50 100 150 200 / PID (ppm) / PID (% LEL) 20 40 60 80	PIEZOMETER CONSTRUCTION	ELEVATION (m)
GROUND SURFACE									
TOPSOIL and organics			AU 1						73
0.08m [73.53m]									
FILL: Loose to compact, brown silty sand, with gravel, cobbles and crushed stone		1	SS 2	50	4-4-3-2 7				72
		2	SS 3	46	4-4-3-8 7				
2.59m [71.02m]									71
GLACIAL TILL: Dense, brown silty sand to sandy silt, some gravel and cobbels		3	SS 4	100	14-21-23-22 44				70
4.11m [69.50m]		4							
GLACIAL TILL: Very dense, grey silty sand to sandy silt, with gravel, cobbles and boulders		5	SS 5	98	39-54-/-/ 54/0.15				69
- Clay at 5.94 m depth		6	SS 6	51	50-/-/-/ 50/0.05				68
5.99m [67.62m]									
BEDROCK: Poor quality shale, interbedded wtith limestone		7	RC 1	91	RQD 15				67
			RC 2	92	RQD 41				66
7.80m [65.81m]		8							
End of Borehole		9							65

SOIL PROFILE AND TEST DATA

Phase II Environmental Site Assessment

1867 Alta Vista Drive, Ottawa, Ontario

COORD. SYS.: MTM ZONE 9 **EASTING:** 370496.33 **NORTHING:** 5029207.70 **ELEVATION:** 74.01

PROJECT: Phase II Environmental Site Assessment

ADVANCED BY: CME-55 Track Mounted Drill Rig

REMARKS:

DATE: December 20, 2024

FILE NO. : PE6971

HOLE NO. : BH 3-24

SAMPLE DESCRIPTION	STRATA PLOT	DEPTH (m)	SAMPLE TYPE AND NO.	SAMPLE RECOVERY (%)	SAMPLE N OR RQD	SAMPLE ANALYTICAL TESTS	GASTECH (ppm) / GASTECH (% LEL) 50 100 150 200 / PID (ppm) / PID (% LEL) 20 40 60 80	MONITORING WELL CONSTRUCTION	ELEVATION (m)
GROUND SURFACE									74
FILL: Compact to dense, brown silty sand, with gravel and cruhsed stone		1	AU 1						73
			SS 2	50	18-11-22-13 33			1.52m 1.70 m 2025-01-03	
		2	SS 3	46	6-11-21-12 32				72
2.59m [71.42m]									
GLACIAL TILL: Very dense grey silty sand to sandy silt, with gravel, cobbles and boulders		3	SS 4	83	15-25-27-21 52				71
		4							70
		5	SS 5	83	11-18-28-24 46			4.57m	69
6.15m [67.86m]		6	SS 6	102	50-/-/-/ 50/0.05				68
End of Borehole									
Pracical refusal to augering on inferred bedrock at 6.15 m depth		7							67
(GWL at 1.70 m depth - January 3, 2025)		8							66
		9							

SOIL PROFILE AND TEST DATA

Phase II Environmental Site Assessment

1867 Alta Vista Drive, Ottawa, Ontario

COORD. SYS.: MTM ZONE 9 **EASTING:** 370460.54 **NORTHING:** 5029194.69 **ELEVATION:** 74.00

PROJECT: Phase II Environmental Site Assessment

ADVANCED BY: Backhoe

REMARKS:

DATE: December 20, 2024

FILE NO. : PE6971

HOLE NO. : TP 1-24

SAMPLE DESCRIPTION	STRATA PLOT	DEPTH (m)	SAMPLE TYPE AND NO.	SAMPLE RECOVERY (%)	SAMPLE N OR RQD	SAMPLE ANALYTICAL TESTS	GASTECH (ppm) / GASTECH (% LEL) 50 100 150 200 / PID (ppm) / PID (% LEL) 20 40 60 80	PIEZOMETER CONSTRUCTION	ELEVATION (m)
GROUND SURFACE		0							74
FILL: Compact, brown silty sand, with gravel, some shale fragments, trace brick			G 1						
0.50m [73.50m]			G 2						
FILL: Very dense, brown silty sand, with crushed stone, gravel and cobbles, trace concrete, metal and trash		1	G 3						73
			G 4						
2.70m [71.30m]		2	G 5						72
End of Test Pit		3							71
Groundwater infiltration was observed at 0.60 m depth		4							70
		5							69
		6							68
		7							67
		8							66
		9							

SOIL PROFILE AND TEST DATA

Phase II Environmental Site Assessment

1867 Alta Vista Drive, Ottawa, Ontario

COORD. SYS.: MTM ZONE 9 **EASTING:** 370447.93 **NORTHING:** 5029176.78 **ELEVATION:** 74.30

PROJECT: Phase II Environmental Site Assessment

ADVANCED BY: Backhoe

REMARKS:

DATE: December 20, 2024

FILE NO. : PE6971

HOLE NO. : TP 2-24

SAMPLE DESCRIPTION	STRATA PLOT	DEPTH (m)	SAMPLE: TYPE AND NO.	SAMPLE: RECOVERY (%)	SAMPLE: N OR RQD	SAMPLE: ANALYTICAL TESTS	GASTECH (ppm) / GASTECH (% LEL) 50 100 150 200 / PID (ppm) / PID (% LEL) 20 40 60 80	PIEZOMETER CONSTRUCTION	ELEVATION (m)
GROUND SURFACE									
FILL: Compact, brown silty sand, some crushed stone and gravel, trace clay and topsoil			G 1						74
0.80m [73.50m]									
FILL: Dense, brown silty sand, with crushed stone, gravel and cobbles, some trash and topsoil		1	G 2						73
			G 3						
2.30m [72.00m]		2	G 4						72
GLACIAL TILL: Compact, grey silty clay, some gravel and cobbles									
2.50m [71.80m]		3							71
End of Test Pit									
Groundwater infiltration was observed at 1.05 m depth		4							70
		5							69
		6							68
		7							67
		8							66
		9							

SOIL PROFILE AND TEST DATA

Phase II Environmental Site Assessment

1867 Alta Vista Drive, Ottawa, Ontario

COORD. SYS.: MTM ZONE 9 **EASTING:** 370497.87 **NORTHING:** 5029182.42 **ELEVATION:** 74.57

PROJECT: Proposed Residential Development

ADVANCED BY: CME-55 Low Clearance Drill

REMARKS:

DATE: March 27, 2025

FILE NO. : PE6971

HOLE NO. : BH 4-25

SAMPLE DESCRIPTION	STRATA PLOT	DEPTH (m)	SAMPLE TYPE AND NO.	RECOVERY (%)	N OR RQD	ANALYTICAL TESTS	GASTECH (ppm) / GASTECH (% LEL) 50 100 150 200 / PID (ppm) / PID (% LEL) 20 40 60 80	PIEZOMETER CONSTRUCTION	ELEVATION (m)
GROUND SURFACE									
ASPHALT 0.05m [74.52m]									
FILL: Brown silty sand, with gravel, trace crushed stone			AU 1				▲1.4		74
1.45m [73.12m]		1	SS 2	50	4-6-9-10 15		▲1.4		
FILL: Brown silty clay, some sand, trace gravel			SS 3	54	4-9-9-9 18	PHCs/PAHs/Metals/ EC/SAR/pHs	▲2.2		73
2.21m [72.36m]		2							
Compact, grey **SILTY SAND** to **SANDY SILT**, trace gravel			SS 4	58	4-6-6-6 12		▲2.2		72
3.35m [71.22m]		3	SS 5	33	2-5-11-18 16	PHCs/PAHs/Metals	▲2.2		71
GLACIAL TILL: Compact to dense, grey silty sand, with gravel, cobbles and boulders			SS 6	46	7-12-30-21 42	PHCs	▲2.8		
4.57m [70.00m]		4	SS 7	0	50-/-/-/ 50/0				70
End of Borehole									
Practical refusal to augering at 4.57 m depth		5							69
		6							68
		7							67
		8							

SOIL PROFILE AND TEST DATA

Phase II Environmental Site Assessment

1867 Alta Vista Drive, Ottawa, Ontario

COORD. SYS.: MTM ZONE 9 **EASTING:** 370466.39 **NORTHING:** 5029171.36 **ELEVATION:** 74.38

PROJECT: Proposed Residential Development

ADVANCED BY: CME-55 Low Clearance Drill

REMARKS:

DATE: March 27, 2025

FILE NO. : PE6971

HOLE NO. : BH 5-25

SAMPLE DESCRIPTION	STRATA PLOT	DEPTH (m)	SAMPLE TYPE AND NO.	SAMPLE RECOVERY (%)	SAMPLE N OR RQD	SAMPLE ANALYTICAL TESTS	GASTECH (ppm) / GASTECH (% LEL) 50 100 150 200 / PID (ppm) / PID (% LEL) 20 40 60 80	PIEZOMETER CONSTRUCTION	ELEVATION (m)
GROUND SURFACE									
ASPHALT 0.05m [74.33m]									
FILL: Brown silty sand, with gravel, trace crushed stone 0.69m [73.69m]			AU 1			PHCs/PAHs/Metals/ EC/SAR	▲2.1		74
FILL: Brown silty sand to sandy silt, trace gravel 1.45m [72.93m]		1	SS 2	58	2-4-5-5 9	PHCs/PAHs/Metals/ EC/SAR	▲2.1		73
Compact, brown **SILTY SAND** to **SANDY SILT**, with clay seams 2.21m [72.17m]		2	SS 3	58	3-7-8-8 15	PHCs/PAHs/Metals/ EC/SAR	▲2.2		
GLACIAL TILL: Compact to very dense, grey silty sand, with gravel, cobbles and boulders, some clay 4.06m [70.32m]		3	SS 4	54	1-5-13-38 18	PHCs/Metals	▲2.3		72
			SS 5	102	2-48-50-/ 98/0.2	PHCs/Metals	▲2.3		71
		4	SS 6	0	50-/-/-/ 50/0.08				
End of Borehole									70
Practical refusal to augering at 4.06 m depth		5							69
		6							68
		7							67
		8							

SOIL PROFILE AND TEST DATA

Phase II Environmental Site Assessment

1867 Alta Vista Drive, Ottawa, Ontario

COORD. SYS.: MTM ZONE 9 **EASTING:** 370445.58 **NORTHING:** 5029201.79 **ELEVATION:** 73.73

PROJECT: Proposed Residential Development

ADVANCED BY: CME-55 Low Clearance Drill

REMARKS:

DATE: March 27, 2025

FILE NO. : **PE6971**

HOLE NO. : **BH 6-25**

SAMPLE DESCRIPTION	STRATA PLOT	DEPTH (m)	SAMPLE TYPE AND NO.	SAMPLE RECOVERY (%)	SAMPLE N OR RQD	SAMPLE ANALYTICAL TESTS	GASTECH (ppm) / GASTECH (% LEL) / PID (ppm) / PID (% LEL)	PIEZOMETER CONSTRUCTION	ELEVATION (m)
GROUND SURFACE							50 100 150 200 / 20 40 60 80		
FILL: Brown silty clay, with organics and gravel, trace crushed stone			AU 1			PHCs/PAHs/Metals/ EC/SAR	▲2.6		
0.69m [73.04m]									73
FILL: Brown silty sand, with gravel, trace crushed stone		1	SS 2	21	6-10-15-10 25	PHCs/PAHs/Metals/ EC/SAR	▲1.8		
		2	SS 3	25	4-1-2-1 3		▲2.4		72
2.21m [71.52m]									
FILL: Grey silty sand, with gravel and metal fragments			SS 4	42	1-1-2-2 3		▲2.3		71
2.97m [70.76m]		3							
GLACIAL TILL: Compact, grey silty clay, with shale fragments, some gravel			SS 5	58	2-7-11-23 18	PHCs/Metals	▲2.2		
4.04m [69.69m]		4	SS 6	51	50-/-/-/ 50/0.1	PHCs/Metals	▲2.6		70
End of Borehole									
Practical refusal to augering at 4.04 m depth		5							69
		6							68
		7							67
		8							66

SOIL PROFILE AND TEST DATA

Phase II Environmental Site Assessment

1867 Alta Vista Drive, Ottawa, Ontario

COORD. SYS.: MTM ZONE 9 **EASTING:** 370467.72 **NORTHING:** 5029238.44 **ELEVATION:** 72.79

PROJECT: Proposed Residential Development

ADVANCED BY: CME-55 Low Clearance Drill

REMARKS:

DATE: March 27, 2025

FILE NO. : PE6971

HOLE NO. : BH 7-25

SAMPLE DESCRIPTION	STRATA PLOT	DEPTH (m)	SAMPLE TYPE AND NO.	RECOVERY (%)	N OR RQD	ANALYTICAL TESTS	GASTECH (ppm) / GASTECH (% LEL) / PID (ppm) / PID (% LEL)	PIEZOMETER CONSTRUCTION	ELEVATION (m)
GROUND SURFACE							50 100 150 200 / 20 40 60 80		
FILL: Brown silty clay, some sand, with gravel and organics, trace bricks			AU 1				▲3.3		
0.69m [72.10m]									
FILL: Brown silty sand, with gravel, trace clay		1	SS 2	62	5-5-4-4 9	PHCs/PAHs/Metals/ EC/SAR	▲2.0		72
		2	SS 3	42	3-4-3-4 7	PHCs/PAHs/Metals/ EC/SAR	▲1.6		71
			SS 4	75	4-7-7-7 14	PHCs/PAHs/Metals/ EC/SAR	▲1.6		70
		3	SS 5	50	4-6-9-9 15	PHCs/PAHs/Metals/ EC/SAR	▲1.4		69
3.73m [69.06m]									
GLACIAL TILL: Compact to very dense, grey silty sand, with gravel, cobbles, boulders and shale fragments		4	SS 6	50	3-4-8-12 12	PHCs/PAHs/Metals/ EC/SAR/pHs	▲2.0		68
4.88m [67.91m]			SS 7	55	10-15-23-50 38		▲6.5		
BEDROCK: Poor quality shale		5							67
5.03m [67.76m]									
End of Borehole		6							66
Practical refusal to augering at 5.03 m depth		7							65
		8							

SOIL PROFILE AND TEST DATA

Phase II Environmental Site Assessment

1867 Alta Vista Drive, Ottawa, Ontario

COORD. SYS.: MTM ZONE 9 **EASTING:** 370429.56 **NORTHING:** 5029241.68 **ELEVATION:** 74.00

PROJECT: Proposed Residential Development

ADVANCED BY: CME-55 Low Clearance Drill

REMARKS:

DATE: March 27, 2025

FILE NO. : PE6971

HOLE NO. : BH 8-25

SAMPLE DESCRIPTION	STRATA PLOT	DEPTH (m)	SAMPLE TYPE AND NO.	SAMPLE RECOVERY (%)	SAMPLE N OR RQD	SAMPLE ANALYTICAL TESTS	GASTECH (ppm) / GASTECH (% LEL) / PID (ppm) / PID (% LEL)	PIEZOMETER CONSTRUCTION	ELEVATION (m)
GROUND SURFACE									
TOPSOIL and organics		0	AU 1			PHCs/PAHs/Metals/ EC/SAR	▲ 1.8		
0.13m [73.87m]									
FILL: Brown silty sand, some clay, trace gravel		1	SS 2	83	7-14-17-18 31	PHCs/PAHs/Metals/ EC/SAR	▲ 1.3		73
			SS 3	25	8-21-8-8 29		▲ 1.8		
2.21m [71.79m]		2							72
GLACIAL TILL: Compact to dense, brown silty sand to sandy silt, trace gravel			SS 4	75	4-5-9-15 14	PHCs/PAHs/Metals/ EC/SAR	▲ 1.8		
		3	SS 5	67	14-21-20-29 41		▲ 1.4		71
3.66m [70.34m]									
GLACIAL TILL: Very dense, grey silty sand, with gravel, cobbles and boulders		4	SS 6	96	11-28-39-50 67	PHCs/Metals	▲ 1.4		70
4.50m [69.50m]			SS 7	0	50-/-/-/ 50/0.05				
End of Borehole		5							69
Practical refusal to augering at 4.50 m depth		6							68
		7							67
		8							66

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 relative strength of cohesionless soils is the compactness condition, 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. An SPT N value of "P" denotes that the split-spoon sampler was pushed 300 mm into the soil without the use of a falling hammer.

Compactness Condition	'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 shear vane tests, unconfined compression tests, or occasionally by the Standard Penetration Test (SPT). Note that the typical correlations of undrained shear strength to SPT N value (tabulated below) tend to underestimate the consistency for sensitive silty clays, so Paterson reviews the applicable split spoon samples in the laboratory to provide a more representative consistency value based on tactile examination.

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, S_t, is the ratio between the undisturbed undrained shear strength and the remoulded undrained shear strength of the soil. The classes of sensitivity may be defined as follows:

Low Sensitivity:	$S_t < 2$
Medium Sensitivity:	$2 < S_t < 4$
Sensitive:	$4 < S_t < 8$
Extra Sensitive:	$8 < S_t < 16$
Quick Clay:	$S_t > 16$

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 NQ or larger size core. However, it can be used on smaller core sizes, such as BQ, 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, generally recovered using a piston sampler
G	-	"Grab" sample from test pit or surface materials
AU	-	Auger sample or bulk sample
WS	-	Wash sample
RC	-	Rock core sample (Core bit size BQ, NQ, HQ, etc.). Rock core samples are obtained with the use of standard diamond drilling bits.

SYMBOLS AND TERMS (continued)

PLASTICITY LIMITS AND GRAIN SIZE DISTRIBUTION

WC%	-	Natural water content or water content of sample, %
LL	-	Liquid Limit, % (water content above which soil behaves as a liquid)
PL	-	Plastic Limit, % (water content above which soil behaves plastically)
PI	-	Plasticity Index, % (difference between LL and PL)
Dxx	-	Grain size at which xx% of the soil, by weight, is of finer grain sizes These grain size descriptions are not used below 0.075 mm grain size
D10	-	Grain size at which 10% of the soil is finer (effective grain size)
D60	-	Grain size at which 60% of the soil is finer
Cc	-	Concavity coefficient = $(D30)^2 / (D10 \times D60)$
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 $Cu > 4$
Well-graded sands have: $1 < Cc < 3$ and $Cu > 6$
Sands and gravels not meeting the above requirements are poorly-graded or uniformly-graded.
Cc and Cu are not applicable for the description of soils with more than 10% silt and clay (more than 10% finer than 0.075 mm or the #200 sieve)

CONSOLIDATION TEST

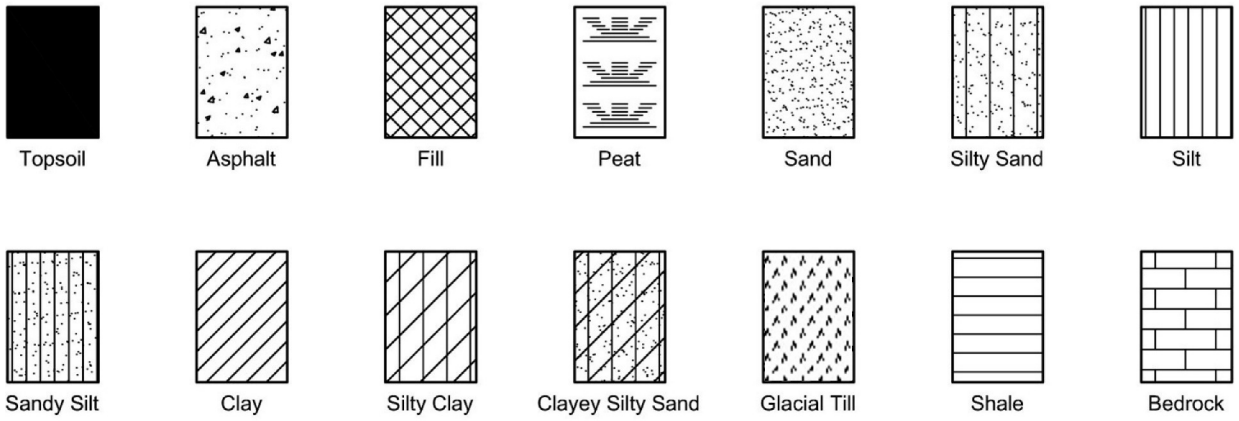
p'_o	-	Present effective overburden pressure at sample depth
p'_c	-	Preconsolidation pressure of (maximum past pressure on) sample
Ccr	-	Recompression index (in effect at pressures below p'_c)
Cc	-	Compression index (in effect at pressures above p'_c)
OC Ratio		Overconsolidaton ratio = p'_c / p'_o
Void Ratio		Initial sample void ratio = volume of voids / volume of solids
Wo	-	Initial water content (at start of consolidation test)

PERMEABILITY TEST

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

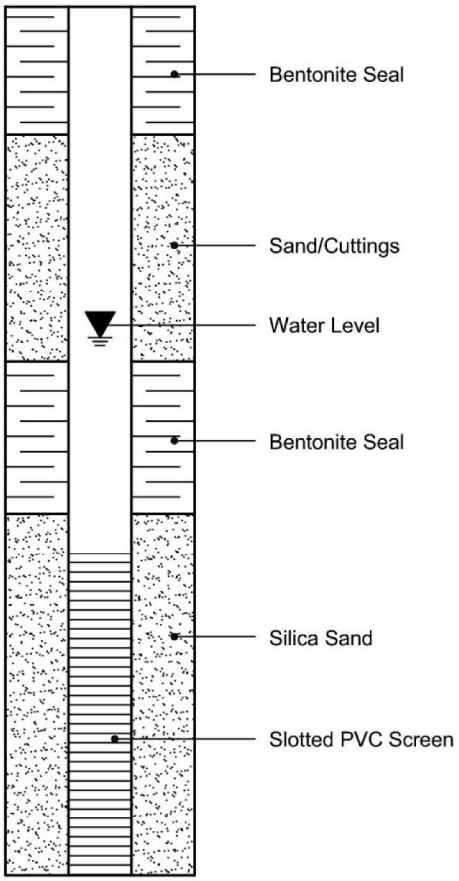
SYMBOLS AND TERMS (continued)

STRATA PLOT



MONITORING WELL AND PIEZOMETER CONSTRUCTION

MONITORING WELL CONSTRUCTION



PIEZOMETER CONSTRUCTION

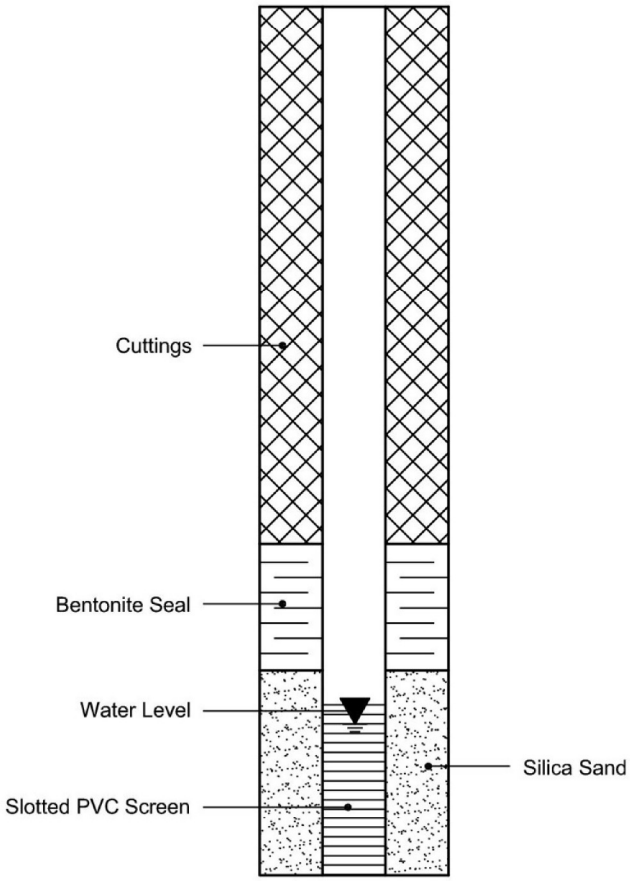


Table 1: Test Hole Summary Details

Test Hole ID	Date of Construction	Well Diameter (mm)	Ground Surface Elevation (masl)	Test Hole Depth (m)	Test Hole Bottom Elevation (masl)	Well Screen Length (m)	Well Screen Interval (mbgs)	Well Screen Interval (masl)	Geologic Media Intercepted by Well Screen
BH2-24	20-Dec-2024	-	73.61	7.80	65.81	-	-	-	-
BH3-24	20-Dec-2024	50	74.01	6.15	67.86	3.05	1.52 - 4.57	72.49 - 69.44	Overburden
TP1-24	20-Dec-2024	-	74.00	2.70	71.3	-	-	-	-
TP2-24	20-Dec-2024	-	74.30	2.50	71.8	-	-	-	-
BH4-25	27-Mar-2025	-	74.57	4.57	70	-	-	-	-
BH5-25	27-Mar-2025	-	74.38	4.06	70.32	-	-	-	-
BH6-25	27-Mar-2025	-	73.73	4.04	69.69	-	-	-	-
BH7-25	27-Mar-2025	-	72.79	5.03	67.76	-	-	-	-
BH8-25	27-Mar-2025	-	74.00	4.50	69.5	-	-	-	-

Table 2: Stabilized Water Quality Parameters

Test Hole ID	Temperature (˚C)	Conductivity (µS)	pH	Date of Measurement
BH3-24	7.6	2160	13.0	3-Jan-2025
BH6	10.4	-	6.9	3-Jan-2025
BH8	8.0	-	7.7	3-Jan-2025

Table 3: Soil Testing Summary

Sample ID and Laboratory ID	Sample Depth (mbgs)	Sampling Date	Rationale	PID Vapour Reading (ppm)	Parameter Groups Analyzed							
					PHCs	BTEX	VOCs	PAHs	Metals	pH	EC	SAR
BH2-SS2 2452067-03	0.76 - 1.37	20-Dec-2024	Assessment of APECs and/or preliminary delineation purposes	-	✓	✓		✓	✓	✓	✓	✓
BH3-SS2 2452067-04	0.76 - 1.37	20-Dec-2024	Assessment of APECs and/or preliminary delineation purposes	-	✓	✓		✓	✓		✓	✓
BH3-SS4 2452067-06	3.05 - 3.66	20-Dec-2024	Assessment of APECs and/or preliminary delineation purposes	-	✓	✓		✓	✓		✓	✓
TP1-G2 2452067-07	0.50 - 0.60	20-Dec-2024	Assessment of APECs and/or preliminary delineation purposes	-	✓	✓		✓	✓		✓	✓
TP1-G5 2452067-08	2.60 - 2.70	20-Dec-2024	Assessment of APECs and/or preliminary delineation purposes	-	✓	✓			✓		✓	✓
TP2-G3 2452067-09	1.80 - 1.90	20-Dec-2024	Assessment of APECs and/or preliminary delineation purposes	-	✓	✓	✓		✓		✓	✓
BH2-24-SS4 2502314-06	3.05 - 3.66	20-Dec-2024	Assessment of APECs and/or preliminary delineation purposes	-	✓							
BH3-SS5 2501092-01	4.57 - 5.18	20-Dec-2024	Assessment of APECs and/or preliminary delineation purposes	-	✓	✓						
TP1-G4 2501092-02	1.80 - 1.90	20-Dec-2024	Assessment of APECs and/or preliminary delineation purposes	-	✓	✓						
BH4-25-SS3 2513497-01	1.52 - 2.13	27-Mar-2025	Assessment of APECs and/or preliminary delineation purposes	2.2	✓	✓		✓	✓	✓	✓	✓
BH4-25-SS5 2513497-02	3.05 - 3.66	27-Mar-2025	Assessment of APECs and/or preliminary delineation purposes	2.2	✓	✓			✓			
BH4-25-SS6 2513497-03	3.81 - 4.42	27-Mar-2025	Assessment of APECs and/or preliminary delineation purposes	2.8	✓	✓						
BH5-25-AU1 2513497-04	0.07 - 0.61	27-Mar-2025	Assessment of APECs and/or preliminary delineation purposes	2.1	✓	✓		✓	✓		✓	✓
BH5-25-SS2 2513497-05	0.76 - 1.37	27-Mar-2025	Assessment of APECs and/or preliminary delineation purposes	2.1	✓	✓		✓	✓		✓	✓
BH5-25-SS3 2513497-06	1.52 - 2.13	27-Mar-2025	Assessment of APECs and/or preliminary delineation purposes	2.2	✓	✓		✓	✓		✓	✓
BH5-25-SS4 2513497-07	2.28 - 2.89	27-Mar-2025	Assessment of APECs and/or preliminary delineation purposes	2.3	✓	✓			✓			
BH5-25-SS5 2513497-08	3.05 - 3.40	27-Mar-2025	Assessment of APECs and/or preliminary delineation purposes	2.3	✓	✓			✓			
BH6-25-AU1 2513497-09	0 - 0.61	27-Mar-2025	Assessment of APECs and/or preliminary delineation purposes	2.6	✓	✓		✓	✓		✓	✓
BH6-25-SS2/3 2513497-10	0.76 - 2.13	27-Mar-2025	Assessment of APECs and/or preliminary delineation purposes	2.4	✓	✓		✓	✓		✓	✓
BH6-25-SS5 2513497-11	3.05 - 3.66	27-Mar-2025	Assessment of APECs and/or preliminary delineation purposes	2.2	✓	✓			✓			
BH7-25-SS2 2513497-13	0.76 - 1.37	27-Mar-2025	Assessment of APECs and/or preliminary delineation purposes	2	✓	✓		✓	✓		✓	✓
BH7-25-SS3 2513497-14	1.52 - 2.13	27-Mar-2025	Assessment of APECs and/or preliminary delineation purposes	1.6	✓	✓		✓	✓		✓	✓
BH7-25-SS4 2513497-15	2.28 - 2.89	27-Mar-2025	Assessment of APECs and/or preliminary delineation purposes	1.6	✓	✓		✓	✓		✓	✓
BH7-25-SS5 2513497-16	3.05 - 3.66	27-Mar-2025	Assessment of APECs and/or preliminary delineation purposes	1.4	✓	✓		✓	✓		✓	✓
BH7-25-SS6/7 2513497-17	3.81 - 5.03	27-Mar-2025	Assessment of APECs and/or preliminary delineation purposes	6.5	✓	✓		✓	✓	✓	✓	✓
BH8-25-AU1 2513497-18	0 - 0.61	27-Mar-2025	Assessment of APECs and/or preliminary delineation purposes	1.8	✓	✓		✓	✓		✓	✓
BH8-25-SS2 2513497-19	0.76 - 1.37	27-Mar-2025	Assessment of APECs and/or preliminary delineation purposes	1.3	✓	✓		✓	✓		✓	✓
BH8-25-SS4 2513497-20	2.28 - 2.89	27-Mar-2025	Assessment of APECs and/or preliminary delineation purposes	1.8	✓	✓			✓			
BH8-25-SS6 2513497-22	3.81 - 4.40	27-Mar-2025	Assessment of APECs and/or preliminary delineation purposes	1.4	✓	✓			✓			
DUP1 2513497-23	0.76 - 1.37	27-Mar-2025	Duplicate sample for QA/QC purposes	1.8	✓	✓		✓	✓			

Table 4: Groundwater Testing Summary

Sample ID and Laboratory ID	Sample Depth (mbgs)	Sampling Date	Rationale	Parameter Groups Analyzed			
				PHCs	BTEX	VOCs	PAHs
BH6-GW1 2501097-01	1.52 - 4.57	3-Jan-2025	Assessment of APECs and/or preliminary delineation purposes	✓	✓		
BH8-GW1 2501097-03	1.52 - 4.57	3-Jan-2025	Assessment of APECs and/or preliminary delineation purposes	✓	✓	✓	
DUP1 2501097-05	1.52 - 4.57	3-Jan-2025	Duplicate sample for QA/QC purposes	✓	✓		
BH3-24-GW1 2501097-04	1.52 - 4.57	3-Jan-2025	Assessment of APECs and/or preliminary delineation purposes	✓	✓	✓	✓

Table 5: Groundwater Levels

Test Hole ID	Ground Surface Elevation (masl)	Water Level Depth (mbgs)	Water Level Elevation (masl)	Date of Measurement
BH3-24	74.01	1.70	72.31	3-Jan-2025
BH6	72.91	2.27	70.64	3-Jan-2025
BH8	74.23	1.10	73.13	3-Jan-2025

Table 6: Soil Analytical Test Results

Parameter	Units	MDL	Regulation	BH2-SS2 2452067-03	BH3-SS2 2452067-04	BH3-SS4 2452067-06	TP1-G2 2452067-07	TP1-G5 2452067-08	TP2-G3 2452067-09	BH2-24-SS4 2502314-06	BH3-SS5 2501092-01	TP1-G4 2501092-02	BH4-25-SS3 2513497-01	BH4-25-SS5 2513497-02	BH4-25-SS6 2513497-03	BH5-25-AU1 2513497-04	BH5-25-SS2 2513497-05	BH5-25-SS3 2513497-06	BH5-25-SS4 2513497-07	BH5-25-SS5 2513497-08	BH6-25-AU1 2513497-09	BH6-25-SS2/3 2513497-10	BH6-25-SS5 2513497-11	BH7-25-SS2 2513497-13	BH7-25-SS3 2513497-14	BH7-25-SS4 2513497-15	BH7-25-SS5 2513497-16	BH7-25-SS6/7 2513497-17	BH8-25-AU1 2513497-18
Sample Depth (m)			Reg 153/04 - Table 3 Residential, coarse	0.76 - 1.37	0.76 - 1.37	3.05 - 3.66	0.50 - 0.60	2.60 - 2.70	1.80 - 1.90	3.05 - 3.66	4.57 - 5.18	1.80 - 1.90	1.52 - 2.13	3.05 - 3.66	3.81 - 4.42	0.07 - 0.61	0.76 - 1.37	1.52 - 2.13	2.28 - 2.89	3.05 - 3.40	0 - 0.61	0.76 - 2.13	3.05 - 3.66	0.76 - 1.37	1.52 - 2.13	2.28 - 2.89	3.05 - 3.66	3.81 - 5.03	0 - 0.61
Sample Date				20-Dec-2024	20-Dec-2024	20-Dec-2024	20-Dec-2024	20-Dec-2024	20-Dec-2024	20-Dec-2024	20-Dec-2024	20-Dec-2024	27-Mar-2025	27-Mar-2025	27-Mar-2025	27-Mar-2025	27-Mar-2025	27-Mar-2025	27-Mar-2025	27-Mar-2025	27-Mar-2025	27-Mar-2025	27-Mar-2025	27-Mar-2025	27-Mar-2025	27-Mar-2025	27-Mar-2025	27-Mar-2025
Physical Characteristics																													
% Solids	% by Wt.	0.1		87.4	89.5	94.9	88.3	88.9	83.7	88.4	90.5	80.6	92.6	88	91.2	94.3	89.4	87.2	88.5	92.5	87	84.7	87.7	88.9	87.7	90.8	89.2	85.2	84.4
General Inorganics																													
SAR	N/A	0.01	5.0	0.14	0.34	1.24	0.08	0.21	1.37	-	-	-	2.47	-	-	0.15	0.16	2.45	-	-	0.4	0.59	-	0.66	1.12	0.84	0.22	2.9	0.15
Conductivity	uS/cm	5	700	624	3980	1130	1760	3780	3140	-	-	-	529	-	-	2550	245	257	-	-	267	1980	-	865	631	604	2500	417	219
pH	N/A	0.05	5-9 (surf); 5-11 (subsurf)	6.84	-	-	-	-	-	-	-	-	7.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.96	-
Metals																													
Antimony	ug/g dry	1.0	7.5	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	-	-	ND (1.0)	ND (1.0)	-	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)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Arsenic	ug/g dry	1.0	18	6.8	13.6	6.5	4.5	4	4.3	-	-	-	6.3	3.8	-	9.1	4.7	3.3	6.6	6.3	5.7	4.9	6.3	5.2	4.7	5.5	5.3	9.4	5.4
Barium	ug/g dry	1.0	390	78.3	110	114	77.8	81.1	97.1	-	-	-	72.9	54.5	-	30.2	95.2	55.7	117	105	94.2	129	129	69.7	58.4	64.9	71.3	227	73.9
Beryllium	ug/g dry	0.5	4.0	0.6	1.1	0.6	ND (0.5)	ND (0.5)	0.5	-	-	-	0.6	ND (0.5)	-	ND (0.5)	0.6	ND (0.5)	0.7	0.6	0.6	0.7	0.6	0.5	0.5	0.5	0.5	1.1	0.6
Boron	ug/g dry	5.0	120	8.5	37	7.9	14.5	18.8	10.7	-	-	-	9.7	5.8	-	10.4	9.5	ND (5.0)	9.8	9	11.1	19.2	10.6	9.2	8	8.7	8.1	15.4	7.1
Cadmium	ug/g dry	0.5	1.2	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 (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)
Chromium	ug/g dry	5.0	160	20.8	28.8	18	22.3	20.5	24.3	-	-	-	22.2	12.1	-	19.5	22.6	14.8	28	20.2	29.1	27	24.6	19.4	19	18.3	17.1	35.1	23.6
Cobalt	ug/g dry	1.0	22	11.1	7.4	11.4	7.2	5.3	9	-	-	-	10.4	6.1	-	10.1	12	6.1	12	10.3	10.7	9.1	11.3	9.4	8.3	10.1	10.5	20.1	9.3
Copper	ug/g dry	5.0	140	31.9	36.9	32.5	18.8	23.5	23.8	-	-	-	29.7	19.3	-	13.3	28	18.4	32.9	32.7	30.6	27	28.5	26.7	23.4	27.3	27.9	44.5	23.8
Lead	ug/g dry	1.0	120	14.4	14.9	10.2	15.2	44.6	24	-	-	-	9.5	5	-	23	8.5	5.1	11.9	11.1	16.9	19.1	12	11.6	10.9	12.2	10.4	22	14.5
Molybdenum	ug/g dry	1.0	6.9	1.8	5.1	2	1.9	2	1.4	-	-	-	1.9	1.3	-	5.7	1.3	ND (1.0)	1.4	1.6	1.7	1.8	1.6	1.3	1.6	1.6	1.5	1.9	1.2
Nickel	ug/g dry	5.0	100	25.1	18.7	27	17.1	13.3	21.9	-	-	-	25.5	12.8	-	19.9	25.8	12.8	27.3	23.8	23.1	20.2	27.1	20.4	19.2	22.1	23.9	45.3	22
Selenium	ug/g dry	1.0	2.4	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)	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)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Silver	ug/g dry	0.3	20	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 (0.3)	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 (0.3)	ND (0.3)	ND (0.3)	ND (0.3)	ND (0.3)
Thallium	ug/g dry	1.0	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)	-	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)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Uranium	ug/g dry	1.0	23	ND (1.0)	1.2	1.3	ND (1.0)	ND (1.0)	ND (1.0)	-	-	-	1.4	ND (1.0)	-	ND (1.0)	ND (1.0)	ND (1.0)	1.3	1.1	ND (1.0)	ND (1.0)	1.1	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	1	ND (1.0)
Vanadium	ug/g dry	10.0	86	30.1	28.4	25.4	24.1	20.5	31.8	-	-	-	35.4	20.3	-	21.1	36.9	25.5	39.9	30.3	37.9	31.7	34.6	29.6	28	28.3	26.7	40.9	34.8
Zinc	ug/g dry	20.0	340	55.6	126	54.1	53.3	52.1	52.1	-	-	-	44	25.2	-	ND (20.0)	45.7	27.3	54.2	50.9	56	56.7	48.5	47.3	45.6	43.7	45.8	72.8	50
Volatiles																													
Acetone	ug/g dry	0.50	16	-	-	-	-	-	ND (0.50)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzene	ug/g dry	0.02	0.21	-	-	-	-	-	ND (0.02)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bromodichloromethane	ug/g dry	0.05	13	-	-	-	-	-	ND (0.05)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bromoform	ug/g dry	0.05	0.27	-	-	-	-	-	ND (0.05)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bromomethane	ug/g dry	0.05	0.05	-	-	-	-	-	ND (0.05)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon Tetrachloride	ug/g dry	0.05	0.05	-	-	-	-	-	ND (0.05)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorobenzene	ug/g dry	0.05	2.4	-	-	-	-	-	ND (0.05)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloroform	ug/g dry	0.05	0.05	-	-	-	-	-	ND (0.05)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibromochloromethane	ug/g dry	0.05	9.4	-	-	-	-	-	ND (0.05)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dichlorodifluoromethane	ug/g dry	0.05	16	-	-	-	-	-	ND (0.05)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	ug/g dry	0.05	3.4	-	-	-	-	-	ND (0.05)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	ug/g dry	0.05	4.8	-	-	-	-	-	ND (0.05)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	ug/g dry	0.05	0.083	-	-	-	-	-	ND (0.05)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethane	ug/g dry	0.05	3.5	-	-	-	-	-	ND (0.05)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichloroethane	ug/g dry	0.05	0.05	-	-	-	-	-	ND (0.05)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethylene	ug/g dry	0.05	0.05	-	-	-	-	-	ND (0.05)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
cis-1,2-Dichloroethylene	ug/g dry	0.05	3.4	-	-	-	-	-	ND (0.05)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
trans-1,2-Dichloroethylene	ug/g dry	0.05	0.084	-	-	-	-	-	ND (0.05)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichloropropane	ug/g dry	0.05	0.05	-	-	-	-	-	ND (0.05)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropylene	ug/g dry	0.05	0.05	-	-	-	-	-	ND (0.05)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
trans-1,3-Dichloropropylene	ug/g dry	0.05	0.05	-	-	-	-	-	ND (0.05)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,3-Dichloropropene, total	ug/g dry	0.05	0.05	-	-	-	-	-	ND (0.05)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	ug/g dry	0.05	2.0	-	-	-	-	-	ND (0.05)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylene dibromide (dibromoethane, 1,	ug/g dry	0.05	0.05	-	-	-	-	-	ND (0.05)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hexane	ug/g dry	0.05	2.8	-	-	-	-	-	ND (0.05)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl Ethyl Ketone (2-Butanone)	ug/g dry	0.50	16	-	-	-	-	-	ND (0.50)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl Isobutyl Ketone	ug/g dry	0.50	1.7	-	-	-	-	-	ND (0.50)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl tert-butyl ether	ug/g dry	0.05	0.75	-	-	-	-	-	ND (0.05)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methylene Chloride	ug/g dry	0.05	0.1	-	-	-	-	-	ND (0.05)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Styrene	ug/g dry	0.05	0.7	-	-	-	-	-	ND (0.05)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,1,1,2-Tetrachloroethane	ug/g dry	0.05	0.058	-	-	-	-	-	ND (0.05)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	ug/g dry	0.05	0.05	-	-	-	-	-	ND (0.05)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tetrachloroethylene	ug/g dry	0.05	0.28	-	-	-	-	-	ND (0.05)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	ug/g dry	0.05	2.3	-	-	-	-	-	ND (0.05)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,1,1-Trichloroethane	ug/g dry	0.05	0.38	-	-	-	-	-	ND (0.05)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	ug/g dry	0.05	0.05	-	-	-	-	-	ND (0.05)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trichloroethylene	ug/g dry	0.05	0.061	-	-	-	-	-	ND (0.05)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trichlorofluoromethane	ug/g dry	0.05	4.0	-	-	-	-	-	ND (0.05)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vinyl Chloride	ug/g dry	0.02	0.02	-	-	-	-	-	ND (0.02)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
m/p-Xylene	ug/g dry	0.05	3.1	-	-	-	-	-	ND (0.05)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
o-Xylene	ug/g dry	0.05	3.1	-	-	-	-	-	ND (0.05)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Xylenes, total	ug/g dry	0.05	3.1	-	-	-	-	-	ND (0.05)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BTEX																													
Benzene	ug/g dry	0.02	0.21	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)
Ethylbenzene	ug/g dry	0.05	2.0	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)
Toluene	ug/g dry	0.05	2.3	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)
m/p-Xylene	ug/g dry	0.05	3.1	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)	0.13	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	0.07	ND (0.05)	ND (0.05)	ND (0.05)	0.06	ND (0.05)	0.57	ND (0.05)
o-Xylene	ug/g dry	0.05	3.1	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)	0.16	ND (0.05)
Xylenes, total	ug/g dry	0.05	3.1	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)	0.13	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	0.07	ND (0.05)	ND (0.05)	ND (0.05)	0.06	ND (0.05)	0.73	ND (0.05)
Hydrocarbons																													
F1 PHCs (C6-C10)	ug/g dry	7	55	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	ND (7)	27	ND (7)
F2 PHCs (C10-C16)	ug/g dry	4	98	ND (4)	ND (4)	18	ND (4)	ND (4)	ND (4)	ND (4)	44	ND (4)	15	ND (4)	16	10	ND (4)	ND (4)	12	20	12	11	10	5	ND (4)	5	4	12	ND (4)
F3 PHCs (C16-C34)	ug/g dry	8	300	20	65	23	112	82	35	ND (8)	33	141	15	ND (8)	15	4320	ND (8)	ND (8)	12	23	62	129	10	21	19	11	8	10	14	ND (8)
F4 PHCs (C34-C50)	ug/g dry	6	2800	19	61	ND (6)	156	116	24	ND (6)	ND (6)	181	ND (6)	ND (6)	ND (6)	1750	14	ND (6)	ND (6)	15	107	124	ND (6)	33	31	8	8	14	ND (6)
F4G PHCs (gravimetric)	ug/g dry	50	2800	-	-	-	227	101	-	-	-	620	-	-	-	2170	-	-	-	-	356	1260	-	-	-	-	-	-	-
Semi-Volatiles																													
Acenaphthene	ug/g dry	0.02	7.9	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	-	-	-	-	-	ND (0.02)	-	-	ND (0.40)	ND (0.02)	ND (0.02)	-	-	ND (0.02)	0.46	-	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)
Acenaphthylene	ug/g dry	0.02	0.15	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	-	-	-	-	-	ND (0.02)	-	-	ND (0.40)	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)
Anthracene	ug/g dry	0.02	0.67	ND (0.02)	ND (0.02)	ND (0.02)	0.11	-	-	-	-	-	ND (0.02)	-	-	ND (0.40)	ND (0.02)	ND (0.02)	-	-	0.02	2.79	-	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	0.03	ND (0.02)
Benzo[a]anthracene	ug/g dry	0.02	0.5	ND (0.02)	ND (0.02)	ND (0.02)	0.24	-	-	-	-	-	ND (0.02)	-	-	ND (0.40)	ND (0.02)	ND (0.02)	-	-	0.12	11.8	-	0.04	0.03	0.05	0.11	0.06	ND (0.02)
Benzo[a]pyrene	ug/g dry	0.02	0.3	ND (0.02)	ND (0.02)	ND (0.02)	0.18	-	-	-	-	-	ND (0.02)	-	-	ND (0.40)	ND (0.02)	ND (0.02)	-	-	0.13	10.8	-	0.03	0.03	0.04	0.1	0.05	ND (0.02)
Benzo[b]fluoranthene	ug/g dry	0.02	0.78	ND (0.02)	ND (0.02)	ND (0.02)	0.19	-	-	-	-	-	ND (0.02)	-	-	ND (0.40)	ND (0.02)	ND (0.02)	-	-	0.17	13.2	-	0.04	0.04	0.05	0.12	0.06	0.02
Benzo[g,h,i]perylene	ug/g dry	0.02	6.6	ND (0.02)	ND (0.02)	ND (0.02)	0.11	-	-	-	-	-	ND (0.02)	-	-	ND (0.40)	ND (0.02)	ND (0.02)	-	-	0.09	3.39	-	ND (0.02)	ND (0.02)	ND (0.02)	0.05	0.02	ND (0.02)
Benzo[k]fluoranthene	ug/g dry	0.02	0.78	ND (0.02)	ND (0.02)	ND (0.02)	0.12	-	-	-	-	-	ND (0.02)	-	-	ND (0.40)	ND (0.02)	ND (0.02)	-	-	0.05	2.47	-	ND (0.02)	ND (0.02)	ND (0.02)	0.04	0.02	ND (0.02)
Chrysene	ug/g dry	0.02	7.0	ND (0.02)	ND (0.02)	ND (0.02)	0.22	-	-	-	-	-	ND (0.02)	-	-	ND (0.40)	ND (0.02)	ND (0.02)	-	-	0.13	10.8	-	0.05	0.04	0.05	0.11	0.06	ND (0.02)
Dibenzo[a,h]anthracene	ug/g dry	0.02	0.1	ND (0.02)	ND (0.02)	ND (0.02)	0.03	-	-	-	-	-	ND (0.02)	-	-	ND (0.40)	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)
Fluoranthene	ug/g dry	0.02	0.69	0.03	ND (0.02)	ND (0.02)	0.69	-	-	-	-	-	ND (0.02)	-	-	ND (0.40)	ND (0.02)	ND (0.02)	-	-	0.28	26.8	-	0.09	0.07	0.1	0.24	0.12	0.04
Fluorene	ug/g dry	0.02	62	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	-	-	-	-	-	ND (0.02)	-	-	ND (0.40)	ND (0.02)	ND (0.02)	-	-	ND (0.02)	0.53	-	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	ND (0.02)	ND (0.02)	ND (0.02)	0.1	-	-	-	-	-	ND (0.02)	-	-	ND (0.40)	ND (0.02)	ND (0.02)	-	-	0.08	6.9	-	ND (0.02)	ND (0.02)	0.02	0.06	0.03	ND (0.02)
1-Methylnaphthalene	ug/g dry	0.02	0.99	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	-	-	-	-	-	ND (0.02)	-	-	ND (0.40)	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)
2-Methylnaphthalene	ug/g dry	0.02	0.99	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	-	-	-	-	-	ND (0.02)	-	-	ND (0.40)	ND (0.02)	ND (0.02)	-	-	ND (0.02)	0.05	-	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)
Methylnaphthalene (1&2)	ug/g dry	0.04	0.99	ND (0.04)	ND (0.04)	ND (0.04)	ND (0.04)	-	-	-	-	-	ND (0.04)	-	-	ND (0.80)	ND (0.04)	ND (0.04)	-	-	ND (0.04)	0.07	-	ND (0.04)	ND (0.04)	ND (0.04)	ND (0.04)	ND (0.04)	ND (0.04)
Naphthalene	ug/g dry	0.01	0.6	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	-	-	-	-	-	ND (0.01)	-	-	ND (0.20)	ND (0.01)	ND (0.01)	-	-	ND (0.01)	0.09	-	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)
Phenanthrene	ug/g dry	0.02	6.2	ND (0.02)	ND (0.02)	ND (0.02)	0.41	-	-	-	-	-	ND (0.02)	-	-	ND (0.40)	ND (0.02)	ND (0.02)	-	-	0.11	9.48	-	0.06	0.05	0.05	0.08	0.07	0.03
Pyrene	ug/g dry	0.02	78	0.03	ND (0.02)	ND (0.02)	0.54	-	-	-	-	-	ND (0.02)	-	-	ND (0.40)	ND (0.02)	ND (0.02)	-	-	0.18	15.9	-	0.06	0.05	0.06	0.17	0.08	0.03

2.00 Result exceeds Reg 153/04 - Table 3 Residential, coarse Standards
ND (0.2) MDL exceeds Reg 153/04 - Table 3 Residential, coarse Standards
ND (0.2) No concentrations identified above the MDL
N/A Parameter not analysed
NV No value given for indicated parameter

Table 6: Soil Analytical Test Results

Parameter	Units	MDL	Regulation	BH8-25-SS2 2513497-19	BH8-25-SS4 2513497-20	BH8-25-SS6 2513497-22	DUP1 2513497-23
Sample Depth (m)			Reg 153/04 - Table 3 Residential, coarse	0.76 - 1.37	2.28 - 2.89	3.81 - 4.40	0.76 - 1.37
Sample Date				27-Mar-2025	27-Mar-2025	27-Mar-2025	27-Mar-2025
Physical Characteristics							
% Solids	% by Wt.	0.1		90.9	83.6	92.5	89.9
General Inorganics							
SAR	N/A	0.01	5.0	0.26	-	-	-
Conductivity	uS/cm	5	700	2620	-	-	-
pH	N/A	0.05	5-9 (surf); 5-11 (subsurf)	-	-	-	-
Metals							
Antimony	ug/g dry	1.0	7.5	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Arsenic	ug/g dry	1.0	18	6.1	5	6.5	4
Barium	ug/g dry	1.0	390	86.4	105	101	86.2
Beryllium	ug/g dry	0.5	4.0	0.6	0.6	0.6	ND (0.5)
Boron	ug/g dry	5.0	120	7.9	8	9.1	7.8
Cadmium	ug/g dry	0.5	1.2	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Chromium	ug/g dry	5.0	160	20.2	26.2	21.2	19.7
Cobalt	ug/g dry	1.0	22	11.1	11.5	10.7	10.5
Copper	ug/g dry	5.0	140	29.6	26.6	28.3	21.6
Lead	ug/g dry	1.0	120	10.4	9.5	11.9	7.1
Molybdenum	ug/g dry	1.0	6.9	1.8	1.3	1.6	ND (1.0)
Nickel	ug/g dry	5.0	100	25.8	28.5	25.9	21.2
Selenium	ug/g dry	1.0	2.4	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Silver	ug/g dry	0.3	20	ND (0.3)	ND (0.3)	ND (0.3)	ND (0.3)
Thallium	ug/g dry	1.0	1.0	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Uranium	ug/g dry	1.0	23	1	ND (1.0)	1.2	ND (1.0)
Vanadium	ug/g dry	10.0	86	31	36.6	30.6	32.6
Zinc	ug/g dry	20.0	340	48	49.7	44.8	40.2
Volatiles							
Acetone	ug/g dry	0.50	16	-	-	-	-
Benzene	ug/g dry	0.02	0.21	-	-	-	-
Bromodichloromethane	ug/g dry	0.05	13	-	-	-	-
Bromoform	ug/g dry	0.05	0.27	-	-	-	-
Bromomethane	ug/g dry	0.05	0.05	-	-	-	-
Carbon Tetrachloride	ug/g dry	0.05	0.05	-	-	-	-
Chlorobenzene	ug/g dry	0.05	2.4	-	-	-	-
Chloroform	ug/g dry	0.05	0.05	-	-	-	-
Dibromochloromethane	ug/g dry	0.05	9.4	-	-	-	-
Dichlorodifluoromethane	ug/g dry	0.05	16	-	-	-	-
1,2-Dichlorobenzene	ug/g dry	0.05	3.4	-	-	-	-
1,3-Dichlorobenzene	ug/g dry	0.05	4.8	-	-	-	-
1,4-Dichlorobenzene	ug/g dry	0.05	0.083	-	-	-	-
1,1-Dichloroethane	ug/g dry	0.05	3.5	-	-	-	-
1,2-Dichloroethane	ug/g dry	0.05	0.05	-	-	-	-
1,1-Dichloroethylene	ug/g dry	0.05	0.05	-	-	-	-
cis-1,2-Dichloroethylene	ug/g dry	0.05	3.4	-	-	-	-
trans-1,2-Dichloroethylene	ug/g dry	0.05	0.084	-	-	-	-
1,2-Dichloropropane	ug/g dry	0.05	0.05	-	-	-	-
cis-1,3-Dichloropropylene	ug/g dry	0.05	0.05	-	-	-	-
trans-1,3-Dichloropropylene	ug/g dry	0.05	0.05	-	-	-	-
1,3-Dichloropropene, total	ug/g dry	0.05	0.05	-	-	-	-
Ethylbenzene	ug/g dry	0.05	2.0	-	-	-	-
Ethylene dibromide (dibromoethane, 1,	ug/g dry	0.05	0.05	-	-	-	-
Hexane	ug/g dry	0.05	2.8	-	-	-	-
Methyl Ethyl Ketone (2-Butanone)	ug/g dry	0.50	16	-	-	-	-
Methyl Isobutyl Ketone	ug/g dry	0.50	1.7	-	-	-	-
Methyl tert-butyl ether	ug/g dry	0.05	0.75	-	-	-	-
Methylene Chloride	ug/g dry	0.05	0.1	-	-	-	-
Styrene	ug/g dry	0.05	0.7	-	-	-	-
1,1,1,2-Tetrachloroethane	ug/g dry	0.05	0.058	-	-	-	-
1,1,2,2-Tetrachloroethane	ug/g dry	0.05	0.05	-	-	-	-
Tetrachloroethylene	ug/g dry	0.05	0.28	-	-	-	-
Toluene	ug/g dry	0.05	2.3	-	-	-	-
1,1,1-Trichloroethane	ug/g dry	0.05	0.38	-	-	-	-
1,1,2-Trichloroethane	ug/g dry	0.05	0.05	-	-	-	-
Trichloroethylene	ug/g dry	0.05	0.061	-	-	-	-
Trichlorofluoromethane	ug/g dry	0.05	4.0	-	-	-	-
Vinyl Chloride	ug/g dry	0.02	0.02	-	-	-	-
m/p-Xylene	ug/g dry	0.05	3.1	-	-	-	-
o-Xylene	ug/g dry	0.05	3.1	-	-	-	-
Xylenes, total	ug/g dry	0.05	3.1	-	-	-	-
BTEX							
Benzene	ug/g dry	0.02	0.21	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)
Ethylbenzene	ug/g dry	0.05	2.0	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Toluene	ug/g dry	0.05	2.3	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
m/p-Xylene	ug/g dry	0.05	3.1	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
o-Xylene	ug/g dry	0.05	3.1	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Xylenes, total	ug/g dry	0.05	3.1	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Hydrocarbons							
F1 PHCs (C6-C10)	ug/g dry	7	55	ND (7)	ND (7)	ND (7)	ND (7)
F2 PHCs (C10-C16)	ug/g dry	4	98	ND (4)	ND (4)	22	ND (4)
F3 PHCs (C16-C34)	ug/g dry	8	300	ND (8)	ND (8)	21	13
F4 PHCs (C34-C50)	ug/g dry	6	2800	ND (6)	ND (6)	ND (6)	35
F4G PHCs (gravimetric)	ug/g dry	50	2800	-	-	-	-
Semi-Volatiles							
Acenaphthene	ug/g dry	0.02	7.9	ND (0.02)	-	-	ND (0.02)
Acenaphthylene	ug/g dry	0.02	0.15	ND (0.02)	-	-	ND (0.02)
Anthracene	ug/g dry	0.02	0.67	ND (0.02)	-	-	ND (0.02)
Benzo[a]anthracene	ug/g dry	0.02	0.5	ND (0.02)	-	-	ND (0.02)
Benzo[a]pyrene	ug/g dry	0.02	0.3	ND (0.02)	-	-	ND (0.02)
Benzo[b]fluoranthene	ug/g dry	0.02	0.78	ND (0.02)	-	-	ND (0.02)
Benzo[g,h,i]perylene	ug/g dry	0.02	6.6	ND (0.02)	-	-	ND (0.02)
Benzo[k]fluoranthene	ug/g dry	0.02	0.78	ND (0.02)	-	-	ND (0.02)
Chrysene	ug/g dry	0.02	7.0	ND (0.02)	-	-	ND (0.02)
Dibenzo[a,h]anthracene	ug/g dry	0.02	0.1	ND (0.02)	-	-	ND (0.02)
Fluoranthene	ug/g dry	0.02	0.69	ND (0.02)	-	-	ND (0.02)
Fluorene	ug/g dry	0.02	62	ND (0.02)	-	-	ND (0.02)
Indeno [1,2,3-cd] pyrene	ug/g dry	0.02	0.38	ND (0.02)	-	-	ND (0.02)
1-Methylnaphthalene	ug/g dry	0.02	0.99	ND (0.02)	-	-	ND (0.02)
2-Methylnaphthalene	ug/g dry	0.02	0.99	ND (0.02)	-	-	ND (0.02)
Methylnaphthalene (1&2)	ug/g dry	0.04	0.99	ND (0.04)	-	-	ND (0.04)
Naphthalene	ug/g dry	0.01	0.6	ND (0.01)	-	-	0.04
Phenanthrene	ug/g dry	0.02	6.2	ND (0.02)	-	-	ND (0.02)
Pyrene	ug/g dry	0.02	78	ND (0.02)	-	-	ND (0.02)

2.00	Result exceeds Reg 153/04 - Table 3 Residential, coarse Standards
ND (0.2)	MDL exceeds Reg 153/04 - Table 3 Residential, coarse Standards
ND (0.2)	No concentrations identified above the MDL
N/A	Parameter not analysed
NV	No value given for indicated parameter

Parameter	Sample ID / Depth (m)	Units	Reg 153/04 - Table 3 Residential, coarse Standards	Concentration
SAR	BH7-25-SS6/7 2513497-17 - 3.81 - 5.03	N/A	5.0	2.9
Conductivity	BH3-SS2 2452067-04 - 0.76 - 1.37	uS/cm	700	3980
pH	BH7-25-SS6/7 2513497-17 - 3.81 - 5.03	N/A	5-9 (surf); 5-11 (subsurf)	7.96
Arsenic	BH3-SS2 2452067-04 - 0.76 - 1.37	ug/g dry	18	13.6
Barium	BH7-25-SS6/7 2513497-17 - 3.81 - 5.03	ug/g dry	390	227
Beryllium	BH3-SS2 2452067-04 - 0.76 - 1.37	ug/g dry	4.0	1.1
Boron	BH3-SS2 2452067-04 - 0.76 - 1.37	ug/g dry	120	37
Chromium	BH7-25-SS6/7 2513497-17 - 3.81 - 5.03	ug/g dry	160	35.1
Cobalt	BH7-25-SS6/7 2513497-17 - 3.81 - 5.03	ug/g dry	22	20.1
Copper	BH7-25-SS6/7 2513497-17 - 3.81 - 5.03	ug/g dry	140	44.5
Lead	TP1-G5 2452067-08 - 2.60 - 2.70	ug/g dry	120	44.6
Molybdenum	BH5-25-AU1 2513497-04 - 0.07 - 0.61	ug/g dry	6.9	5.7
Nickel	BH7-25-SS6/7 2513497-17 - 3.81 - 5.03	ug/g dry	100	45.3
Uranium	BH4-25-SS3 2513497-01 - 1.52 - 2.13	ug/g dry	23	1.4
Vanadium	BH7-25-SS6/7 2513497-17 - 3.81 - 5.03	ug/g dry	86	40.9
Zinc	BH3-SS2 2452067-04 - 0.76 - 1.37	ug/g dry	340	126
m/p-Xylene	BH7-25-SS6/7 2513497-17 - 3.81 - 5.03	ug/g dry	3.1	0.57
o-Xylene	BH7-25-SS6/7 2513497-17 - 3.81 - 5.03	ug/g dry	3.1	0.16
Xylenes, total	BH7-25-SS6/7 2513497-17 - 3.81 - 5.03	ug/g dry	3.1	0.73
F1 PHCs (C6-C10)	BH7-25-SS6/7 2513497-17 - 3.81 - 5.03	ug/g dry	55	27
F2 PHCs (C10-C16)	BH3-SS5 2501092-01 - 4.57 - 5.18	ug/g dry	98	44
F3 PHCs (C16-C34)	BH5-25-AU1 2513497-04 - 0.07 - 0.61	ug/g dry	300	4320
F4G PHCs (gravimetric)	BH5-25-AU1 2513497-04 - 0.07 - 0.61	ug/g dry	2800	2170
Acenaphthene	BH6-25-SS2/3 2513497-10 - 0.76 - 2.13	ug/g dry	7.9	0.46
Anthracene	BH6-25-SS2/3 2513497-10 - 0.76 - 2.13	ug/g dry	0.67	2.79
Benzo[a]anthracene	BH6-25-SS2/3 2513497-10 - 0.76 - 2.13	ug/g dry	0.5	11.8
Benzo[a]pyrene	BH6-25-SS2/3 2513497-10 - 0.76 - 2.13	ug/g dry	0.3	10.8
Benzo[b]fluoranthene	BH6-25-SS2/3 2513497-10 - 0.76 - 2.13	ug/g dry	0.78	13.2
Benzo[g,h,i]perylene	BH6-25-SS2/3 2513497-10 - 0.76 - 2.13	ug/g dry	6.6	3.39
Benzo[k]fluoranthene	BH6-25-SS2/3 2513497-10 - 0.76 - 2.13	ug/g dry	0.78	2.47
Chrysene	BH6-25-SS2/3 2513497-10 - 0.76 - 2.13	ug/g dry	7.0	10.8
Fluoranthene	BH6-25-SS2/3 2513497-10 - 0.76 - 2.13	ug/g dry	0.69	26.8
Fluorene	BH6-25-SS2/3 2513497-10 - 0.76 - 2.13	ug/g dry	62	0.53
Indeno [1,2,3-cd] pyrene	BH6-25-SS2/3 2513497-10 - 0.76 - 2.13	ug/g dry	0.38	6.9
Phenanthrene	BH6-25-SS2/3 2513497-10 - 0.76 - 2.13	ug/g dry	6.2	9.48
Pyrene	BH6-25-SS2/3 2513497-10 - 0.76 - 2.13	ug/g dry	78	15.9
All remaining parameters analysed were reported non-detect in all samples.				

Table 7: Groundwater Analytical Test Results

Parameter	Units	MDL	Regulation	BH6-GW1 2501097-01	BH8-GW1 2501097-03	DUP1 2501097-05	BH3-24-GW1 2501097-04
Sample Depth (m)			Reg 153/04 - Table 3 Non-Potable Groundwater, coarse	1.52 - 4.57	1.52 - 4.57	1.52 - 4.57	1.52 - 4.57
Sample Date				3-Jan-2025	3-Jan-2025	3-Jan-2025	3-Jan-2025
Volatiles							
Acetone	ug/L	5.0	130000	-	ND (5.0)	-	ND (5.0)
Benzene	ug/L	0.5	44	-	ND (0.5)	-	ND (0.5)
Bromodichloromethane	ug/L	0.5	85000	-	ND (0.5)	-	ND (0.5)
Bromoform	ug/L	0.5	380	-	ND (0.5)	-	ND (0.5)
Bromomethane	ug/L	0.5	5.6	-	ND (0.5)	-	ND (0.5)
Carbon Tetrachloride	ug/L	0.2	0.79	-	ND (0.2)	-	ND (0.2)
Chlorobenzene	ug/L	0.5	630	-	ND (0.5)	-	ND (0.5)
Chloroform	ug/L	0.5	2.4	-	ND (0.5)	-	ND (0.5)
Dibromochloromethane	ug/L	0.5	82000	-	ND (0.5)	-	ND (0.5)
Dichlorodifluoromethane	ug/L	1.0	4400	-	ND (1.0)	-	ND (1.0)
1,2-Dichlorobenzene	ug/L	0.5	4600	-	ND (0.5)	-	ND (0.5)
1,3-Dichlorobenzene	ug/L	0.5	9600	-	ND (0.5)	-	ND (0.5)
1,4-Dichlorobenzene	ug/L	0.5	8.0	-	ND (0.5)	-	ND (0.5)
1,1-Dichloroethane	ug/L	0.5	320	-	ND (0.5)	-	ND (0.5)
1,2-Dichloroethane	ug/L	0.5	1.6	-	ND (0.5)	-	ND (0.5)
1,1-Dichloroethylene	ug/L	0.5	1.6	-	ND (0.5)	-	ND (0.5)
cis-1,2-Dichloroethylene	ug/L	0.5	1.6	-	ND (0.5)	-	ND (0.5)
trans-1,2-Dichloroethylene	ug/L	0.5	1.6	-	ND (0.5)	-	ND (0.5)
1,2-Dichloropropane	ug/L	0.5	16	-	ND (0.5)	-	ND (0.5)
cis-1,3-Dichloropropylene	ug/L	0.5	5.2	-	ND (0.5)	-	ND (0.5)
trans-1,3-Dichloropropylene	ug/L	0.5	5.2	-	ND (0.5)	-	ND (0.5)
1,3-Dichloropropene, total	ug/L	0.5	5.2	-	ND (0.5)	-	ND (0.5)
Ethylbenzene	ug/L	0.5	2300	-	ND (0.5)	-	ND (0.5)
Ethylene dibromide (dibromoethane, 1	ug/L	0.2	0.25	-	ND (0.2)	-	ND (0.2)
Hexane	ug/L	1.0	51	-	ND (1.0)	-	ND (1.0)
Methyl Ethyl Ketone (2-Butanone)	ug/L	5.0	470000	-	ND (5.0)	-	ND (5.0)
Methyl Isobutyl Ketone	ug/L	5.0	140000	-	ND (5.0)	-	ND (5.0)
Methyl tert-butyl ether	ug/L	2.0	190	-	ND (2.0)	-	ND (2.0)
Methylene Chloride	ug/L	5.0	610	-	ND (5.0)	-	ND (5.0)
Styrene	ug/L	0.5	1300	-	ND (0.5)	-	ND (0.5)
1,1,1,2-Tetrachloroethane	ug/L	0.5	3.3	-	ND (0.5)	-	ND (0.5)
1,1,2,2-Tetrachloroethane	ug/L	0.5	3.2	-	ND (0.5)	-	ND (0.5)
Tetrachloroethylene	ug/L	0.5	1.6	-	ND (0.5)	-	ND (0.5)
Toluene	ug/L	0.5	18000	-	ND (0.5)	-	ND (0.5)
1,1,1-Trichloroethane	ug/L	0.5	640	-	ND (0.5)	-	ND (0.5)
1,1,2-Trichloroethane	ug/L	0.5	4.7	-	ND (0.5)	-	ND (0.5)
Trichloroethylene	ug/L	0.5	1.6	-	ND (0.5)	-	ND (0.5)
Trichlorofluoromethane	ug/L	1.0	2500	-	ND (1.0)	-	ND (1.0)
Vinyl Chloride	ug/L	0.5	0.5	-	ND (0.5)	-	ND (0.5)
m/p-Xylene	ug/L	0.5	4200	-	ND (0.5)	-	ND (0.5)
o-Xylene	ug/L	0.5	4200	-	ND (0.5)	-	ND (0.5)
Xylenes, total	ug/L	0.5	4200	-	ND (0.5)	-	ND (0.5)
BTEX							
Benzene	ug/L	0.5	44	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Ethylbenzene	ug/L	0.5	2300	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Toluene	ug/L	0.5	18000	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
m/p-Xylene	ug/L	0.5	4200	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
o-Xylene	ug/L	0.5	4200	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Xylenes, total	ug/L	0.5	4200	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Hydrocarbons							
F1 PHCs (C6-C10)	ug/L	25	750	ND (25)	ND (25)	ND (25)	ND (25)
F2 PHCs (C10-C16)	ug/L	100	150	ND (100)	ND (100)	ND (100)	ND (100)
F3 PHCs (C16-C34)	ug/L	100	500	ND (100)	ND (100)	ND (100)	ND (100)
F4 PHCs (C34-C50)	ug/L	100	500	ND (100)	ND (100)	ND (100)	ND (100)
Semi-Volatiles							
Acenaphthene	ug/L	0.05	600	-	-	-	ND (0.05)
Acenaphthylene	ug/L	0.05	1.8	-	-	-	ND (0.05)
Anthracene	ug/L	0.01	2.4	-	-	-	ND (0.01)
Benzo[a]anthracene	ug/L	0.01	4.7	-	-	-	ND (0.01)
Benzo[a]pyrene	ug/L	0.01	0.81	-	-	-	ND (0.01)
Benzo[b]fluoranthene	ug/L	0.05	0.75	-	-	-	ND (0.05)
Benzo[g,h,i]perylene	ug/L	0.05	0.2	-	-	-	ND (0.05)
Benzo[k]fluoranthene	ug/L	0.05	0.4	-	-	-	ND (0.05)
Chrysene	ug/L	0.05	1.0	-	-	-	ND (0.05)
Dibenzo[a,h]anthracene	ug/L	0.05	0.52	-	-	-	ND (0.05)
Fluoranthene	ug/L	0.01	130	-	-	-	ND (0.01)
Fluorene	ug/L	0.05	400	-	-	-	ND (0.05)
Indeno [1,2,3-cd] pyrene	ug/L	0.05	0.2	-	-	-	ND (0.05)
1-Methylnaphthalene	ug/L	0.05	1800	-	-	-	ND (0.05)
2-Methylnaphthalene	ug/L	0.05	1800	-	-	-	ND (0.05)
Methylnaphthalene (1&2)	ug/L	0.10	1800	-	-	-	ND (0.10)
Naphthalene	ug/L	0.05	1400	-	-	-	ND (0.05)
Phenanthrene	ug/L	0.05	580	-	-	-	ND (0.05)
Pyrene	ug/L	0.01	68	-	-	-	ND (0.01)

2.00	Result exceeds Reg 153/04 - Table 3 Non-Potable Groundwater, coarse Standards
ND (0.2)	MDL exceeds Reg 153/04 - Table 3 Non-Potable Groundwater, coarse Standards
ND (0.2)	No concentrations identified above the MDL
N/A	Parameter not analysed
NV	No value given for indicated parameter

Parameter	MDL	BH5-25-SS2 2513497-05	DUP1 2513497-23	RPD (%)	QA/QC Result
Arsenic	1.0	4.7	4	16.1%	Within the acceptable range
Barium	1.0	95.2	86.2	9.9%	Within the acceptable range
Beryllium	0.5	0.6	ND (0.5)	18.2%	Within the acceptable range
Boron	5.0	9.5	7.8	19.7%	Within the acceptable range
Chromium	5.0	22.6	19.7	13.7%	Within the acceptable range
Cobalt	1.0	12	10.5	13.3%	Within the acceptable range
Copper	5.0	28	21.6	25.8%	Outside the acceptable range
Lead	1.0	8.5	7.1	17.9%	Within the acceptable range
Molybdenum	1.0	1.3	ND (1.0)	26.1%	Outside the acceptable range
Nickel	5.0	25.8	21.2	19.6%	Within the acceptable range
Vanadium	10.0	36.9	32.6	12.4%	Within the acceptable range
Zinc	20.0	45.7	40.2	12.8%	Within the acceptable range
F3 PHCs (C16-C34)	8	ND (8)	13	47.6%	Outside the acceptable range
F4 PHCs (C34-C50)	6	14	35	85.7%	Outside the acceptable range
Naphthalene	0.01	ND (0.01)	0.04	120.0%	Outside the acceptable range

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Certificate of Analysis

Paterson Group Consulting Engineers (Ottawa)
9 Auriga Drive
Ottawa, ON K2E 7T9
Attn: Karyn Munch

Report Date: 7-Jan-2025
Order Date: 23-Dec-2024

Client PO: 62089
Project: PE6830
Custody: 76059

Revised Report

Order #: 2452067

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

Paracel ID	Client ID
2452067-01	BH1-SS2
2452067-03	BH2-SS2
2452067-04	BH3-SS2
2452067-06	BH3-SS4
2452067-07	TP1-G2
2452067-08	TP1-G5
2452067-09	TP2-G3
2452067-10	TP3-G1
2452067-11	TP3-G4
2452067-12	TP4-G2
2452067-14	DUP.1

Approved By:

Mark Foto, M.Sc.
Laboratory Director

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
BTEX by P&T GC-MS	EPA 8260 - P&T GC-MS	24-Dec-24	25-Dec-24
Conductivity	MOE E3138 - probe @25 °C, water ext	30-Dec-24	31-Dec-24
pH, soil	EPA 150.1 - pH probe @ 25 °C, CaCl buffered ext.	2-Jan-25	2-Jan-25
PHC F1	CWS Tier 1 - P&T GC-FID	24-Dec-24	25-Dec-24
PHC F4G (gravimetric)	CWS Tier 1 - Extraction Gravimetric	2-Jan-25	2-Jan-25
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	30-Dec-24	31-Dec-24
REG 153: Metals by ICP/MS, soil	EPA 6020 - Digestion - ICP-MS	30-Dec-24	30-Dec-24
REG 153: PAHs by GC-MS	EPA 8270 - GC-MS, extraction	30-Dec-24	31-Dec-24
REG 153: VOCs by P&T GC/MS	EPA 8260 - P&T GC-MS	24-Dec-24	25-Dec-24
REG 406: Metals, leachate	mSPLP EPA 6020 - Digestion - ICP-MS	6-Jan-25	7-Jan-25
SAR	Calculated	31-Dec-24	2-Jan-25
Solids, %	CWS Tier 1 - Gravimetric	30-Dec-24	31-Dec-24

Certificate of Analysis

Report Date: 07-Jan-2025

Client: **Paterson Group Consulting Engineers (Ottawa)**

Order Date: 23-Dec-2024

Client PO: 62089

Project Description: PE6830

	Client ID:	BH1-SS2	BH2-SS2	BH3-SS2	BH3-SS4	-	-
	Sample Date:	20-Dec-24 09:00	20-Dec-24 09:00	20-Dec-24 12:00	20-Dec-24 12:00		
	Sample ID:	2452067-01	2452067-03	2452067-04	2452067-06		
	Matrix:	Soil	Soil	Soil	Soil		
	MDL/Units						
Physical Characteristics							
% Solids	0.1 % by Wt.	87.9	87.4	89.5	94.9	-	-
mSPLP Leachate Metals							
Antimony	0.5 ug/L	-	-	1.2	-	-	-
Arsenic	1.0 ug/L	-	-	<1.0	-	-	-
Barium	1.0 ug/L	-	-	61.0	-	-	-
Beryllium	0.5 ug/L	-	-	<0.5	-	-	-
Boron	10.0 ug/L	-	-	28.0	-	-	-
Cadmium	0.2 ug/L	-	-	<0.2	-	-	-
Chromium	1.0 ug/L	-	-	4.8	-	-	-
Cobalt	0.5 ug/L	-	-	<0.5	-	-	-
Copper	0.5 ug/L	-	-	1.9	-	-	-
Lead	0.2 ug/L	-	-	3.2	-	-	-
Molybdenum	0.5 ug/L	-	-	17.2	-	-	-
Nickel	1.0 ug/L	-	-	<1.0	-	-	-
Selenium	1.0 ug/L	-	-	<1.0	-	-	-
Silver	0.2 ug/L	-	-	<0.2	-	-	-
Thallium	0.5 ug/L	-	-	<0.5	-	-	-
Uranium	0.2 ug/L	-	-	<0.2	-	-	-
Vanadium	0.5 ug/L	-	-	2.6	-	-	-
Zinc	5.0 ug/L	-	-	<5.0	-	-	-
General Inorganics							
SAR	0.01 N/A	0.17	0.14	0.34	1.24	-	-
Conductivity	5 uS/cm	1320	624	3980	1130	-	-
pH	0.05 pH Units	7.18	6.84	-	-	-	-
Metals							

Certificate of Analysis

Report Date: 07-Jan-2025

Client: **Paterson Group Consulting Engineers (Ottawa)**

Order Date: 23-Dec-2024

Client PO: **62089**

Project Description: **PE6830**

	Client ID:	BH1-SS2	BH2-SS2	BH3-SS2	BH3-SS4	-	-
	Sample Date:	20-Dec-24 09:00	20-Dec-24 09:00	20-Dec-24 12:00	20-Dec-24 12:00		
	Sample ID:	2452067-01	2452067-03	2452067-04	2452067-06		
	Matrix:	Soil	Soil	Soil	Soil		
	MDL/Units						
Metals							
Antimony	1.0 ug/g	<1.0	<1.0	<1.0	<1.0	-	-
Arsenic	1.0 ug/g	5.9	6.8	13.6	6.5	-	-
Barium	1.0 ug/g	76.1	78.3	110	114	-	-
Beryllium	0.5 ug/g	0.7	0.6	1.1	0.6	-	-
Boron	5.0 ug/g	6.4	8.5	37.0	7.9	-	-
Cadmium	0.5 ug/g	<0.5	<0.5	<0.5	<0.5	-	-
Chromium	5.0 ug/g	28.1	20.8	28.8	18.0	-	-
Cobalt	1.0 ug/g	12.2	11.1	7.4	11.4	-	-
Copper	5.0 ug/g	38.9	31.9	36.9	32.5	-	-
Lead	1.0 ug/g	11.8	14.4	14.9	10.2	-	-
Molybdenum	1.0 ug/g	1.8	1.8	5.1	2.0	-	-
Nickel	5.0 ug/g	33.3	25.1	18.7	27.0	-	-
Selenium	1.0 ug/g	<1.0	<1.0	<1.0	<1.0	-	-
Silver	0.3 ug/g	<0.3	<0.3	<0.3	<0.3	-	-
Thallium	1.0 ug/g	<1.0	<1.0	<1.0	<1.0	-	-
Uranium	1.0 ug/g	1.1	<1.0	1.2	1.3	-	-
Vanadium	10.0 ug/g	39.5	30.1	28.4	25.4	-	-
Zinc	20.0 ug/g	56.4	55.6	126	54.1	-	-
Volatiles							
Benzene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-
Ethylbenzene	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
Toluene	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
m,p-Xylenes	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
o-Xylene	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
Xylenes, total	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-

	Client ID:	BH1-SS2	BH2-SS2	BH3-SS2	BH3-SS4	-	-
	Sample Date:	20-Dec-24 09:00	20-Dec-24 09:00	20-Dec-24 12:00	20-Dec-24 12:00		
	Sample ID:	2452067-01	2452067-03	2452067-04	2452067-06		
	Matrix:	Soil	Soil	Soil	Soil		
	MDL/Units						
Volatiles							
Toluene-d8	Surrogate	123%	123%	119%	118%	-	-
Hydrocarbons							
F1 PHCs (C6-C10)	7 ug/g	<7	<7	<7	<7	-	-
F2 PHCs (C10-C16)	4 ug/g	<4	<4	<4	18	-	-
F3 PHCs (C16-C34)	8 ug/g	<8	20	65	23	-	-
F4 PHCs (C34-C50)	6 ug/g	<6	19	61	<6	-	-
Semi-Volatiles							
Acenaphthene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-
Acenaphthylene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-
Anthracene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-
Benzo [a] anthracene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-
Benzo [a] pyrene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-
Benzo [b] fluoranthene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-
Benzo [g,h,i] perylene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-
Benzo [k] fluoranthene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-
Chrysene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-
Dibenzo [a,h] anthracene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-
Fluoranthene	0.02 ug/g	<0.02	0.03	<0.02	<0.02	-	-
Fluorene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-
Indeno [1,2,3-cd] pyrene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-
1-Methylnaphthalene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-
2-Methylnaphthalene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-
Methylnaphthalene (1&2)	0.04 ug/g	<0.04	<0.04	<0.04	<0.04	-	-
Naphthalene	0.01 ug/g	<0.01	<0.01	<0.01	<0.01	-	-
Phenanthrene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-

Certificate of Analysis

Report Date: 07-Jan-2025

Client: **Paterson Group Consulting Engineers (Ottawa)**

Order Date: 23-Dec-2024

Client PO: **62089**

Project Description: **PE6830**

	Client ID:	BH1-SS2	BH2-SS2	BH3-SS2	BH3-SS4	-	-
	Sample Date:	20-Dec-24 09:00	20-Dec-24 09:00	20-Dec-24 12:00	20-Dec-24 12:00		
	Sample ID:	2452067-01	2452067-03	2452067-04	2452067-06		
	Matrix:	Soil	Soil	Soil	Soil		
	MDL/Units						
Semi-Volatiles							
Pyrene	0.02 ug/g	<0.02	0.03	<0.02	<0.02	-	-
2-Fluorobiphenyl	Surrogate	67.6%	56.4%	65.1%	60.6%	-	-
Terphenyl-d14	Surrogate	83.9%	71.9%	79.6%	78.4%	-	-

Certificate of Analysis

Report Date: 07-Jan-2025

Client: Paterson Group Consulting Engineers (Ottawa)

Order Date: 23-Dec-2024

Client PO: 62089

Project Description: PE6830

	Client ID:	TP1-G2	TP1-G5	TP2-G3	TP3-G1	-	-
	Sample Date:	20-Dec-24 12:00	20-Dec-24 12:00	20-Dec-24 12:00	20-Dec-24 12:00		
	Sample ID:	2452067-07	2452067-08	2452067-09	2452067-10		
	Matrix:	Soil	Soil	Soil	Soil		
	MDL/Units						
Physical Characteristics							
% Solids	0.1 % by Wt.	88.3	88.9	83.7	87.2	-	-
General Inorganics							
SAR	0.01 N/A	0.08	0.21	1.37	0.53	-	-
Conductivity	5 uS/cm	1760	3780	3140	539	-	-
Metals							
Antimony	1.0 ug/g	<1.0	<1.0	<1.0	<1.0	-	-
Arsenic	1.0 ug/g	4.5	4.0	4.3	4.5	-	-
Barium	1.0 ug/g	77.8	81.1	97.1	77.4	-	-
Beryllium	0.5 ug/g	<0.5	<0.5	0.5	0.6	-	-
Boron	5.0 ug/g	14.5	18.8	10.7	8.4	-	-
Cadmium	0.5 ug/g	<0.5	<0.5	<0.5	<0.5	-	-
Chromium	5.0 ug/g	22.3	20.5	24.3	22.9	-	-
Cobalt	1.0 ug/g	7.2	5.3	9.0	8.6	-	-
Copper	5.0 ug/g	18.8	23.5	23.8	28.4	-	-
Lead	1.0 ug/g	15.2	44.6	24.0	14.3	-	-
Molybdenum	1.0 ug/g	1.9	2.0	1.4	1.5	-	-
Nickel	5.0 ug/g	17.1	13.3	21.9	20.4	-	-
Selenium	1.0 ug/g	<1.0	<1.0	<1.0	<1.0	-	-
Silver	0.3 ug/g	<0.3	<0.3	<0.3	<0.3	-	-
Thallium	1.0 ug/g	<1.0	<1.0	<1.0	<1.0	-	-
Uranium	1.0 ug/g	<1.0	<1.0	<1.0	<1.0	-	-
Vanadium	10.0 ug/g	24.1	20.5	31.8	29.5	-	-
Zinc	20.0 ug/g	53.3	52.1	52.1	53.2	-	-
Volatiles							
Acetone	0.50 ug/g	-	-	<0.50	-	-	-

	Client ID:	TP1-G2	TP1-G5	TP2-G3	TP3-G1	-	-
	Sample Date:	20-Dec-24 12:00	20-Dec-24 12:00	20-Dec-24 12:00	20-Dec-24 12:00		
	Sample ID:	2452067-07	2452067-08	2452067-09	2452067-10		
	Matrix:	Soil	Soil	Soil	Soil		
	MDL/Units						
Volatiles							
Benzene	0.02 ug/g	-	-	<0.02	-	-	-
Bromodichloromethane	0.05 ug/g	-	-	<0.05	-	-	-
Bromoform	0.05 ug/g	-	-	<0.05	-	-	-
Bromomethane	0.05 ug/g	-	-	<0.05	-	-	-
Carbon Tetrachloride	0.05 ug/g	-	-	<0.05	-	-	-
Chlorobenzene	0.05 ug/g	-	-	<0.05	-	-	-
Chloroform	0.05 ug/g	-	-	<0.05	-	-	-
Dibromochloromethane	0.05 ug/g	-	-	<0.05	-	-	-
Dichlorodifluoromethane	0.05 ug/g	-	-	<0.05	-	-	-
1,2-Dichlorobenzene	0.05 ug/g	-	-	<0.05	-	-	-
1,3-Dichlorobenzene	0.05 ug/g	-	-	<0.05	-	-	-
1,4-Dichlorobenzene	0.05 ug/g	-	-	<0.05	-	-	-
1,1-Dichloroethane	0.05 ug/g	-	-	<0.05	-	-	-
1,2-Dichloroethane	0.05 ug/g	-	-	<0.05	-	-	-
1,1-Dichloroethylene	0.05 ug/g	-	-	<0.05	-	-	-
cis-1,2-Dichloroethylene	0.05 ug/g	-	-	<0.05	-	-	-
trans-1,2-Dichloroethylene	0.05 ug/g	-	-	<0.05	-	-	-
1,2-Dichloropropane	0.05 ug/g	-	-	<0.05	-	-	-
cis-1,3-Dichloropropylene	0.05 ug/g	-	-	<0.05	-	-	-
trans-1,3-Dichloropropylene	0.05 ug/g	-	-	<0.05	-	-	-
1,3-Dichloropropene, total	0.05 ug/g	-	-	<0.05	-	-	-
Ethylene dibromide (dibromoethane,	0.05 ug/g	-	-	<0.05	-	-	-
Ethylbenzene	0.05 ug/g	-	-	<0.05	-	-	-
Hexane	0.05 ug/g	-	-	<0.05	-	-	-
Methyl Ethyl Ketone (2-Butanone)	0.50 ug/g	-	-	<0.50	-	-	-

	Client ID:	TP1-G2	TP1-G5	TP2-G3	TP3-G1	-	-
	Sample Date:	20-Dec-24 12:00	20-Dec-24 12:00	20-Dec-24 12:00	20-Dec-24 12:00		
	Sample ID:	2452067-07	2452067-08	2452067-09	2452067-10		
	Matrix:	Soil	Soil	Soil	Soil		
	MDL/Units						
Volatiles							
Methyl Isobutyl Ketone	0.50 ug/g	-	-	<0.50	-	-	-
Methyl tert-butyl ether	0.05 ug/g	-	-	<0.05	-	-	-
Methylene Chloride	0.05 ug/g	-	-	<0.05	-	-	-
Styrene	0.05 ug/g	-	-	<0.05	-	-	-
1,1,1,2-Tetrachloroethane	0.05 ug/g	-	-	<0.05	-	-	-
1,1,2,2-Tetrachloroethane	0.05 ug/g	-	-	<0.05	-	-	-
Tetrachloroethylene	0.05 ug/g	-	-	<0.05	-	-	-
Toluene	0.05 ug/g	-	-	<0.05	-	-	-
1,1,1-Trichloroethane	0.05 ug/g	-	-	<0.05	-	-	-
1,1,2-Trichloroethane	0.05 ug/g	-	-	<0.05	-	-	-
Trichloroethylene	0.05 ug/g	-	-	<0.05	-	-	-
Trichlorofluoromethane	0.05 ug/g	-	-	<0.05	-	-	-
Vinyl chloride	0.02 ug/g	-	-	<0.02	-	-	-
m,p-Xylenes	0.05 ug/g	-	-	<0.05	-	-	-
o-Xylene	0.05 ug/g	-	-	<0.05	-	-	-
Xylenes, total	0.05 ug/g	-	-	<0.05	-	-	-
Dibromofluoromethane	Surrogate	-	-	94.0%	-	-	-
Toluene-d8	Surrogate	-	-	126%	-	-	-
4-Bromofluorobenzene	Surrogate	-	-	100%	-	-	-
Benzene	0.02 ug/g	<0.02	<0.02	-	<0.02	-	-
Ethylbenzene	0.05 ug/g	<0.05	<0.05	-	<0.05	-	-
Toluene	0.05 ug/g	<0.05	<0.05	-	<0.05	-	-
m,p-Xylenes	0.05 ug/g	<0.05	<0.05	-	<0.05	-	-
o-Xylene	0.05 ug/g	<0.05	<0.05	-	<0.05	-	-
Xylenes, total	0.05 ug/g	<0.05	<0.05	-	<0.05	-	-

	Client ID:	TP1-G2	TP1-G5	TP2-G3	TP3-G1	-	-
	Sample Date:	20-Dec-24 12:00	20-Dec-24 12:00	20-Dec-24 12:00	20-Dec-24 12:00		
	Sample ID:	2452067-07	2452067-08	2452067-09	2452067-10		
	Matrix:	Soil	Soil	Soil	Soil		
	MDL/Units						
Volatiles							
Toluene-d8	Surrogate	120%	118%	-	120%	-	-
Hydrocarbons							
F1 PHCs (C6-C10)	7 ug/g	<7	<7	<7	<7	-	-
F2 PHCs (C10-C16)	4 ug/g	<4	<4	<4	<4	-	-
F3 PHCs (C16-C34)	8 ug/g	112	82	35	28	-	-
F4 PHCs (C34-C50)	6 ug/g	156 [1]	116 [1]	24	20	-	-
F4G PHCs (gravimetric)	50 ug/g	227	101	-	-	-	-
Semi-Volatiles							
Acenaphthene	0.02 ug/g	<0.02	-	-	<0.02	-	-
Acenaphthylene	0.02 ug/g	<0.02	-	-	<0.02	-	-
Anthracene	0.02 ug/g	0.11	-	-	<0.02	-	-
Benzo [a] anthracene	0.02 ug/g	0.24	-	-	0.04	-	-
Benzo [a] pyrene	0.02 ug/g	0.18	-	-	0.03	-	-
Benzo [b] fluoranthene	0.02 ug/g	0.19	-	-	0.04	-	-
Benzo [g,h,i] perylene	0.02 ug/g	0.11	-	-	0.02	-	-
Benzo [k] fluoranthene	0.02 ug/g	0.12	-	-	<0.02	-	-
Chrysene	0.02 ug/g	0.22	-	-	0.04	-	-
Dibenzo [a,h] anthracene	0.02 ug/g	0.03	-	-	<0.02	-	-
Fluoranthene	0.02 ug/g	0.69	-	-	0.06	-	-
Fluorene	0.02 ug/g	<0.02	-	-	<0.02	-	-
Indeno [1,2,3-cd] pyrene	0.02 ug/g	0.10	-	-	<0.02	-	-
1-Methylnaphthalene	0.02 ug/g	<0.02	-	-	<0.02	-	-
2-Methylnaphthalene	0.02 ug/g	<0.02	-	-	<0.02	-	-
Methylnaphthalene (1&2)	0.04 ug/g	<0.04	-	-	<0.04	-	-
Naphthalene	0.01 ug/g	<0.01	-	-	<0.01	-	-

	Client ID:	TP1-G2	TP1-G5	TP2-G3	TP3-G1	-	-
	Sample Date:	20-Dec-24 12:00	20-Dec-24 12:00	20-Dec-24 12:00	20-Dec-24 12:00		
	Sample ID:	2452067-07	2452067-08	2452067-09	2452067-10		
	Matrix:	Soil	Soil	Soil	Soil		
	MDL/Units						
Semi-Volatiles							
Phenanthrene	0.02 ug/g	0.41	-	-	0.03	-	-
Pyrene	0.02 ug/g	0.54	-	-	0.05	-	-
2-Fluorobiphenyl	Surrogate	57.7%	-	-	64.9%	-	-
Terphenyl-d14	Surrogate	71.5%	-	-	77.6%	-	-

Certificate of Analysis

Report Date: 07-Jan-2025

Client: **Paterson Group Consulting Engineers (Ottawa)**

Order Date: 23-Dec-2024

Client PO: **62089**

Project Description: **PE6830**

	Client ID:	TP3-G4	TP4-G2	DUP.1		-	-
	Sample Date:	20-Dec-24 12:00	20-Dec-24 12:00	20-Dec-24 12:00			
	Sample ID:	2452067-11	2452067-12	2452067-14			
	Matrix:	Soil	Soil	Soil			
	MDL/Units						
Physical Characteristics							
% Solids	0.1 % by Wt.	82.1	87.2	88.4	-	-	-
General Inorganics							
SAR	0.01 N/A	5.10	0.21	-	-	-	-
Conductivity	5 uS/cm	1080	535	-	-	-	-
Metals							
Antimony	1.0 ug/g	<1.0	<1.0	<1.0	-	-	-
Arsenic	1.0 ug/g	1.6	2.9	2.6	-	-	-
Barium	1.0 ug/g	23.1	95.3	104	-	-	-
Beryllium	0.5 ug/g	<0.5	<0.5	<0.5	-	-	-
Boron	5.0 ug/g	<5.0	<5.0	<5.0	-	-	-
Cadmium	0.5 ug/g	<0.5	<0.5	<0.5	-	-	-
Chromium	5.0 ug/g	10.0	30.2	28.9	-	-	-
Cobalt	1.0 ug/g	3.2	8.4	8.1	-	-	-
Copper	5.0 ug/g	8.7	19.4	18.4	-	-	-
Lead	1.0 ug/g	2.4	29.3	31.1	-	-	-
Molybdenum	1.0 ug/g	<1.0	<1.0	<1.0	-	-	-
Nickel	5.0 ug/g	7.3	20.3	19.3	-	-	-
Selenium	1.0 ug/g	<1.0	<1.0	<1.0	-	-	-
Silver	0.3 ug/g	<0.3	<0.3	<0.3	-	-	-
Thallium	1.0 ug/g	<1.0	<1.0	<1.0	-	-	-
Uranium	1.0 ug/g	<1.0	<1.0	<1.0	-	-	-
Vanadium	10.0 ug/g	18.8	35.2	33.6	-	-	-
Zinc	20.0 ug/g	<20.0	63.5	58.5	-	-	-
Volatiles							
Acetone	0.50 ug/g	<0.50	-	-	-	-	-

	Client ID:	TP3-G4	TP4-G2	DUP.1		-	-
	Sample Date:	20-Dec-24 12:00	20-Dec-24 12:00	20-Dec-24 12:00			
	Sample ID:	2452067-11	2452067-12	2452067-14			
	Matrix:	Soil	Soil	Soil			
	MDL/Units						
Volatiles							
Benzene	0.02 ug/g	<0.02	-	-	-	-	-
Bromodichloromethane	0.05 ug/g	<0.05	-	-	-	-	-
Bromoform	0.05 ug/g	<0.05	-	-	-	-	-
Bromomethane	0.05 ug/g	<0.05	-	-	-	-	-
Carbon Tetrachloride	0.05 ug/g	<0.05	-	-	-	-	-
Chlorobenzene	0.05 ug/g	<0.05	-	-	-	-	-
Chloroform	0.05 ug/g	<0.05	-	-	-	-	-
Dibromochloromethane	0.05 ug/g	<0.05	-	-	-	-	-
Dichlorodifluoromethane	0.05 ug/g	<0.05	-	-	-	-	-
1,2-Dichlorobenzene	0.05 ug/g	<0.05	-	-	-	-	-
1,3-Dichlorobenzene	0.05 ug/g	<0.05	-	-	-	-	-
1,4-Dichlorobenzene	0.05 ug/g	<0.05	-	-	-	-	-
1,1-Dichloroethane	0.05 ug/g	<0.05	-	-	-	-	-
1,2-Dichloroethane	0.05 ug/g	<0.05	-	-	-	-	-
1,1-Dichloroethylene	0.05 ug/g	<0.05	-	-	-	-	-
cis-1,2-Dichloroethylene	0.05 ug/g	<0.05	-	-	-	-	-
trans-1,2-Dichloroethylene	0.05 ug/g	<0.05	-	-	-	-	-
1,2-Dichloropropane	0.05 ug/g	<0.05	-	-	-	-	-
cis-1,3-Dichloropropylene	0.05 ug/g	<0.05	-	-	-	-	-
trans-1,3-Dichloropropylene	0.05 ug/g	<0.05	-	-	-	-	-
1,3-Dichloropropene, total	0.05 ug/g	<0.05	-	-	-	-	-
Ethylene dibromide (dibromoethane,	0.05 ug/g	<0.05	-	-	-	-	-
Ethylbenzene	0.05 ug/g	<0.05	-	-	-	-	-
Hexane	0.05 ug/g	<0.05	-	-	-	-	-
Methyl Ethyl Ketone (2-Butanone)	0.50 ug/g	<0.50	-	-	-	-	-

	Client ID:	TP3-G4	TP4-G2	DUP.1		-	-
	Sample Date:	20-Dec-24 12:00	20-Dec-24 12:00	20-Dec-24 12:00			
	Sample ID:	2452067-11	2452067-12	2452067-14			
	Matrix:	Soil	Soil	Soil			
	MDL/Units						
Volatiles							
Methyl Isobutyl Ketone	0.50 ug/g	<0.50	-	-	-	-	-
Methyl tert-butyl ether	0.05 ug/g	<0.05	-	-	-	-	-
Methylene Chloride	0.05 ug/g	<0.05	-	-	-	-	-
Styrene	0.05 ug/g	<0.05	-	-	-	-	-
1,1,1,2-Tetrachloroethane	0.05 ug/g	<0.05	-	-	-	-	-
1,1,2,2-Tetrachloroethane	0.05 ug/g	<0.05	-	-	-	-	-
Tetrachloroethylene	0.05 ug/g	<0.05	-	-	-	-	-
Toluene	0.05 ug/g	<0.05	-	-	-	-	-
1,1,1-Trichloroethane	0.05 ug/g	<0.05	-	-	-	-	-
1,1,2-Trichloroethane	0.05 ug/g	<0.05	-	-	-	-	-
Trichloroethylene	0.05 ug/g	<0.05	-	-	-	-	-
Trichlorofluoromethane	0.05 ug/g	<0.05	-	-	-	-	-
Vinyl chloride	0.02 ug/g	<0.02	-	-	-	-	-
m,p-Xylenes	0.05 ug/g	<0.05	-	-	-	-	-
o-Xylene	0.05 ug/g	<0.05	-	-	-	-	-
Xylenes, total	0.05 ug/g	<0.05	-	-	-	-	-
Dibromofluoromethane	Surrogate	94.7%	-	-	-	-	-
Toluene-d8	Surrogate	127%	-	-	-	-	-
4-Bromofluorobenzene	Surrogate	101%	-	-	-	-	-
Benzene	0.02 ug/g	-	<0.02	<0.02	-	-	-
Ethylbenzene	0.05 ug/g	-	<0.05	<0.05	-	-	-
Toluene	0.05 ug/g	-	<0.05	<0.05	-	-	-
m,p-Xylenes	0.05 ug/g	-	<0.05	<0.05	-	-	-
o-Xylene	0.05 ug/g	-	<0.05	<0.05	-	-	-
Xylenes, total	0.05 ug/g	-	<0.05	<0.05	-	-	-

	Client ID:	TP3-G4	TP4-G2	DUP.1		-	-
	Sample Date:	20-Dec-24 12:00	20-Dec-24 12:00	20-Dec-24 12:00			
	Sample ID:	2452067-11	2452067-12	2452067-14			
	Matrix:	Soil	Soil	Soil			
	MDL/Units						
Volatiles							
Toluene-d8	Surrogate	-	122%	121%	-	-	-
Hydrocarbons							
F1 PHCs (C6-C10)	7 ug/g	<7	<7	<7	-	-	-
F2 PHCs (C10-C16)	4 ug/g	<4	<4	<4	-	-	-
F3 PHCs (C16-C34)	8 ug/g	<8	<8	<8	-	-	-
F4 PHCs (C34-C50)	6 ug/g	<6	<6	<6	-	-	-
Semi-Volatiles							
Acenaphthene	0.02 ug/g	-	<0.02	<0.02	-	-	-
Acenaphthylene	0.02 ug/g	-	<0.02	<0.02	-	-	-
Anthracene	0.02 ug/g	-	<0.02	<0.02	-	-	-
Benzo [a] anthracene	0.02 ug/g	-	<0.02	<0.02	-	-	-
Benzo [a] pyrene	0.02 ug/g	-	<0.02	<0.02	-	-	-
Benzo [b] fluoranthene	0.02 ug/g	-	<0.02	<0.02	-	-	-
Benzo [g,h,i] perylene	0.02 ug/g	-	<0.02	<0.02	-	-	-
Benzo [k] fluoranthene	0.02 ug/g	-	<0.02	<0.02	-	-	-
Chrysene	0.02 ug/g	-	<0.02	<0.02	-	-	-
Dibenzo [a,h] anthracene	0.02 ug/g	-	<0.02	<0.02	-	-	-
Fluoranthene	0.02 ug/g	-	0.04	0.03	-	-	-
Fluorene	0.02 ug/g	-	<0.02	<0.02	-	-	-
Indeno [1,2,3-cd] pyrene	0.02 ug/g	-	<0.02	<0.02	-	-	-
1-Methylnaphthalene	0.02 ug/g	-	<0.02	<0.02	-	-	-
2-Methylnaphthalene	0.02 ug/g	-	<0.02	<0.02	-	-	-
Methylnaphthalene (1&2)	0.04 ug/g	-	<0.04	<0.04	-	-	-
Naphthalene	0.01 ug/g	-	<0.01	<0.01	-	-	-
Phenanthrene	0.02 ug/g	-	<0.02	<0.02	-	-	-

	Client ID:	TP3-G4	TP4-G2	DUP.1		-	-
	Sample Date:	20-Dec-24 12:00	20-Dec-24 12:00	20-Dec-24 12:00			
	Sample ID:	2452067-11	2452067-12	2452067-14			
	Matrix:	Soil	Soil	Soil			
	MDL/Units						
Semi-Volatiles							
Pyrene	0.02 ug/g	-	0.04	0.03	-	-	-
2-Fluorobiphenyl	Surrogate	-	55.9%	60.7%	-	-	-
Terphenyl-d14	Surrogate	-	58.1%	76.2%	-	-	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%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	5.0	ug/g					
Lead	ND	1.0	ug/g					
Molybdenum	ND	1.0	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					
mSPLP Leachate Metals								
Antimony	ND	0.5	ug/L					
Arsenic	ND	1.0	ug/L					
Barium	ND	1.0	ug/L					
Beryllium	ND	0.5	ug/L					
Boron	38.0	10.0	ug/L					

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
Cadmium	ND	0.2	ug/L					
Chromium	ND	1.0	ug/L					
Cobalt	ND	0.5	ug/L					
Copper	ND	0.5	ug/L					
Lead	ND	0.2	ug/L					
Molybdenum	ND	0.5	ug/L					
Nickel	ND	1.0	ug/L					
Selenium	ND	1.0	ug/L					
Silver	ND	0.2	ug/L					
Thallium	ND	0.5	ug/L					
Uranium	ND	0.2	ug/L					
Vanadium	ND	0.5	ug/L					
Zinc	ND	5.0	ug/L					
Semi-Volatiles								
Acenaphthene	ND	0.02	ug/g					
Acenaphthylene	ND	0.02	ug/g					
Anthracene	ND	0.02	ug/g					
Benzo [a] anthracene	ND	0.02	ug/g					
Benzo [a] pyrene	ND	0.02	ug/g					
Benzo [b] fluoranthene	ND	0.02	ug/g					
Benzo [g,h,i] perylene	ND	0.02	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)	ND	0.04	ug/g					
Naphthalene	ND	0.01	ug/g					
Phenanthrene	ND	0.02	ug/g					
Pyrene	ND	0.02	ug/g					

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
Surrogate: 2-Fluorobiphenyl	*0.815*		*%*	*61.1*	*50-140*			
Surrogate: Terphenyl-d14	*1.04*		*%*	*78.3*	*50-140*			
Volatiles								
Acetone	ND	0.50	ug/g					
Benzene	ND	0.02	ug/g					
Bromodichloromethane	ND	0.05	ug/g					
Bromoform	ND	0.05	ug/g					
Bromomethane	ND	0.05	ug/g					
Carbon Tetrachloride	ND	0.05	ug/g					
Chlorobenzene	ND	0.05	ug/g					
Chloroform	ND	0.05	ug/g					
Dibromochloromethane	ND	0.05	ug/g					
Dichlorodifluoromethane	ND	0.05	ug/g					
1,2-Dichlorobenzene	ND	0.05	ug/g					
1,3-Dichlorobenzene	ND	0.05	ug/g					
1,4-Dichlorobenzene	ND	0.05	ug/g					
1,1-Dichloroethane	ND	0.05	ug/g					
1,2-Dichloroethane	ND	0.05	ug/g					
1,1-Dichloroethylene	ND	0.05	ug/g					
cis-1,2-Dichloroethylene	ND	0.05	ug/g					
trans-1,2-Dichloroethylene	ND	0.05	ug/g					
1,2-Dichloropropane	ND	0.05	ug/g					
cis-1,3-Dichloropropylene	ND	0.05	ug/g					
trans-1,3-Dichloropropylene	ND	0.05	ug/g					
1,3-Dichloropropene, total	ND	0.05	ug/g					
Ethylbenzene	ND	0.05	ug/g					
Ethylene dibromide (dibromoethane, 1,2-)	ND	0.05	ug/g					
Hexane	ND	0.05	ug/g					
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g					
Methyl Isobutyl Ketone	ND	0.50	ug/g					
Methyl tert-butyl ether	ND	0.05	ug/g					
Methylene Chloride	ND	0.05	ug/g					

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
Styrene	ND	0.05	ug/g					
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g					
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g					
Tetrachloroethylene	ND	0.05	ug/g					
Toluene	ND	0.05	ug/g					
1,1,1-Trichloroethane	ND	0.05	ug/g					
1,1,2-Trichloroethane	ND	0.05	ug/g					
Trichloroethylene	ND	0.05	ug/g					
Trichlorofluoromethane	ND	0.05	ug/g					
Vinyl chloride	ND	0.02	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: 4-Bromofluorobenzene	*7.47*		*%*	*93.3*	*50-140*			
Surrogate: Dibromofluoromethane	*6.54*		*%*	*81.7*	*50-140*			
Surrogate: Toluene-d8	*8.68*		*%*	*108*	*50-140*			
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	*8.68*		*%*	*108*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics									
SAR	0.17	0.01	N/A	0.16			6.1	30	
Conductivity	256	5	uS/cm	254			0.9	5	
pH	6.48	0.05	pH Units	6.51			0.5	2.3	
Hydrocarbons									
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)	ND	8	ug/g	ND			NC	30	
F4 PHCs (C34-C50)	ND	6	ug/g	ND			NC	30	
Metals									
Antimony	ND	1.0	ug/g	ND			NC	30	
Arsenic	2.5	1.0	ug/g	2.4			3.1	30	
Barium	49.7	1.0	ug/g	70.5			34.6	30	QR-04
Beryllium	ND	0.5	ug/g	ND			NC	30	
Boron	ND	5.0	ug/g	5.7			NC	30	
Cadmium	ND	0.5	ug/g	ND			NC	30	
Chromium	13.7	5.0	ug/g	16.5			18.3	30	
Cobalt	5.2	1.0	ug/g	5.6			7.2	30	
Copper	10.0	5.0	ug/g	11.3			12.3	30	
Lead	8.0	1.0	ug/g	9.1			12.0	30	
Molybdenum	ND	1.0	ug/g	ND			NC	30	
Nickel	9.6	5.0	ug/g	10.3			6.8	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	26.1	10.0	ug/g	30.2			14.3	30	
Zinc	59.4	20.0	ug/g	62.0			4.3	30	
mSPLP Leachate Metals									
Antimony	1.05	0.5	ug/L	1.25			17.8	50	
Arsenic	ND	1.0	ug/L	ND			NC	50	

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Barium	62.5	1.0	ug/L	61.0			2.4	50	
Beryllium	ND	0.5	ug/L	ND			NC	50	
Boron	28.4	10.0	ug/L	28.0			1.5	50	
Cadmium	ND	0.2	ug/L	ND			NC	50	
Chromium	4.74	1.0	ug/L	4.76			0.6	50	
Cobalt	0.51	0.5	ug/L	ND			NC	50	
Copper	2.04	0.5	ug/L	1.90			7.2	50	
Lead	3.39	0.2	ug/L	3.21			5.6	50	
Molybdenum	17.5	0.5	ug/L	17.2			1.5	50	
Nickel	ND	1.0	ug/L	ND			NC	50	
Selenium	ND	1.0	ug/L	ND			NC	50	
Silver	ND	0.2	ug/L	ND			NC	50	
Thallium	ND	0.5	ug/L	ND			NC	50	
Uranium	ND	0.2	ug/L	ND			NC	50	
Vanadium	2.57	0.5	ug/L	2.58			0.6	50	
Zinc	ND	5.0	ug/L	ND			NC	50	
Physical Characteristics									
% Solids	81.8	0.1	% by Wt.	82.2			0.4	25	
Semi-Volatiles									
Acenaphthene	ND	0.02	ug/g	ND			NC	40	
Acenaphthylene	ND	0.02	ug/g	ND			NC	40	
Anthracene	ND	0.02	ug/g	ND			NC	40	
Benzo [a] anthracene	ND	0.02	ug/g	ND			NC	40	
Benzo [a] pyrene	ND	0.02	ug/g	ND			NC	40	
Benzo [b] fluoranthene	ND	0.02	ug/g	ND			NC	40	
Benzo [g,h,i] perylene	ND	0.02	ug/g	ND			NC	40	
Benzo [k] fluoranthene	ND	0.02	ug/g	ND			NC	40	
Chrysene	ND	0.02	ug/g	ND			NC	40	
Dibenzo [a,h] anthracene	ND	0.02	ug/g	ND			NC	40	
Fluoranthene	ND	0.02	ug/g	ND			NC	40	
Fluorene	ND	0.02	ug/g	ND			NC	40	

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Indeno [1,2,3-cd] pyrene	ND	0.02	ug/g	ND			NC	40	
1-Methylnaphthalene	ND	0.02	ug/g	ND			NC	40	
2-Methylnaphthalene	ND	0.02	ug/g	ND			NC	40	
Naphthalene	ND	0.01	ug/g	ND			NC	40	
Phenanthrene	ND	0.02	ug/g	ND			NC	40	
Pyrene	ND	0.02	ug/g	ND			NC	40	
Surrogate: 2-Fluorobiphenyl	*1.03*		*%*		*68.0*	*50-140*			
Surrogate: Terphenyl-d14	*1.37*		*%*		*90.0*	*50-140*			
Volatiles									
Acetone	ND	0.50	ug/g	ND			NC	50	
Benzene	ND	0.02	ug/g	ND			NC	50	
Bromodichloromethane	ND	0.05	ug/g	ND			NC	50	
Bromoform	ND	0.05	ug/g	ND			NC	50	
Bromomethane	ND	0.05	ug/g	ND			NC	50	
Carbon Tetrachloride	ND	0.05	ug/g	ND			NC	50	
Chlorobenzene	ND	0.05	ug/g	ND			NC	50	
Chloroform	ND	0.05	ug/g	ND			NC	50	
Dibromochloromethane	ND	0.05	ug/g	ND			NC	50	
Dichlorodifluoromethane	ND	0.05	ug/g	ND			NC	50	
1,2-Dichlorobenzene	ND	0.05	ug/g	ND			NC	50	
1,3-Dichlorobenzene	ND	0.05	ug/g	ND			NC	50	
1,4-Dichlorobenzene	ND	0.05	ug/g	ND			NC	50	
1,1-Dichloroethane	ND	0.05	ug/g	ND			NC	50	
1,2-Dichloroethane	ND	0.05	ug/g	ND			NC	50	
1,1-Dichloroethylene	ND	0.05	ug/g	ND			NC	50	
cis-1,2-Dichloroethylene	ND	0.05	ug/g	ND			NC	50	
trans-1,2-Dichloroethylene	ND	0.05	ug/g	ND			NC	50	
1,2-Dichloropropane	ND	0.05	ug/g	ND			NC	50	
cis-1,3-Dichloropropylene	ND	0.05	ug/g	ND			NC	50	
trans-1,3-Dichloropropylene	ND	0.05	ug/g	ND			NC	50	
Ethylbenzene	ND	0.05	ug/g	ND			NC	50	

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Ethylene dibromide (dibromoethane, 1,2-)	ND	0.05	ug/g	ND			NC	50	
Hexane	ND	0.05	ug/g	ND			NC	50	
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g	ND			NC	50	
Methyl Isobutyl Ketone	ND	0.50	ug/g	ND			NC	50	
Methyl tert-butyl ether	ND	0.05	ug/g	ND			NC	50	
Methylene Chloride	ND	0.05	ug/g	ND			NC	50	
Styrene	ND	0.05	ug/g	ND			NC	50	
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g	ND			NC	50	
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g	ND			NC	50	
Tetrachloroethylene	ND	0.05	ug/g	ND			NC	50	
Toluene	ND	0.05	ug/g	ND			NC	50	
1,1,1-Trichloroethane	ND	0.05	ug/g	ND			NC	50	
1,1,2-Trichloroethane	ND	0.05	ug/g	ND			NC	50	
Trichloroethylene	ND	0.05	ug/g	ND			NC	50	
Trichlorofluoromethane	ND	0.05	ug/g	ND			NC	50	
Vinyl chloride	ND	0.02	ug/g	ND			NC	50	
m,p-Xylenes	ND	0.05	ug/g	ND			NC	50	
o-Xylene	ND	0.05	ug/g	ND			NC	50	
Surrogate: 4-Bromofluorobenzene	*8.30*		*%*		*94.9*	*50-140*			
Surrogate: Dibromofluoromethane	*7.85*		*%*		*89.8*	*50-140*			
Surrogate: Toluene-d8	*10.2*		*%*		*117*	*50-140*			
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	
m,p-Xylenes	ND	0.05	ug/g	ND			NC	50	
o-Xylene	ND	0.05	ug/g	ND			NC	50	
Surrogate: Toluene-d8	*10.2*		*%*		*117*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	196	7	ug/g	ND	98.0	85-115			
F2 PHCs (C10-C16)	87	4	ug/g	ND	95.0	60-140			
F3 PHCs (C16-C34)	234	8	ug/g	ND	104	60-140			
F4 PHCs (C34-C50)	174	6	ug/g	ND	123	60-140			
F4G PHCs (gravimetric)	1000	50	ug/g	ND	100	80-120			
Metals									
Arsenic	53.2	1.0	ug/g	1.0	104	70-130			
Barium	70.6	1.0	ug/g	28.2	84.9	70-130			
Beryllium	51.5	0.5	ug/g	ND	103	70-130			
Boron	50.7	5.0	ug/g	ND	96.8	70-130			
Cadmium	50.4	0.5	ug/g	ND	101	70-130			
Chromium	58.0	5.0	ug/g	6.6	103	70-130			
Cobalt	53.2	1.0	ug/g	2.2	102	70-130			
Copper	54.6	5.0	ug/g	ND	100	70-130			
Lead	50.3	1.0	ug/g	3.6	93.3	70-130			
Molybdenum	50.5	1.0	ug/g	ND	101	70-130			
Nickel	56.7	5.0	ug/g	ND	105	70-130			
Selenium	47.3	1.0	ug/g	ND	94.5	70-130			
Silver	47.1	0.3	ug/g	ND	94.2	70-130			
Thallium	46.4	1.0	ug/g	ND	92.6	70-130			
Uranium	47.1	1.0	ug/g	ND	93.6	70-130			
Vanadium	60.8	10.0	ug/g	12.1	97.4	70-130			
Zinc	68.6	20.0	ug/g	24.8	87.7	70-130			
mSPLP Leachate Metals									
Antimony	34.7	0.5	ug/L	1.25	66.9	60-130			
Arsenic	50.9	1.0	ug/L	ND	101	70-130			
Barium	106	1.0	ug/L	61.0	89.4	70-130			
Beryllium	47.6	0.5	ug/L	ND	95.2	70-130			
Boron	70.8	10.0	ug/L	28.0	85.6	70-130			
Cadmium	47.7	0.2	ug/L	ND	95.3	70-130			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Chromium	57.6	1.0	ug/L	4.76	106	70-130			
Cobalt	54.8	0.5	ug/L	ND	109	70-130			
Copper	50.9	0.5	ug/L	1.90	98.0	70-130			
Lead	50.2	0.2	ug/L	3.21	94.1	70-130			
Molybdenum	67.3	0.5	ug/L	17.2	100	70-130			
Nickel	49.7	1.0	ug/L	ND	98.3	70-130			
Selenium	50.0	1.0	ug/L	ND	98.6	70-130			
Silver	45.2	0.2	ug/L	ND	90.4	70-130			
Thallium	46.5	0.5	ug/L	ND	92.9	70-130			
Uranium	48.6	0.2	ug/L	ND	97.1	70-130			
Vanadium	56.0	0.5	ug/L	2.58	107	70-130			
Zinc	51.2	5.0	ug/L	ND	97.6	70-130			
Semi-Volatiles									
Acenaphthene	0.146	0.02	ug/g	ND	77.0	50-140			
Acenaphthylene	0.155	0.02	ug/g	ND	81.7	50-140			
Anthracene	0.143	0.02	ug/g	ND	75.6	50-140			
Benzo [a] anthracene	0.109	0.02	ug/g	ND	57.5	50-140			
Benzo [a] pyrene	0.098	0.02	ug/g	ND	51.5	50-140			
Benzo [b] fluoranthene	0.102	0.02	ug/g	ND	53.7	50-140			
Benzo [g,h,i] perylene	0.136	0.02	ug/g	ND	71.5	50-140			
Benzo [k] fluoranthene	0.101	0.02	ug/g	ND	53.1	50-140			
Chrysene	0.134	0.02	ug/g	ND	70.5	50-140			
Dibenzo [a,h] anthracene	0.124	0.02	ug/g	ND	65.5	50-140			
Fluoranthene	0.155	0.02	ug/g	ND	81.8	50-140			
Fluorene	0.132	0.02	ug/g	ND	69.8	50-140			
Indeno [1,2,3-cd] pyrene	0.131	0.02	ug/g	ND	69.1	50-140			
1-Methylnaphthalene	0.138	0.02	ug/g	ND	72.7	50-140			
2-Methylnaphthalene	0.124	0.02	ug/g	ND	65.6	50-140			
Naphthalene	0.154	0.01	ug/g	ND	80.9	50-140			
Phenanthrene	0.163	0.02	ug/g	ND	86.0	50-140			
Pyrene	0.162	0.02	ug/g	ND	85.3	50-140			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Surrogate: 2-Fluorobiphenyl	*0.847*		*%*		*55.8*	*50-140*			
Surrogate: Terphenyl-d14	*1.02*		*%*		*67.1*	*50-140*			
Volatiles									
Acetone	11.4	0.50	ug/g	ND	114	50-140			
Benzene	3.53	0.02	ug/g	ND	88.3	60-130			
Bromodichloromethane	3.19	0.05	ug/g	ND	79.7	60-130			
Bromoform	3.45	0.05	ug/g	ND	86.2	60-130			
Bromomethane	3.28	0.05	ug/g	ND	82.1	50-140			
Carbon Tetrachloride	3.22	0.05	ug/g	ND	80.4	60-130			
Chlorobenzene	3.75	0.05	ug/g	ND	93.7	60-130			
Chloroform	3.21	0.05	ug/g	ND	80.3	60-130			
Dibromochloromethane	3.34	0.05	ug/g	ND	83.5	60-130			
Dichlorodifluoromethane	4.67	0.05	ug/g	ND	117	50-140			
1,2-Dichlorobenzene	3.64	0.05	ug/g	ND	91.1	60-130			
1,3-Dichlorobenzene	3.61	0.05	ug/g	ND	90.2	60-130			
1,4-Dichlorobenzene	3.71	0.05	ug/g	ND	92.8	60-130			
1,1-Dichloroethane	3.34	0.05	ug/g	ND	83.6	60-130			
1,2-Dichloroethane	3.48	0.05	ug/g	ND	87.1	60-130			
1,1-Dichloroethylene	3.77	0.05	ug/g	ND	94.2	60-130			
cis-1,2-Dichloroethylene	3.12	0.05	ug/g	ND	77.9	60-130			
trans-1,2-Dichloroethylene	3.30	0.05	ug/g	ND	82.6	60-130			
1,2-Dichloropropane	2.88	0.05	ug/g	ND	72.1	60-130			
cis-1,3-Dichloropropylene	2.71	0.05	ug/g	ND	67.7	60-130			
trans-1,3-Dichloropropylene	2.89	0.05	ug/g	ND	72.2	60-130			
Ethylbenzene	3.80	0.05	ug/g	ND	95.0	60-130			
Ethylene dibromide (dibromoethane, 1,2-)	2.98	0.05	ug/g	ND	74.4	60-130			
Hexane	3.23	0.05	ug/g	ND	80.8	60-130			
Methyl Ethyl Ketone (2-Butanone)	8.25	0.50	ug/g	ND	82.5	50-140			
Methyl Isobutyl Ketone	6.01	0.50	ug/g	ND	60.1	50-140			
Methyl tert-butyl ether	8.42	0.05	ug/g	ND	84.2	50-140			
Methylene Chloride	4.39	0.05	ug/g	ND	110	60-130			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Styrene	2.86	0.05	ug/g	ND	71.6	60-130			
1,1,1,2-Tetrachloroethane	3.27	0.05	ug/g	ND	81.8	60-130			
1,1,2,2-Tetrachloroethane	2.97	0.05	ug/g	ND	74.3	60-130			
Tetrachloroethylene	3.73	0.05	ug/g	ND	93.2	60-130			
Toluene	3.68	0.05	ug/g	ND	92.0	60-130			
1,1,1-Trichloroethane	3.14	0.05	ug/g	ND	78.6	60-130			
1,1,2-Trichloroethane	2.91	0.05	ug/g	ND	72.7	60-130			
Trichloroethylene	3.19	0.05	ug/g	ND	79.8	60-130			
Trichlorofluoromethane	4.48	0.05	ug/g	ND	112	50-140			
Vinyl chloride	4.16	0.02	ug/g	ND	104	50-140			
m,p-Xylenes	7.37	0.05	ug/g	ND	92.1	60-130			
o-Xylene	3.65	0.05	ug/g	ND	91.3	60-130			
Surrogate: 4-Bromofluorobenzene	*7.45*		*%*		*93.2*	*50-140*			
Surrogate: Dibromofluoromethane	*8.90*		*%*		*111*	*50-140*			
Surrogate: Toluene-d8	*8.12*		*%*		*102*	*50-140*			
Benzene	3.53	0.02	ug/g	ND	88.3	60-130			
Ethylbenzene	3.80	0.05	ug/g	ND	95.0	60-130			
Toluene	3.68	0.05	ug/g	ND	92.0	60-130			
m,p-Xylenes	7.37	0.05	ug/g	ND	92.1	60-130			
o-Xylene	3.65	0.05	ug/g	ND	91.3	60-130			
Surrogate: Toluene-d8	*8.12*		*%*		*102*	*50-140*			

Qualifier Notes:

Sample Qualifiers :

1: GC-FID signal did not return to baseline by C50

Applies to Samples: TP1-G2, TP1-G5

QC Qualifiers:

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

Sample Data Revisions:

None

Certificate of Analysis

Report Date: 07-Jan-2025

Client: **Paterson Group Consulting Engineers (Ottawa)**

Order Date: 23-Dec-2024

Client PO: 62089

Project Description: PE6830

Work Order Revisions / Comments:

Revision 1 - Revised report includes additional mSPLP metals data.

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 unlesss otherwise noted.

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 criteria.

- When reported, data for F4G has been processed using a silica gel cleanup.

PARACEL LABORATORIES LTD

Paracel ID: 2452067

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
	№ 76059

Client Name: Paterson Group.	Project Ref: PE6830	Page 1 of 2
Contact Name: Karyn Munch	Quote #:	**Turnaround Time**
Address: 9 Auriga Dr.	PO #: 62078	☐ 1 day ☐ 3 day
	E-mail: kmunch@patersongroup.ca	☐ 2 day ☒ Regular
Telephone: 613·226·7381		Date Required:

☐ REG 153/04 ☐ REG 406/19	Other Regulation
☐ Table 1 ☐ Agri/Other ☐ Med/Fine	☐ REG 558 ☐ PWQO
☐ Table 2 ☐ Res/Park ☒ Coarse	☐ CCME ☐ MISA
☐ Table 3 ☐ Ind/Comm	☐ SU - Sani ☐ SU - Storm
☒ Table 9	Mun:
For RSC: ☐ Yes ☐ No	☐ Other:

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Field Filtered	Sample Taken: Date	Sample Taken: Time	Required Analysis: BTEX/PHC	VOC	ICP Metals	PAH	EC/SAR	pH
1	BH1-SS2	S		2		Dec. 20/24	am	✓		✓	✓	✓	✓
2	BH1-SS4						am	—		—	HOLD		—
3	BH2-SS2						am	✓		✓	✓	✓	✓
4	BH3-SS2						pm	✓		✓	✓	✓	
5	BH3-SS3							—		—	HOLD		—
6	BH3-SS4							✓		✓	✓	✓	
7	TP1-G2							✓		✓	✓	✓	
8	TP1-G5							✓		✓		✓	
9	TP2-G3							✓	✓	✓		✓	
10	TP3-G1							✓	[redacted]	✓	✓	✓	

Comments:

Method of Delivery: Paracel Courier

Relinquished By (Sign): KMunch	Received at Depot:	Received at Lab: KS	Verified By: JM
Relinquished By (Print): K. Munch	Date/Time:	Date/Time: Dec 23 1430	Date/Time: 12-23-24 1516
Date/Time: Dec. 23, 2024 12:45	Temperature: °C	Temperature: 7.3 °C	pH Verified: ☐ By:

PARACEL LABORATORIES LTD

Paracel ID: 2452067

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only) № 76059

Client Name: Paterson Group.
Contact Name: Karyn Munch
Address: 9 Auriga Dr.
Telephone: 613·226·7381

Project Ref: PE6830
Quote #:
PO #: 62078
E-mail: kmunch@patersongroup.ca

Page 2 of 2

Turnaround Time
☐ 1 day ☐ 3 day
☐ 2 day ☒ Regular
Date Required:

☐ REG 153/04 ☐ REG 406/19

☐ Table 1 ☐ Agri/Other ☐ Med/Fine
☐ Table 2 ☐ Res/Park ☒ Coarse
☐ Table 3 ☐ Ind/Comm
☒ Table 9
For RSC: ☐ Yes ☐ No

Other Regulation
☐ REG 558 ☐ PWQO
☐ CCME ☐ MISA
☐ SU - Sani ☐ SU - Storm
Mun:
☐ Other:

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Field Filtered	Sample Taken Date	Sample Taken Time	BTEX/PHC	VOC	ICP Metals	DAH	EC/SAR	pH						
1	TP3-G4	S		2		DEC.20/24	pm	✓	✓	✓		✓							
2	TP4-G2	S		2		↓	↓	✓		✓	✓	✓							
3	TP4-G4	S		2				—	—	—	HOLD	—							
4	DUP·1	S		2		↓	↓	✓		✓	✓								
5																			
6																			
7																			
8																			
9																			
10																			

Required Analysis

Comments:

Method of Delivery: Paracel Courier

Relinquished By (Sign):	Received at Depot:	Received at Lab: DG	Verified By: JM
Relinquished By (Print): K. Munch	Date/Time:	Date/Time: Dec 23 1430	Date/Time: 2-23-24 1516
Date/Time: Dec. 23/24 12:45	Temperature: °C	Temperature: 7.3 °C	pH Verified: ☐ By:

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Certificate of Analysis

Paterson Group Consulting Engineers (Ottawa)
9 Auriga Drive
Ottawa, ON K2E 7T9
Attn: Karyn Munch

Client PO: 62089
Project: PE6380
Custody:

Report Date: 7-Jan-2025
Order Date: 3-Jan-2025

Order #: 2501092

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

Paracel ID	Client ID
2501092-01	BH3-SS5
2501092-02	TP1-G4

Approved By:

Mark Foto, M.Sc.
Laboratory Director

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
BTEX by P&T GC-MS	EPA 8260 - P&T GC-MS	3-Jan-25	3-Jan-25
PHC F1	CWS Tier 1 - P&T GC-FID	3-Jan-25	3-Jan-25
PHC F4G (gravimetric)	CWS Tier 1 - Extraction Gravimetric	3-Jan-25	7-Jan-25
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	6-Jan-25	6-Jan-25
Solids, %	CWS Tier 1 - Gravimetric	3-Jan-25	6-Jan-25

	Client ID:	BH3-SS5	TP1-G4	-	-	-	-
	Sample Date:	20-Dec-24 12:00	20-Dec-24 12:00	-	-		
	Sample ID:	2501092-01	2501092-02	-	-		
	Matrix:	Soil	Soil	-	-		
	MDL/Units						
Physical Characteristics							
% Solids	0.1 % by Wt.	90.5	80.6	-	-	-	-
Volatiles							
Benzene	0.02 ug/g	<0.02	<0.02	-	-	-	-
Ethylbenzene	0.05 ug/g	<0.05	<0.05	-	-	-	-
Toluene	0.05 ug/g	<0.05	<0.05	-	-	-	-
m,p-Xylenes	0.05 ug/g	<0.05	<0.05	-	-	-	-
o-Xylene	0.05 ug/g	<0.05	<0.05	-	-	-	-
Xylenes, total	0.05 ug/g	<0.05	<0.05	-	-	-	-
Toluene-d8	Surrogate	60.6%	63.0%	-	-	-	-
Hydrocarbons							
F1 PHCs (C6-C10)	7 ug/g	<7	<7	-	-	-	-
F2 PHCs (C10-C16)	4 ug/g	44	<4	-	-	-	-
F3 PHCs (C16-C34)	8 ug/g	33	141	-	-	-	-
F4 PHCs (C34-C50)	6 ug/g	<6	181 [1]	-	-	-	-
F4G PHCs (gravimetric)	50 ug/g	-	620	-	-	-	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
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					
Volatiles								
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	*9.26*		*%*	*116*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
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)	18	8	ug/g	20			6.4	30	
F4 PHCs (C34-C50)	20	6	ug/g	24			15.1	30	
Physical Characteristics									
% Solids	84.8	0.1	% by Wt.	80.6			5.1	25	
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	
m,p-Xylenes	ND	0.05	ug/g	ND			NC	50	
o-Xylene	ND	0.05	ug/g	ND			NC	50	
Surrogate: Toluene-d8	*10.0*		*%*		*119*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	171	7	ug/g	ND	85.6	85-115			
F2 PHCs (C10-C16)	93	4	ug/g	ND	111	60-140			
F3 PHCs (C16-C34)	244	8	ug/g	20	109	60-140			
F4 PHCs (C34-C50)	177	6	ug/g	24	118	60-140			
F4G PHCs (gravimetric)	1010	50	ug/g	ND	101	80-120			
Volatiles									
Benzene	4.28	0.02	ug/g	ND	107	60-130			
Ethylbenzene	4.24	0.05	ug/g	ND	106	60-130			
Toluene	4.37	0.05	ug/g	ND	109	60-130			
m,p-Xylenes	8.65	0.05	ug/g	ND	108	60-130			
o-Xylene	4.37	0.05	ug/g	ND	109	60-130			
Surrogate: Toluene-d8	*8.22*		*%*		*103*	*50-140*			

Qualifier Notes:

Sample Qualifiers :

1: GC-FID signal did not return to baseline by C50

Applies to Samples: TP1-G4

Sample Data Revisions:

None

Certificate of Analysis

Report Date: 07-Jan-2025

Client: **Paterson Group Consulting Engineers (Ottawa)**

Order Date: 3-Jan-2025

Client PO: 62089

Project Description: PE6380

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 unlesss otherwise noted.

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 criteria.

- When reported, data for F4G has been processed using a silica gel cleanup.

PARACEL LABORATORIES LTD.

Paracel ID: 2501092

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Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2501092	

Client Name: Paterson Group	Project Ref: PE6380	Page __ of __
Contact Name: Kaitlyn Munch	Quote #:	Turnaround Time
Address: 9 Auriga Drive	PO #: 62089	☐ 1 day ☐ 3 day
	E-mail: kmunch@patersongroup.ca	☐ 2 day ☑ Regular
Telephone: 613-226-7381		Date Required:

☐ REG 153/04 ☐ REG 406/19	Other Regulation
☐ Table 1 ☐ Res/Park ☐ Med/Fine	☐ REG 558 ☐ PWQO
☐ Table 2 ☐ Ind/Comm ☐ Coarse	☐ CCME ☐ MISA
☐ Table 3 ☐ Agri/Other	☐ SU - Sani ☐ SU - Storm
☑ Table 9	Mun:
For RSC: ☐ Yes ☐ No	☐ Other:

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)					
1	BH3-SS5	S		2	Dec. 20/24	pm	✓	✓										
2	TP1-G4	S		2	Dec. 20/24	pm	✓											
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		

Required Analysis

Comments:

Method of Delivery: Paracel Courier

Relinquished By (Sign): KMunch	Received By Driver/Depot:	Received at Lab: SO	Verified By: SO
Relinquished By (Print): K. Munch	Date/Time:	Date/Time: Jan 3, 2025 3:10pm	Date/Time: Jan 3, 2025 3:14pm
Date/Time: Jan. 3/2025 @ 1:45	Temperature: °C	Temperature: ~~4.3~~ 8.2	pH Verified: ☐ By:

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Certificate of Analysis

Paterson Group Consulting Engineers (Ottawa)
9 Auriga Drive
Ottawa, ON K2E 7T9
Attn: Karyn Munch

Client PO: 62132
Project: PE6830
Custody:

Report Date: 21-Jan-2025
Order Date: 9-Jan-2025

Order #: 2502314

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

Paracel ID	Client ID
2502314-06	BH2-24-SS4

Approved By:

Mark Foto

Mark Foto, M.Sc.
Laboratory Director

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
PHC F1	CWS Tier 1 - P&T GC-FID	17-Jan-25	18-Jan-25
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	17-Jan-25	17-Jan-25
Solids, %	CWS Tier 1 - Gravimetric	16-Jan-25	17-Jan-25

	Client ID:	BH2-24-SS4	-	-	-		
	Sample Date:	20-Dec-24 09:00	-	-	-	-	-
	Sample ID:	2502314-06	-	-	-		
	Matrix:	Soil	-	-	-		
	MDL/Units						
Physical Characteristics							
% Solids	0.1 % by Wt.	88.4	-	-	-	-	-
Hydrocarbons							
F1 PHCs (C6-C10)	7 ug/g	<7 [1]	-	-	-	-	-
F2 PHCs (C10-C16)	4 ug/g	<4 [1]	-	-	-	-	-
F3 PHCs (C16-C34)	8 ug/g	<8 [1]	-	-	-	-	-
F4 PHCs (C34-C50)	6 ug/g	<6 [1]	-	-	-	-	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
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					

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
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)	ND	8	ug/g	ND			NC	30	
F4 PHCs (C34-C50)	ND	6	ug/g	ND			NC	30	
Physical Characteristics									
% Solids	69.3	0.1	% by Wt.	69.4			0.2	25	

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	181	7	ug/g	ND	90.6	85-115			
F2 PHCs (C10-C16)	79	4	ug/g	ND	97.7	60-140			
F3 PHCs (C16-C34)	219	8	ug/g	ND	110	60-140			
F4 PHCs (C34-C50)	145	6	ug/g	ND	115	60-140			

Qualifier Notes:

Login Qualifiers :

Sample - One or more parameter received or added past hold time. Directed by client to proceed with analysis - PHCs F1-F4.

Applies to Samples: BH2-24-SS4

Sample Qualifiers :

1: Holding time had been exceeded upon receipt of the sample at the laboratory or prior to the analysis being requested.

Sample Data Revisions:

None

Certificate of Analysis

Report Date: 21-Jan-2025

Client: **Paterson Group Consulting Engineers (Ottawa)**

Order Date: 9-Jan-2025

Client PO: 62132

Project Description: PE6830

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 unlesss otherwise noted.

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 criteria.

- When reported, data for F4G has been processed using a silica gel cleanup.

PARACEL LABORATORIES LTD.

Paracel ID: 2502314

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2502314	

Client Name: Paterson	Project Ref: PE6830	Page 1 of 1
Contact Name: Kuryn Munch	Quote #:	Turnaround Time
Address: 9 Auriga Drive	PO #: 62132	☐ 1 day ☐ 3 day
	E-mail: kmunch@petersongroup.ca	☐ 2 day ☑ Regular
Telephone: 613-226-7381	kpunchal@petersongroup.ca	Date Required:

☑ REG 153/04 ☐ REG 406/19

☐ Table 1 ☐ Res/Park ☐ Med/Fine
☐ Table 2 ☐ Ind/Comm ☐ Coarse
☐ Table 3 ☐ Agri/Other
☑ Table 9
For RSC: ☐ Yes ☐ No

Other Regulation: ☐ REG 558 ☐ PWQO ☐ CCME ☐ MISA ☐ SU - Sani ☐ SU - Storm
Mun:
☐ Other:

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)	PHC	EC/SAR			
1	BH1-24-SS3 (on hold)	S		2	12/20/2024					✓				✓	✓			
2	BH1-24-SS4 (")	↓		↓	↓					↓				↓	↓			
3	BH1-24-SS5 (")																	
4	BH1-24-SS6 (")																	
5	BH1-24-SS7 (")																	
6	BH2-24-SS4 (")																	
7	BH2-24-SS5 (")	↓		↓	↓					↓				↓	↓			
8																		
9																		
10																		

Comments: Please hold, we will call once we have approval.

Method of Delivery: Paracel Courier

Relinquished By (Sign):	Received By Driver/Depot:	Received at Lab:	Verified By: SD
Relinquished By (Print): Kuldeep Punchal	Date/Time:	Date/Time: Jan 9 15:44	Date/Time: Jan 9, 2025 4:28 pm
Date/Time: 01/09/2025	Temperature: °C	Temperature: 19.6	pH Verified: ☐ By:

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Certificate of Analysis

Paterson Group Consulting Engineers (Ottawa)
9 Auriga Drive
Ottawa, ON K2E 7T9
Attn: Mark D'Arcy

Client PO: 62703
Project: PE6971
Custody:

Report Date: 3-Apr-2025
Order Date: 28-Mar-2025

Order #: 2513497

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

Paracel ID	Client ID
2513497-01	BH4-25-SS3
2513497-02	BH4-25-SS5
2513497-03	BH4-25-SS6
2513497-04	BH5-25-AU1
2513497-05	BH5-25-SS2
2513497-06	BH5-25-SS3
2513497-07	BH5-25-SS4
2513497-08	BH5-25-SS5
2513497-09	BH6-25-AU1
2513497-10	BH6-25-SS2/3
2513497-11	BH6-25-SS5
2513497-13	BH7-25-SS2
2513497-14	BH7-25-SS3
2513497-15	BH7-25-SS4
2513497-16	BH7-25-SS5
2513497-17	BH7-25-SS6/7
2513497-18	BH8-25-AU1
2513497-19	BH8-25-SS2
2513497-20	BH8-25-SS4
2513497-22	BH8-25-SS6
2513497-23	DUP1

Approved By:

Mark Foto, M.Sc.
Laboratory Director

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
BTEX by P&T GC-MS	EPA 8260 - P&T GC-MS	31-Mar-25	31-Mar-25
Conductivity	MOE E3138 - probe @25 °C, water ext	31-Mar-25	31-Mar-25
pH, soil	EPA 150.1 - pH probe @ 25 °C, CaCl buffered ext.	1-Apr-25	1-Apr-25
PHC F1	CWS Tier 1 - P&T GC-FID	31-Mar-25	31-Mar-25
PHC F4G (gravimetric)	CWS Tier 1 - Extraction Gravimetric	31-Mar-25	2-Apr-25
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	29-Mar-25	1-Apr-25
REG 153: Metals by ICP/MS, soil	EPA 6020 - Digestion - ICP-MS	31-Mar-25	31-Mar-25
REG 153: PAHs by GC-MS	EPA 8270 - GC-MS, extraction	29-Mar-25	1-Apr-25
SAR	Calculated	31-Mar-25	31-Mar-25
Solids, %	CWS Tier 1 - Gravimetric	31-Mar-25	1-Apr-25

	Client ID:	BH4-25-SS3	BH4-25-SS5	BH4-25-SS6	BH5-25-AU1	-	-
	Sample Date:	27-Mar-25 09:00	27-Mar-25 09:00	27-Mar-25 09:00	27-Mar-25 09:00		
	Sample ID:	2513497-01	2513497-02	2513497-03	2513497-04		
	Matrix:	Soil	Soil	Soil	Soil		
	MDL/Units						
Physical Characteristics							
% Solids	0.1 % by Wt.	92.6	88.0	91.2	94.3	-	-
General Inorganics							
SAR	0.01 N/A	2.47	-	-	0.15	-	-
Conductivity	5 uS/cm	529	-	-	2550	-	-
pH	0.05 pH Units	7.80	-	-	-	-	-
Metals							
Antimony	1.0 ug/g	<1.0	<1.0	-	<1.0	-	-
Arsenic	1.0 ug/g	6.3	3.8	-	9.1	-	-
Barium	1.0 ug/g	72.9	54.5	-	30.2	-	-
Beryllium	0.5 ug/g	0.6	<0.5	-	<0.5	-	-
Boron	5.0 ug/g	9.7	5.8	-	10.4	-	-
Cadmium	0.5 ug/g	<0.5	<0.5	-	<0.5	-	-
Chromium	5.0 ug/g	22.2	12.1	-	19.5	-	-
Cobalt	1.0 ug/g	10.4	6.1	-	10.1	-	-
Copper	5.0 ug/g	29.7	19.3	-	13.3	-	-
Lead	1.0 ug/g	9.5	5.0	-	23.0	-	-
Molybdenum	1.0 ug/g	1.9	1.3	-	5.7	-	-
Nickel	5.0 ug/g	25.5	12.8	-	19.9	-	-
Selenium	1.0 ug/g	<1.0	<1.0	-	<1.0	-	-
Silver	0.3 ug/g	<0.3	<0.3	-	<0.3	-	-
Thallium	1.0 ug/g	<1.0	<1.0	-	<1.0	-	-
Uranium	1.0 ug/g	1.4	<1.0	-	<1.0	-	-
Vanadium	10.0 ug/g	35.4	20.3	-	21.1	-	-
Zinc	20.0 ug/g	44.0	25.2	-	<20.0	-	-
Volatiles							

Certificate of Analysis

Report Date: 03-Apr-2025

Client: **Paterson Group Consulting Engineers (Ottawa)**

Order Date: 28-Mar-2025

Client PO: **62703**

Project Description: **PE6971**

	Client ID:	BH4-25-SS3	BH4-25-SS5	BH4-25-SS6	BH5-25-AU1	-	-
	Sample Date:	27-Mar-25 09:00	27-Mar-25 09:00	27-Mar-25 09:00	27-Mar-25 09:00		
	Sample ID:	2513497-01	2513497-02	2513497-03	2513497-04		
	Matrix:	Soil	Soil	Soil	Soil		
	MDL/Units						
Volatiles							
Benzene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-
Ethylbenzene	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
Toluene	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
m,p-Xylenes	0.05 ug/g	<0.05	<0.05	<0.05	0.13	-	-
o-Xylene	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
Xylenes, total	0.05 ug/g	<0.05	<0.05	<0.05	0.13	-	-
Toluene-d8	Surrogate	102%	105%	106%	101%	-	-
Hydrocarbons							
F1 PHCs (C6-C10)	7 ug/g	<7	<7	<7	<7	-	-
F2 PHCs (C10-C16)	4 ug/g	15	<4	16	10	-	-
F3 PHCs (C16-C34)	8 ug/g	15	<8	15	4320	-	-
F4 PHCs (C34-C50)	6 ug/g	<6	<6	<6	1750 [2]	-	-
F4G PHCs (gravimetric)	50 ug/g	-	-	-	2170	-	-
Semi-Volatiles							
Acenaphthene	0.02 ug/g	<0.02	-	-	<0.40 [1]	-	-
Acenaphthylene	0.02 ug/g	<0.02	-	-	<0.40 [1]	-	-
Anthracene	0.02 ug/g	<0.02	-	-	<0.40 [1]	-	-
Benzo [a] anthracene	0.02 ug/g	<0.02	-	-	<0.40 [1]	-	-
Benzo [a] pyrene	0.02 ug/g	<0.02	-	-	<0.40 [1]	-	-
Benzo [b] fluoranthene	0.02 ug/g	<0.02	-	-	<0.40 [1]	-	-
Benzo [g,h,i] perylene	0.02 ug/g	<0.02	-	-	<0.40 [1]	-	-
Benzo [k] fluoranthene	0.02 ug/g	<0.02	-	-	<0.40 [1]	-	-
Chrysene	0.02 ug/g	<0.02	-	-	<0.40 [1]	-	-
Dibenzo [a,h] anthracene	0.02 ug/g	<0.02	-	-	<0.40 [1]	-	-
Fluoranthene	0.02 ug/g	<0.02	-	-	<0.40 [1]	-	-

	Client ID:	BH4-25-SS3	BH4-25-SS5	BH4-25-SS6	BH5-25-AU1	-	-
	Sample Date:	27-Mar-25 09:00	27-Mar-25 09:00	27-Mar-25 09:00	27-Mar-25 09:00		
	Sample ID:	2513497-01	2513497-02	2513497-03	2513497-04		
	Matrix:	Soil	Soil	Soil	Soil		
	MDL/Units						
Semi-Volatiles							
Fluorene	0.02 ug/g	<0.02	-	-	<0.40 [1]	-	-
Indeno [1,2,3-cd] pyrene	0.02 ug/g	<0.02	-	-	<0.40 [1]	-	-
1-Methylnaphthalene	0.02 ug/g	<0.02	-	-	<0.40 [1]	-	-
2-Methylnaphthalene	0.02 ug/g	<0.02	-	-	<0.40 [1]	-	-
Methylnaphthalene (1&2)	0.04 ug/g	<0.04	-	-	<0.80 [1]	-	-
Naphthalene	0.01 ug/g	<0.01	-	-	<0.20 [1]	-	-
Phenanthrene	0.02 ug/g	<0.02	-	-	<0.40 [1]	-	-
Pyrene	0.02 ug/g	<0.02	-	-	<0.40 [1]	-	-
2-Fluorobiphenyl	Surrogate	79.1%	-	-	74.5% [1]	-	-
Terphenyl-d14	Surrogate	88.5%	-	-	84.3% [1]	-	-

Certificate of Analysis

Report Date: 03-Apr-2025

Client: **Paterson Group Consulting Engineers (Ottawa)**

Order Date: 28-Mar-2025

Client PO: **62703**

Project Description: PE6971

	Client ID:	BH5-25-SS2	BH5-25-SS3	BH5-25-SS4	BH5-25-SS5	-	-
	Sample Date:	27-Mar-25 09:00	27-Mar-25 09:00	27-Mar-25 09:00	27-Mar-25 09:00		
	Sample ID:	2513497-05	2513497-06	2513497-07	2513497-08		
	Matrix:	Soil	Soil	Soil	Soil		
	MDL/Units						
Physical Characteristics							
% Solids	0.1 % by Wt.	89.4	87.2	88.5	92.5	-	-
General Inorganics							
SAR	0.01 N/A	0.16	2.45	-	-	-	-
Conductivity	5 uS/cm	245	257	-	-	-	-
Metals							
Antimony	1.0 ug/g	<1.0	<1.0	<1.0	<1.0	-	-
Arsenic	1.0 ug/g	4.7	3.3	6.6	6.3	-	-
Barium	1.0 ug/g	95.2	55.7	117	105	-	-
Beryllium	0.5 ug/g	0.6	<0.5	0.7	0.6	-	-
Boron	5.0 ug/g	9.5	<5.0	9.8	9.0	-	-
Cadmium	0.5 ug/g	<0.5	<0.5	<0.5	<0.5	-	-
Chromium	5.0 ug/g	22.6	14.8	28.0	20.2	-	-
Cobalt	1.0 ug/g	12.0	6.1	12.0	10.3	-	-
Copper	5.0 ug/g	28.0	18.4	32.9	32.7	-	-
Lead	1.0 ug/g	8.5	5.1	11.9	11.1	-	-
Molybdenum	1.0 ug/g	1.3	<1.0	1.4	1.6	-	-
Nickel	5.0 ug/g	25.8	12.8	27.3	23.8	-	-
Selenium	1.0 ug/g	<1.0	<1.0	<1.0	<1.0	-	-
Silver	0.3 ug/g	<0.3	<0.3	<0.3	<0.3	-	-
Thallium	1.0 ug/g	<1.0	<1.0	<1.0	<1.0	-	-
Uranium	1.0 ug/g	<1.0	<1.0	1.3	1.1	-	-
Vanadium	10.0 ug/g	36.9	25.5	39.9	30.3	-	-
Zinc	20.0 ug/g	45.7	27.3	54.2	50.9	-	-
Volatiles							
Benzene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-

Certificate of Analysis

Report Date: 03-Apr-2025

Client: **Paterson Group Consulting Engineers (Ottawa)**

Order Date: 28-Mar-2025

Client PO: **62703**

Project Description: **PE6971**

	Client ID:	BH5-25-SS2	BH5-25-SS3	BH5-25-SS4	BH5-25-SS5	-	-
	Sample Date:	27-Mar-25 09:00	27-Mar-25 09:00	27-Mar-25 09:00	27-Mar-25 09:00		
	Sample ID:	2513497-05	2513497-06	2513497-07	2513497-08		
	Matrix:	Soil	Soil	Soil	Soil		
	MDL/Units						
Volatiles							
Ethylbenzene	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
Toluene	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
m,p-Xylenes	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
o-Xylene	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
Xylenes, total	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
Toluene-d8	Surrogate	103%	107%	102%	103%	-	-
Hydrocarbons							
F1 PHCs (C6-C10)	7 ug/g	<7	<7	<7	<7	-	-
F2 PHCs (C10-C16)	4 ug/g	<4	<4	12	20	-	-
F3 PHCs (C16-C34)	8 ug/g	<8	<8	12	23	-	-
F4 PHCs (C34-C50)	6 ug/g	14	<6	<6	15	-	-
Semi-Volatiles							
Acenaphthene	0.02 ug/g	<0.02	<0.02	-	-	-	-
Acenaphthylene	0.02 ug/g	<0.02	<0.02	-	-	-	-
Anthracene	0.02 ug/g	<0.02	<0.02	-	-	-	-
Benzo [a] anthracene	0.02 ug/g	<0.02	<0.02	-	-	-	-
Benzo [a] pyrene	0.02 ug/g	<0.02	<0.02	-	-	-	-
Benzo [b] fluoranthene	0.02 ug/g	<0.02	<0.02	-	-	-	-
Benzo [g,h,i] perylene	0.02 ug/g	<0.02	<0.02	-	-	-	-
Benzo [k] fluoranthene	0.02 ug/g	<0.02	<0.02	-	-	-	-
Chrysene	0.02 ug/g	<0.02	<0.02	-	-	-	-
Dibenzo [a,h] anthracene	0.02 ug/g	<0.02	<0.02	-	-	-	-
Fluoranthene	0.02 ug/g	<0.02	<0.02	-	-	-	-
Fluorene	0.02 ug/g	<0.02	<0.02	-	-	-	-
Indeno [1,2,3-cd] pyrene	0.02 ug/g	<0.02	<0.02	-	-	-	-

	Client ID:	BH5-25-SS2	BH5-25-SS3	BH5-25-SS4	BH5-25-SS5	-	-
	Sample Date:	27-Mar-25 09:00	27-Mar-25 09:00	27-Mar-25 09:00	27-Mar-25 09:00		
	Sample ID:	2513497-05	2513497-06	2513497-07	2513497-08		
	Matrix:	Soil	Soil	Soil	Soil		
	MDL/Units						
Semi-Volatiles							
1-Methylnaphthalene	0.02 ug/g	<0.02	<0.02	-	-	-	-
2-Methylnaphthalene	0.02 ug/g	<0.02	<0.02	-	-	-	-
Methylnaphthalene (1&2)	0.04 ug/g	<0.04	<0.04	-	-	-	-
Naphthalene	0.01 ug/g	<0.01	<0.01	-	-	-	-
Phenanthrene	0.02 ug/g	<0.02	<0.02	-	-	-	-
Pyrene	0.02 ug/g	<0.02	<0.02	-	-	-	-
2-Fluorobiphenyl	Surrogate	74.1%	57.4%	-	-	-	-
Terphenyl-d14	Surrogate	86.0%	86.7%	-	-	-	-

Certificate of Analysis

Report Date: 03-Apr-2025

Client: **Paterson Group Consulting Engineers (Ottawa)**

Order Date: 28-Mar-2025

Client PO: **62703**

Project Description: PE6971

	Client ID:	BH6-25-AU1	BH6-25-SS2/3	BH6-25-SS5	BH7-25-SS2	-	-
	Sample Date:	27-Mar-25 09:00	27-Mar-25 09:00	27-Mar-25 09:00	27-Mar-25 09:00		
	Sample ID:	2513497-09	2513497-10	2513497-11	2513497-13		
	Matrix:	Soil	Soil	Soil	Soil		
	MDL/Units						
Physical Characteristics							
% Solids	0.1 % by Wt.	87.0	84.7	87.7	88.9	-	-
General Inorganics							
SAR	0.01 N/A	0.40	0.59	-	0.66	-	-
Conductivity	5 uS/cm	267	1980	-	865	-	-
Metals							
Antimony	1.0 ug/g	<1.0	<1.0	<1.0	<1.0	-	-
Arsenic	1.0 ug/g	5.7	4.9	6.3	5.2	-	-
Barium	1.0 ug/g	94.2	129	129	69.7	-	-
Beryllium	0.5 ug/g	0.6	0.7	0.6	0.5	-	-
Boron	5.0 ug/g	11.1	19.2	10.6	9.2	-	-
Cadmium	0.5 ug/g	<0.5	<0.5	<0.5	<0.5	-	-
Chromium	5.0 ug/g	29.1	27.0	24.6	19.4	-	-
Cobalt	1.0 ug/g	10.7	9.1	11.3	9.4	-	-
Copper	5.0 ug/g	30.6	27.0	28.5	26.7	-	-
Lead	1.0 ug/g	16.9	19.1	12.0	11.6	-	-
Molybdenum	1.0 ug/g	1.7	1.8	1.6	1.3	-	-
Nickel	5.0 ug/g	23.1	20.2	27.1	20.4	-	-
Selenium	1.0 ug/g	<1.0	<1.0	<1.0	<1.0	-	-
Silver	0.3 ug/g	<0.3	<0.3	<0.3	<0.3	-	-
Thallium	1.0 ug/g	<1.0	<1.0	<1.0	<1.0	-	-
Uranium	1.0 ug/g	<1.0	<1.0	1.1	<1.0	-	-
Vanadium	10.0 ug/g	37.9	31.7	34.6	29.6	-	-
Zinc	20.0 ug/g	56.0	56.7	48.5	47.3	-	-
Volatiles							
Benzene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-

	Client ID:	BH6-25-AU1	BH6-25-SS2/3	BH6-25-SS5	BH7-25-SS2	-	-
	Sample Date:	27-Mar-25 09:00	27-Mar-25 09:00	27-Mar-25 09:00	27-Mar-25 09:00		
	Sample ID:	2513497-09	2513497-10	2513497-11	2513497-13		
	Matrix:	Soil	Soil	Soil	Soil		
	MDL/Units						
Volatiles							
Ethylbenzene	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
Toluene	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
m,p-Xylenes	0.05 ug/g	<0.05	0.07	<0.05	<0.05	-	-
o-Xylene	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
Xylenes, total	0.05 ug/g	<0.05	0.07	<0.05	<0.05	-	-
Toluene-d8	Surrogate	105%	106%	105%	106%	-	-
Hydrocarbons							
F1 PHCs (C6-C10)	7 ug/g	<7	<7	<7	<7	-	-
F2 PHCs (C10-C16)	4 ug/g	12	11	10	5	-	-
F3 PHCs (C16-C34)	8 ug/g	62	129 [3]	10	21	-	-
F4 PHCs (C34-C50)	6 ug/g	107 [2]	124 [2]	<6	33	-	-
F4G PHCs (gravimetric)	50 ug/g	356	1260	-	-	-	-
Semi-Volatiles							
Acenaphthene	0.02 ug/g	<0.02	0.46	-	<0.02	-	-
Acenaphthylene	0.02 ug/g	<0.02	<0.02	-	<0.02	-	-
Anthracene	0.02 ug/g	0.02	2.79	-	<0.02	-	-
Benzo [a] anthracene	0.02 ug/g	0.12	11.8	-	0.04	-	-
Benzo [a] pyrene	0.02 ug/g	0.13	10.8	-	0.03	-	-
Benzo [b] fluoranthene	0.02 ug/g	0.17	13.2	-	0.04	-	-
Benzo [g,h,i] perylene	0.02 ug/g	0.09	3.39	-	<0.02	-	-
Benzo [k] fluoranthene	0.02 ug/g	0.05	2.47	-	<0.02	-	-
Chrysene	0.02 ug/g	0.13	10.8	-	0.05	-	-
Dibenzo [a,h] anthracene	0.02 ug/g	<0.02	<0.02	-	<0.02	-	-
Fluoranthene	0.02 ug/g	0.28	26.8	-	0.09	-	-
Fluorene	0.02 ug/g	<0.02	0.53	-	<0.02	-	-

	Client ID:	BH6-25-AU1	BH6-25-SS2/3	BH6-25-SS5	BH7-25-SS2	-	-
	Sample Date:	27-Mar-25 09:00	27-Mar-25 09:00	27-Mar-25 09:00	27-Mar-25 09:00		
	Sample ID:	2513497-09	2513497-10	2513497-11	2513497-13		
	Matrix:	Soil	Soil	Soil	Soil		
	MDL/Units						
Semi-Volatiles							
Indeno [1,2,3-cd] pyrene	0.02 ug/g	0.08	6.90	-	<0.02	-	-
1-Methylnaphthalene	0.02 ug/g	<0.02	0.03	-	<0.02	-	-
2-Methylnaphthalene	0.02 ug/g	<0.02	0.05	-	<0.02	-	-
Methylnaphthalene (1&2)	0.04 ug/g	<0.04	0.07	-	<0.04	-	-
Naphthalene	0.01 ug/g	<0.01	0.09	-	<0.01	-	-
Phenanthrene	0.02 ug/g	0.11	9.48	-	0.06	-	-
Pyrene	0.02 ug/g	0.18	15.9	-	0.06	-	-
2-Fluorobiphenyl	Surrogate	72.4%	68.4%	-	62.4%	-	-
Terphenyl-d14	Surrogate	86.4%	94.7%	-	77.4%	-	-

	Client ID:	BH7-25-SS3	BH7-25-SS4	BH7-25-SS5	BH7-25-SS6/7	-	-
	Sample Date:	27-Mar-25 09:00	27-Mar-25 09:00	27-Mar-25 09:00	27-Mar-25 09:00		
	Sample ID:	2513497-14	2513497-15	2513497-16	2513497-17		
	Matrix:	Soil	Soil	Soil	Soil		
	MDL/Units						
Physical Characteristics							
% Solids	0.1 % by Wt.	87.7	90.8	89.2	85.2	-	-
General Inorganics							
SAR	0.01 N/A	1.12	0.84	0.22	2.90	-	-
Conductivity	5 uS/cm	631	604	2500	417	-	-
pH	0.05 pH Units	-	-	-	7.96	-	-
Metals							
Antimony	1.0 ug/g	<1.0	<1.0	<1.0	<1.0	-	-
Arsenic	1.0 ug/g	4.7	5.5	5.3	9.4	-	-
Barium	1.0 ug/g	58.4	64.9	71.3	227	-	-
Beryllium	0.5 ug/g	0.5	0.5	0.5	1.1	-	-
Boron	5.0 ug/g	8.0	8.7	8.1	15.4	-	-
Cadmium	0.5 ug/g	<0.5	<0.5	<0.5	<0.5	-	-
Chromium	5.0 ug/g	19.0	18.3	17.1	35.1	-	-
Cobalt	1.0 ug/g	8.3	10.1	10.5	20.1	-	-
Copper	5.0 ug/g	23.4	27.3	27.9	44.5	-	-
Lead	1.0 ug/g	10.9	12.2	10.4	22.0	-	-
Molybdenum	1.0 ug/g	1.6	1.6	1.5	1.9	-	-
Nickel	5.0 ug/g	19.2	22.1	23.9	45.3	-	-
Selenium	1.0 ug/g	<1.0	<1.0	<1.0	<1.0	-	-
Silver	0.3 ug/g	<0.3	<0.3	<0.3	<0.3	-	-
Thallium	1.0 ug/g	<1.0	<1.0	<1.0	<1.0	-	-
Uranium	1.0 ug/g	<1.0	<1.0	<1.0	1.0	-	-
Vanadium	10.0 ug/g	28.0	28.3	26.7	40.9	-	-
Zinc	20.0 ug/g	45.6	43.7	45.8	72.8	-	-
Volatiles							

	Client ID:	BH7-25-SS3	BH7-25-SS4	BH7-25-SS5	BH7-25-SS6/7	-	-
	Sample Date:	27-Mar-25 09:00	27-Mar-25 09:00	27-Mar-25 09:00	27-Mar-25 09:00		
	Sample ID:	2513497-14	2513497-15	2513497-16	2513497-17		
	Matrix:	Soil	Soil	Soil	Soil		
	MDL/Units						
Volatiles							
Benzene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-
Ethylbenzene	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
Toluene	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
m,p-Xylenes	0.05 ug/g	<0.05	0.06	<0.05	0.57	-	-
o-Xylene	0.05 ug/g	<0.05	<0.05	<0.05	0.16	-	-
Xylenes, total	0.05 ug/g	<0.05	0.06	<0.05	0.73	-	-
Toluene-d8	Surrogate	106%	101%	106%	111%	-	-
Hydrocarbons							
F1 PHCs (C6-C10)	7 ug/g	<7	<7	<7	27	-	-
F2 PHCs (C10-C16)	4 ug/g	<4	5	4	12	-	-
F3 PHCs (C16-C34)	8 ug/g	19	11	10	14	-	-
F4 PHCs (C34-C50)	6 ug/g	31	8	8	14	-	-
Semi-Volatiles							
Acenaphthene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-
Acenaphthylene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-
Anthracene	0.02 ug/g	<0.02	<0.02	0.03	<0.02	-	-
Benzo [a] anthracene	0.02 ug/g	0.03	0.05	0.11	0.06	-	-
Benzo [a] pyrene	0.02 ug/g	0.03	0.04	0.10	0.05	-	-
Benzo [b] fluoranthene	0.02 ug/g	0.04	0.05	0.12	0.06	-	-
Benzo [g,h,i] perylene	0.02 ug/g	<0.02	<0.02	0.05	0.02	-	-
Benzo [k] fluoranthene	0.02 ug/g	<0.02	<0.02	0.04	0.02	-	-
Chrysene	0.02 ug/g	0.04	0.05	0.11	0.06	-	-
Dibenzo [a,h] anthracene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-
Fluoranthene	0.02 ug/g	0.07	0.10	0.24	0.12	-	-
Fluorene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-

	Client ID:	BH7-25-SS3	BH7-25-SS4	BH7-25-SS5	BH7-25-SS6/7	-	-
	Sample Date:	27-Mar-25 09:00	27-Mar-25 09:00	27-Mar-25 09:00	27-Mar-25 09:00		
	Sample ID:	2513497-14	2513497-15	2513497-16	2513497-17		
	Matrix:	Soil	Soil	Soil	Soil		
	MDL/Units						
Semi-Volatiles							
Indeno [1,2,3-cd] pyrene	0.02 ug/g	<0.02	0.02	0.06	0.03	-	-
1-Methylnaphthalene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-
2-Methylnaphthalene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-
Methylnaphthalene (1&2)	0.04 ug/g	<0.04	<0.04	<0.04	<0.04	-	-
Naphthalene	0.01 ug/g	<0.01	<0.01	<0.01	<0.01	-	-
Phenanthrene	0.02 ug/g	0.05	0.05	0.08	0.07	-	-
Pyrene	0.02 ug/g	0.05	0.06	0.17	0.08	-	-
2-Fluorobiphenyl	Surrogate	74.3%	70.6%	71.7%	63.8%	-	-
Terphenyl-d14	Surrogate	88.3%	77.4%	83.2%	72.5%	-	-

Certificate of Analysis

Report Date: 03-Apr-2025

Client: **Paterson Group Consulting Engineers (Ottawa)**

Order Date: 28-Mar-2025

Client PO: **62703**

Project Description: **PE6971**

	Client ID:	BH8-25-AU1	BH8-25-SS2	BH8-25-SS4	BH8-25-SS6	-	-
	Sample Date:	27-Mar-25 09:00	27-Mar-25 09:00	27-Mar-25 09:00	27-Mar-25 09:00		
	Sample ID:	2513497-18	2513497-19	2513497-20	2513497-22		
	Matrix:	Soil	Soil	Soil	Soil		
	MDL/Units						
Physical Characteristics							
% Solids	0.1 % by Wt.	84.4	90.9	83.6	92.5	-	-
General Inorganics							
SAR	0.01 N/A	0.15	0.26	-	-	-	-
Conductivity	5 uS/cm	219	2620	-	-	-	-
Metals							
Antimony	1.0 ug/g	<1.0	<1.0	<1.0	<1.0	-	-
Arsenic	1.0 ug/g	5.4	6.1	5.0	6.5	-	-
Barium	1.0 ug/g	73.9	86.4	105	101	-	-
Beryllium	0.5 ug/g	0.6	0.6	0.6	0.6	-	-
Boron	5.0 ug/g	7.1	7.9	8.0	9.1	-	-
Cadmium	0.5 ug/g	<0.5	<0.5	<0.5	<0.5	-	-
Chromium	5.0 ug/g	23.6	20.2	26.2	21.2	-	-
Cobalt	1.0 ug/g	9.3	11.1	11.5	10.7	-	-
Copper	5.0 ug/g	23.8	29.6	26.6	28.3	-	-
Lead	1.0 ug/g	14.5	10.4	9.5	11.9	-	-
Molybdenum	1.0 ug/g	1.2	1.8	1.3	1.6	-	-
Nickel	5.0 ug/g	22.0	25.8	28.5	25.9	-	-
Selenium	1.0 ug/g	<1.0	<1.0	<1.0	<1.0	-	-
Silver	0.3 ug/g	<0.3	<0.3	<0.3	<0.3	-	-
Thallium	1.0 ug/g	<1.0	<1.0	<1.0	<1.0	-	-
Uranium	1.0 ug/g	<1.0	1.0	<1.0	1.2	-	-
Vanadium	10.0 ug/g	34.8	31.0	36.6	30.6	-	-
Zinc	20.0 ug/g	50.0	48.0	49.7	44.8	-	-
Volatiles							
Benzene	0.02 ug/g	<0.02	<0.02	<0.02	<0.02	-	-

	Client ID:	BH8-25-AU1	BH8-25-SS2	BH8-25-SS4	BH8-25-SS6	-	-
	Sample Date:	27-Mar-25 09:00	27-Mar-25 09:00	27-Mar-25 09:00	27-Mar-25 09:00		
	Sample ID:	2513497-18	2513497-19	2513497-20	2513497-22		
	Matrix:	Soil	Soil	Soil	Soil		
	MDL/Units						
Volatiles							
Ethylbenzene	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
Toluene	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
m,p-Xylenes	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
o-Xylene	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
Xylenes, total	0.05 ug/g	<0.05	<0.05	<0.05	<0.05	-	-
Toluene-d8	Surrogate	107%	106%	104%	103%	-	-
Hydrocarbons							
F1 PHCs (C6-C10)	7 ug/g	<7	<7	<7	<7	-	-
F2 PHCs (C10-C16)	4 ug/g	<4	<4	<4	22	-	-
F3 PHCs (C16-C34)	8 ug/g	<8	<8	<8	21	-	-
F4 PHCs (C34-C50)	6 ug/g	<6	<6	<6	<6	-	-
Semi-Volatiles							
Acenaphthene	0.02 ug/g	<0.02	<0.02	-	-	-	-
Acenaphthylene	0.02 ug/g	<0.02	<0.02	-	-	-	-
Anthracene	0.02 ug/g	<0.02	<0.02	-	-	-	-
Benzo [a] anthracene	0.02 ug/g	<0.02	<0.02	-	-	-	-
Benzo [a] pyrene	0.02 ug/g	<0.02	<0.02	-	-	-	-
Benzo [b] fluoranthene	0.02 ug/g	0.02	<0.02	-	-	-	-
Benzo [g,h,i] perylene	0.02 ug/g	<0.02	<0.02	-	-	-	-
Benzo [k] fluoranthene	0.02 ug/g	<0.02	<0.02	-	-	-	-
Chrysene	0.02 ug/g	<0.02	<0.02	-	-	-	-
Dibenzo [a,h] anthracene	0.02 ug/g	<0.02	<0.02	-	-	-	-
Fluoranthene	0.02 ug/g	0.04	<0.02	-	-	-	-
Fluorene	0.02 ug/g	<0.02	<0.02	-	-	-	-
Indeno [1,2,3-cd] pyrene	0.02 ug/g	<0.02	<0.02	-	-	-	-

	Client ID:	BH8-25-AU1	BH8-25-SS2	BH8-25-SS4	BH8-25-SS6	-	-
	Sample Date:	27-Mar-25 09:00	27-Mar-25 09:00	27-Mar-25 09:00	27-Mar-25 09:00		
	Sample ID:	2513497-18	2513497-19	2513497-20	2513497-22		
	Matrix:	Soil	Soil	Soil	Soil		
	MDL/Units						
Semi-Volatiles							
1-Methylnaphthalene	0.02 ug/g	<0.02	<0.02	-	-	-	-
2-Methylnaphthalene	0.02 ug/g	<0.02	<0.02	-	-	-	-
Methylnaphthalene (1&2)	0.04 ug/g	<0.04	<0.04	-	-	-	-
Naphthalene	0.01 ug/g	<0.01	<0.01	-	-	-	-
Phenanthrene	0.02 ug/g	0.03	<0.02	-	-	-	-
Pyrene	0.02 ug/g	0.03	<0.02	-	-	-	-
2-Fluorobiphenyl	Surrogate	75.2%	76.6%	-	-	-	-
Terphenyl-d14	Surrogate	84.0%	90.8%	-	-	-	-

Certificate of Analysis

Report Date: 03-Apr-2025

Client: **Paterson Group Consulting Engineers (Ottawa)**

Order Date: 28-Mar-2025

Client PO: **62703**

Project Description: **PE6971**

	Client ID:	DUP1				-	-
	Sample Date:	27-Mar-25 09:00					
	Sample ID:	2513497-23					
	Matrix:	Soil					
	MDL/Units						
Physical Characteristics							
% Solids	0.1 % by Wt.	89.9	-	-	-	-	-
Metals							
Antimony	1.0 ug/g	<1.0	-	-	-	-	-
Arsenic	1.0 ug/g	4.0	-	-	-	-	-
Barium	1.0 ug/g	86.2	-	-	-	-	-
Beryllium	0.5 ug/g	<0.5	-	-	-	-	-
Boron	5.0 ug/g	7.8	-	-	-	-	-
Cadmium	0.5 ug/g	<0.5	-	-	-	-	-
Chromium	5.0 ug/g	19.7	-	-	-	-	-
Cobalt	1.0 ug/g	10.5	-	-	-	-	-
Copper	5.0 ug/g	21.6	-	-	-	-	-
Lead	1.0 ug/g	7.1	-	-	-	-	-
Molybdenum	1.0 ug/g	<1.0	-	-	-	-	-
Nickel	5.0 ug/g	21.2	-	-	-	-	-
Selenium	1.0 ug/g	<1.0	-	-	-	-	-
Silver	0.3 ug/g	<0.3	-	-	-	-	-
Thallium	1.0 ug/g	<1.0	-	-	-	-	-
Uranium	1.0 ug/g	<1.0	-	-	-	-	-
Vanadium	10.0 ug/g	32.6	-	-	-	-	-
Zinc	20.0 ug/g	40.2	-	-	-	-	-
Volatiles							
Benzene	0.02 ug/g	<0.02	-	-	-	-	-
Ethylbenzene	0.05 ug/g	<0.05	-	-	-	-	-
Toluene	0.05 ug/g	<0.05	-	-	-	-	-
m,p-Xylenes	0.05 ug/g	<0.05	-	-	-	-	-

	Client ID:	DUP1				-	-
	Sample Date:	27-Mar-25 09:00					
	Sample ID:	2513497-23					
	Matrix:	Soil					
	MDL/Units						
Volatiles							
o-Xylene	0.05 ug/g	<0.05	-	-	-	-	-
Xylenes, total	0.05 ug/g	<0.05	-	-	-	-	-
Toluene-d8	Surrogate	101%	-	-	-	-	-
Hydrocarbons							
F1 PHCs (C6-C10)	7 ug/g	<7	-	-	-	-	-
F2 PHCs (C10-C16)	4 ug/g	<4	-	-	-	-	-
F3 PHCs (C16-C34)	8 ug/g	13	-	-	-	-	-
F4 PHCs (C34-C50)	6 ug/g	35	-	-	-	-	-
Semi-Volatiles							
Acenaphthene	0.02 ug/g	<0.02	-	-	-	-	-
Acenaphthylene	0.02 ug/g	<0.02	-	-	-	-	-
Anthracene	0.02 ug/g	<0.02	-	-	-	-	-
Benzo [a] anthracene	0.02 ug/g	<0.02	-	-	-	-	-
Benzo [a] pyrene	0.02 ug/g	<0.02	-	-	-	-	-
Benzo [b] fluoranthene	0.02 ug/g	<0.02	-	-	-	-	-
Benzo [g,h,i] perylene	0.02 ug/g	<0.02	-	-	-	-	-
Benzo [k] fluoranthene	0.02 ug/g	<0.02	-	-	-	-	-
Chrysene	0.02 ug/g	<0.02	-	-	-	-	-
Dibenzo [a,h] anthracene	0.02 ug/g	<0.02	-	-	-	-	-
Fluoranthene	0.02 ug/g	<0.02	-	-	-	-	-
Fluorene	0.02 ug/g	<0.02	-	-	-	-	-
Indeno [1,2,3-cd] pyrene	0.02 ug/g	<0.02	-	-	-	-	-
1-Methylnaphthalene	0.02 ug/g	<0.02	-	-	-	-	-
2-Methylnaphthalene	0.02 ug/g	<0.02	-	-	-	-	-
Methylnaphthalene (1&2)	0.04 ug/g	<0.04	-	-	-	-	-

	Client ID:	DUP1				-	-
	Sample Date:	27-Mar-25 09:00					
	Sample ID:	2513497-23					
	Matrix:	Soil					
	MDL/Units						
Semi-Volatiles							
Naphthalene	0.01 ug/g	0.04	-	-	-	-	-
Phenanthrene	0.02 ug/g	<0.02	-	-	-	-	-
Pyrene	0.02 ug/g	<0.02	-	-	-	-	-
2-Fluorobiphenyl	Surrogate	85.5%	-	-	-	-	-
Terphenyl-d14	Surrogate	96.4%	-	-	-	-	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%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	5.0	ug/g					
Lead	ND	1.0	ug/g					
Molybdenum	ND	1.0	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					
Anthracene	ND	0.02	ug/g					
Benzo [a] anthracene	ND	0.02	ug/g					
Benzo [a] pyrene	ND	0.02	ug/g					

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
Benzo [b] fluoranthene	ND	0.02	ug/g					
Benzo [g,h,i] perylene	ND	0.02	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)	ND	0.04	ug/g					
Naphthalene	ND	0.01	ug/g					
Phenanthrene	ND	0.02	ug/g					
Pyrene	ND	0.02	ug/g					
Surrogate: 2-Fluorobiphenyl	*0.954*		*%*	*71.5*	*50-140*			
Surrogate: Terphenyl-d14	*1.11*		*%*	*83.3*	*50-140*			
Volatiles								
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	*8.05*		*%*	*101*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics									
SAR	2.41	0.01	N/A	2.45			1.7	30	
Conductivity	194	5	uS/cm	198			2.1	5	
pH	7.67	0.05	pH Units	7.80			1.7	2.3	
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g	ND			NC	40	
F2 PHCs (C10-C16)	14	4	ug/g	15			10.5	30	
F3 PHCs (C16-C34)	15	8	ug/g	15			2.2	30	
F4 PHCs (C34-C50)	ND	6	ug/g	ND			NC	30	
Metals									
Antimony	3.5	1.0	ug/g	2.3			NC	30	
Arsenic	11.6	1.0	ug/g	12.6			7.8	30	
Barium	278	1.0	ug/g	309			10.6	30	
Beryllium	0.8	0.5	ug/g	0.9			12.5	30	
Boron	10.1	5.0	ug/g	10.5			3.9	30	
Cadmium	0.7	0.5	ug/g	0.7			5.8	30	
Chromium	39.0	5.0	ug/g	42.8			9.2	30	
Cobalt	16.8	1.0	ug/g	18.3			8.5	30	
Copper	176	5.0	ug/g	102			53.4	30	QR-04
Lead	277	1.0	ug/g	289			4.5	30	
Molybdenum	1.3	1.0	ug/g	1.4			4.5	30	
Nickel	24.3	5.0	ug/g	25.8			5.9	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	55.5	10.0	ug/g	60.8			9.2	30	
Zinc	304	20.0	ug/g	318			4.3	30	
Physical Characteristics									
% Solids	86.1	0.1	% by Wt.	85.9			0.3	25	
Semi-Volatiles									

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Acenaphthene	0.140	0.02	ug/g	0.130			7.5	40	
Acenaphthylene	0.201	0.02	ug/g	0.200			0.4	40	
Anthracene	0.619	0.02	ug/g	0.549			11.9	40	
Benzo [a] anthracene	2.34	0.02	ug/g	2.05			13.3	40	
Benzo [a] pyrene	2.22	0.02	ug/g	2.10			5.8	40	
Benzo [b] fluoranthene	3.09	0.02	ug/g	2.96			4.2	40	
Benzo [g,h,i] perylene	1.24	0.02	ug/g	1.22			2.0	40	
Benzo [k] fluoranthene	0.959	0.02	ug/g	0.884			8.1	40	
Chrysene	2.71	0.02	ug/g	2.50			7.9	40	
Dibenzo [a,h] anthracene	ND	0.02	ug/g	0.386			NC	40	
Fluoranthene	4.23	0.02	ug/g	4.19			1.0	40	
Fluorene	0.169	0.02	ug/g	0.151			11.2	40	
Indeno [1,2,3-cd] pyrene	1.55	0.02	ug/g	1.54			1.1	40	
1-Methylnaphthalene	0.154	0.02	ug/g	0.150			2.2	40	
2-Methylnaphthalene	0.232	0.02	ug/g	0.259			11.0	40	
Naphthalene	0.172	0.01	ug/g	0.200			15.2	40	
Phenanthrene	2.57	0.02	ug/g	2.14			18.3	40	
Pyrene	3.88	0.02	ug/g	3.24			17.7	40	
Surrogate: 2-Fluorobiphenyl	*1.19*		*%*		*68.1*	*50-140*			
Surrogate: Terphenyl-d14	*1.39*		*%*		*79.6*	*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	
m,p-Xylenes	ND	0.05	ug/g	ND			NC	50	
o-Xylene	ND	0.05	ug/g	ND			NC	50	
Surrogate: Toluene-d8	*8.62*		*%*		*99.9*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	175	7	ug/g	ND	102	85-115			
F2 PHCs (C10-C16)	93	4	ug/g	15	90.5	60-140			
F3 PHCs (C16-C34)	229	8	ug/g	15	101	60-140			
F4 PHCs (C34-C50)	140	6	ug/g	ND	104	60-140			
F4G PHCs (gravimetric)	870	50	ug/g	ND	87.0	80-120			
Metals									
Arsenic	52.0	1.0	ug/g	5.0	94.0	70-130			
Barium	163	1.0	ug/g	124	78.8	70-130			
Beryllium	49.2	0.5	ug/g	ND	97.6	70-130			
Boron	48.4	5.0	ug/g	ND	88.4	70-130			
Cadmium	48.4	0.5	ug/g	ND	96.1	70-130			
Chromium	63.9	5.0	ug/g	17.1	93.5	70-130			
Cobalt	55.0	1.0	ug/g	7.3	95.4	70-130			
Copper	112	5.0	ug/g	40.8	143	70-130			QM-07
Lead	157	1.0	ug/g	116	81.7	70-130			
Molybdenum	46.3	1.0	ug/g	ND	91.6	70-130			
Nickel	55.0	5.0	ug/g	10.3	89.3	70-130			
Selenium	46.6	1.0	ug/g	ND	92.6	70-130			
Silver	46.6	0.3	ug/g	ND	93.1	70-130			
Thallium	46.7	1.0	ug/g	ND	93.1	70-130			
Uranium	46.1	1.0	ug/g	ND	91.6	70-130			
Vanadium	70.6	10.0	ug/g	24.3	92.5	70-130			
Zinc	165	20.0	ug/g	127	76.0	70-130			
Semi-Volatiles									
Acenaphthene	0.123	0.02	ug/g	ND	73.9	50-140			
Acenaphthylene	0.122	0.02	ug/g	ND	73.2	50-140			
Anthracene	0.142	0.02	ug/g	ND	85.4	50-140			
Benzo [a] anthracene	0.140	0.02	ug/g	ND	84.2	50-140			
Benzo [a] pyrene	0.134	0.02	ug/g	ND	80.4	50-140			
Benzo [b] fluoranthene	0.120	0.02	ug/g	ND	72.2	50-140			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Benzo [g,h,i] perylene	0.124	0.02	ug/g	ND	74.5	50-140			
Benzo [k] fluoranthene	0.137	0.02	ug/g	ND	82.0	50-140			
Chrysene	0.145	0.02	ug/g	ND	87.1	50-140			
Dibenzo [a,h] anthracene	0.130	0.02	ug/g	ND	78.0	50-140			
Fluoranthene	0.160	0.02	ug/g	ND	96.0	50-140			
Fluorene	0.128	0.02	ug/g	ND	76.8	50-140			
Indeno [1,2,3-cd] pyrene	0.129	0.02	ug/g	ND	77.2	50-140			
1-Methylnaphthalene	0.106	0.02	ug/g	ND	63.6	50-140			
2-Methylnaphthalene	0.117	0.02	ug/g	ND	70.5	50-140			
Naphthalene	0.100	0.01	ug/g	ND	59.9	50-140			
Phenanthrene	0.141	0.02	ug/g	ND	84.4	50-140			
Pyrene	0.135	0.02	ug/g	ND	81.0	50-140			
Surrogate: 2-Fluorobiphenyl	*0.858*		*%*		*64.4*	*50-140*			
Surrogate: Terphenyl-d14	*1.02*		*%*		*76.2*	*50-140*			
Volatiles									
Benzene	3.68	0.02	ug/g	ND	92.1	60-130			
Ethylbenzene	3.71	0.05	ug/g	ND	92.7	60-130			
Toluene	3.55	0.05	ug/g	ND	88.9	60-130			
m,p-Xylenes	7.27	0.05	ug/g	ND	90.8	60-130			
o-Xylene	3.78	0.05	ug/g	ND	94.5	60-130			
Surrogate: Toluene-d8	*7.87*		*%*		*98.4*	*50-140*			

Qualifier Notes:

Sample Qualifiers :

1: Elevated reporting limit because of dilution required due to the presence of high levels of non-target analytes.

2: GC-FID signal did not return to baseline by C50

Applies to Samples: BH5-25-AU1, BH6-25-AU1, BH6-25-SS2/3

3: 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.

Applies to Samples: BH6-25-SS2/3

QC Qualifiers:

QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on other acceptable QC.

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

Sample Data Revisions:

None

Certificate of Analysis

Report Date: 03-Apr-2025

Client: **Paterson Group Consulting Engineers (Ottawa)**

Order Date: 28-Mar-2025

Client PO: 62703

Project Description: PE6971

Work Order Revisions / Comments:

Sample ID's reported don't match COC or containers: all sample ID's updated from -24- to -25- per client request.

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 unlesss otherwise noted.

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 criteria.

- When reported, data for F4G has been processed using a silica gel cleanup.

PARACEL LABORATORIES LTD.

Paracel ID: 2513497

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2513497	

Client Name: PATERSON	Project Ref: PE 6971	Page 1 of 3
Contact Name: Mark D'Arcy	Quote #:	Turnaround Time
Address: 9 Auriga Dr, Ottawa, ON K2E 7T9	PO #: 62703	☐ 1 day ☐ 3 day ☐ 2 day ☒ Regular
Telephone: 613-226-7381	E-mail: mdarcy@patersongroup.ca idillonsullivan@patersongroup.ca	Date Required:

☐ REG 153/04 ☒ REG 406/19

☐ Table 1 ☐ Agri/Other ☐ Med/Fine
☐ Table 2 ☐ Res/Park ☐ Coarse
☐ Table 3 ☐ Ind/Comm
☐ Table ___
For RSC: ☐ Yes ☐ No

Other Regulation: ☐ REG 558 ☐ PWQO ☐ CCME ☐ MISA ☐ SU - Sani ☐ SU - Storm ☐ Other: Mun: ___

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Field Filtered	Sample Taken: Date	Sample Taken: Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)	EC / SAR	pH		
1	BH4-24-SS3	S	-	2	-	Mar 27, 2025	--	X		X	X				X	X		
2	BH4-24-SS5							X		·	X							
3	BH4-24-SS6														·			
4	BH5-24-~~SS~~ AU1									X	X				X			
5	BH5-24-SS2									X	X				X			
6	BH5-24-SS3									X	X				X			
7	BH5-24-SS~~3~~4									~~X~~	X							
8	BH~~5~~6-24-SS5										X							
9	BH6-24-AU1									X	X			~~X~~	X			
10	BH6-24-SS2/3									X	X				X			

Comments:

Method of Delivery: WALK-IN

Relinquished By (Sign):	Received at Depot:	Received at Lab: LTJ	Verified By:
Relinquished By (Print): Isabelle Dillon-Sullivan	Date/Time:	Date/Time: 28/03/25-04:34AM	Date/Time: Mar 29 8:40
Date/Time: Mar 28, 2025 3:50pm	Temperature: °C	Temperature: 11.6 °C	pH Verified: ☐ By: NA

PARACEL LABORATORIES LTD.

Paracel ID: 2513497

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)

Client Name: PATERSON	Project Ref: PE 6971	Page 2 of 3
Contact Name: Mark D'Arcy	Quote #:	Turnaround Time
Address: 9 Auriga Dr, Ottawa, ON K2E 7T9	PO #: 62703	☐ 1 day ☐ 3 day ☐ 2 day ☒ Regular
Telephone: 613-226-7381	E-mail: mdarcy@patersongroup.ca ~~FSO~~ idillonsullivan@patersongroup.ca	Date Required:

☐ REG 153/04 ☒ REG 406/19

☐ Table 1 ☐ Agri/Other ☐ Med/Fine
☐ Table 2 ☐ Res/Park ☐ Coarse
☐ Table 3 ☐ Ind/Comm
☐ Table ___
For RSC: ☐ Yes ☐ No

Other Regulation: ☐ REG 558 ☐ PWQO ☐ CCME ☐ MISA ☐ SU - Sani ☐ SU - Storm ☐ Mun: ___ ☐ Other:

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Field Filtered	Sample Taken: Date	Sample Taken: Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)	EC/SAR	pH		
1	BH6-24-SS5	S	-	2	-	Mar 27, 2025	-	X		[redacted]	X							
2	BH6-24-SS6 — HOLD	↓	↓	↓	↓			↓			↓							
3	BH7-24-SS2			4						X					X			
4	BH7-24-SS3			2						X					X			
5	BH7-24-SS4			↓						X					X			
6	BH7-24-SS5									X					X			
7	BH7-24-SS6/7									X					X	X		
8	BH8-24-AU1									X					X			
9	BH8-24-SS2									X					X			
10	BH8-24-SS4	↓	↓	↓	↓			↓		[redacted]	↓							

Comments:

Method of Delivery: WALK IN

Relinquished By (Sign):	Received at Depot:	Received at Lab: LTJ	Verified By:
Relinquished By (Print): Isabelle Dillon-Sullivan	Date/Time:	Date/Time: 28/03/25-04:34PM	Date/Time: Mar 29 830
Date/Time: Mar 28, 2025 3:50pm	Temperature: °C	Temperature: 11.6°C	pH Verified: ☐ By:

PARACEL LABORATORIES LTD. | TF RE RE

Paracel ID: 2513497

Paracel Order Number (Lab Use Only)	**Chain Of Custody** (Lab Use Only)

Client Name: PATERSON	Project Ref: PE 6971	Page 3 of 3
Contact Name: Mark D'Arcy	Quote #:	**Turnaround Time**
Address: 9 Auriga Dr	PO #: 62703	☐ 1 day ☐ 3 day
	E-mail: mdarcy@patersongroup.ca	☐ 2 day ☒ Regular
Telephone: 612 226 7381		Date Required:

☐ REG 153/04 ☒ REG 406/19

☐ Table 1 ☐ Agri/Other ☐ Med/Fine
☐ Table 2 ☐ Res/Park ☐ Coarse
☐ Table 3 ☐ Ind/Comm
☐ Table ___
For RSC: ☐ Yes ☐ No

Other Regulation

☐ REG 558 ☐ PWQO
☐ CCME ☐ MISA
☐ SU - Sani ☐ SU - Storm
Mun: ___
☐ Other:

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Field Filtered	Sample Taken: Date	Sample Taken: Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)	EC / SAR			
1	BH8-24-SS5 — HOLD	S	-	2	-	Mar 27, 2025	—											
2	BH8-24-SS6	↓	↓	↓	↓	↓		X			X							
3	DUP1	↓	↓	↓	↓	↓		X		X	X							
4																		
5																		
6																		
7																		
8																		
9																		
10																		

Comments:

Method of Delivery: WALK IN

Relinquished By (Sign):	Received at Depot:	Received at Lab: LTJ	Verified By:
Relinquished By (Print): Isabelle Dillon-Sylvester	Date/Time:	Date/Time: 28/03/25 - 04:34 PM	Date/Time: Mar 29 830
Date/Time: Mar 28, 2025 3:50pm	Temperature: °C	Temperature: 11.6°C	pH Verified: ☐ By:

PARACEL LABORATORIES LTD.

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1-800-749-1947
www.paracellabs.com

Certificate of Analysis

Paterson Group Consulting Engineers (Ottawa)
9 Auriga Drive
Ottawa, ON K2E 7T9
Attn: Mark Bujaki

Client PO: 62090
Project: PE6830
Custody: 76487

Report Date: 9-Jan-2025
Order Date: 3-Jan-2025

Order #: 2501097

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

Paracel ID	Client ID
2501097-01	BH6-GW1
2501097-02	BH3-GW1
2501097-03	BH8-GW1
2501097-04	BH3-24-GW1
2501097-05	DUP1

Approved By:

Mark Foto, M.Sc.
Laboratory Director

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
BTEX by P&T GC-MS	EPA 624 - P&T GC-MS	6-Jan-25	6-Jan-25
PHC F1	CWS Tier 1 - P&T GC-FID	6-Jan-25	6-Jan-25
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	7-Jan-25	7-Jan-25
REG 153: PAHs by GC-MS	EPA 625 - GC-MS, extraction	6-Jan-25	7-Jan-25
REG 153: VOCs by P&T GC/MS	EPA 624 - P&T GC-MS	6-Jan-25	6-Jan-25

	Client ID:	BH6-GW1	BH3-GW1	BH8-GW1	BH3-24-GW1	-	-
	Sample Date:	03-Jan-25 09:00	03-Jan-25 12:00	03-Jan-25 12:00	03-Jan-25 12:00		
	Sample ID:	2501097-01	2501097-02	2501097-03	2501097-04		
	Matrix:	Ground Water	Ground Water	Ground Water	Ground Water		
	MDL/Units						
Volatiles							
Acetone	5.0 ug/L	-	<5.0	<5.0	<5.0	-	-
Benzene	0.5 ug/L	-	<0.5	<0.5	<0.5	-	-
Bromodichloromethane	0.5 ug/L	-	<0.5	<0.5	<0.5	-	-
Bromoform	0.5 ug/L	-	<0.5	<0.5	<0.5	-	-
Bromomethane	0.5 ug/L	-	<0.5	<0.5	<0.5	-	-
Carbon Tetrachloride	0.2 ug/L	-	<0.2	<0.2	<0.2	-	-
Chlorobenzene	0.5 ug/L	-	<0.5	<0.5	<0.5	-	-
Chloroform	0.5 ug/L	-	<0.5	<0.5	<0.5	-	-
Dibromochloromethane	0.5 ug/L	-	<0.5	<0.5	<0.5	-	-
Dichlorodifluoromethane	1.0 ug/L	-	<1.0	<1.0	<1.0	-	-
1,2-Dichlorobenzene	0.5 ug/L	-	<0.5	<0.5	<0.5	-	-
1,3-Dichlorobenzene	0.5 ug/L	-	<0.5	<0.5	<0.5	-	-
1,4-Dichlorobenzene	0.5 ug/L	-	<0.5	<0.5	<0.5	-	-
1,1-Dichloroethane	0.5 ug/L	-	<0.5	<0.5	<0.5	-	-
1,2-Dichloroethane	0.5 ug/L	-	<0.5	<0.5	<0.5	-	-
1,1-Dichloroethylene	0.5 ug/L	-	<0.5	<0.5	<0.5	-	-
cis-1,2-Dichloroethylene	0.5 ug/L	-	<0.5	<0.5	<0.5	-	-
trans-1,2-Dichloroethylene	0.5 ug/L	-	<0.5	<0.5	<0.5	-	-
1,2-Dichloropropane	0.5 ug/L	-	<0.5	<0.5	<0.5	-	-
cis-1,3-Dichloropropylene	0.5 ug/L	-	<0.5	<0.5	<0.5	-	-
trans-1,3-Dichloropropylene	0.5 ug/L	-	<0.5	<0.5	<0.5	-	-
1,3-Dichloropropene, total	0.5 ug/L	-	<0.5	<0.5	<0.5	-	-
Ethylene dibromide (dibromoethane,	0.2 ug/L	-	<0.2	<0.2	<0.2	-	-
Ethylbenzene	0.5 ug/L	-	<0.5	<0.5	<0.5	-	-
Hexane	1.0 ug/L	-	<1.0	<1.0	<1.0	-	-

	Client ID:	BH6-GW1	BH3-GW1	BH8-GW1	BH3-24-GW1	-	-
	Sample Date:	03-Jan-25 09:00	03-Jan-25 12:00	03-Jan-25 12:00	03-Jan-25 12:00		
	Sample ID:	2501097-01	2501097-02	2501097-03	2501097-04		
	Matrix:	Ground Water	Ground Water	Ground Water	Ground Water		
	MDL/Units						
Volatiles							
Methyl Ethyl Ketone (2-Butanone)	5.0 ug/L	-	<5.0	<5.0	<5.0	-	-
Methyl Isobutyl Ketone	5.0 ug/L	-	<5.0	<5.0	<5.0	-	-
Methyl tert-butyl ether	2.0 ug/L	-	<2.0	<2.0	<2.0	-	-
Methylene Chloride	5.0 ug/L	-	<5.0	<5.0	<5.0	-	-
Styrene	0.5 ug/L	-	<0.5	<0.5	<0.5	-	-
1,1,1,2-Tetrachloroethane	0.5 ug/L	-	<0.5	<0.5	<0.5	-	-
1,1,2,2-Tetrachloroethane	0.5 ug/L	-	<0.5	<0.5	<0.5	-	-
Tetrachloroethylene	0.5 ug/L	-	<0.5	<0.5	<0.5	-	-
Toluene	0.5 ug/L	-	<0.5	<0.5	<0.5	-	-
1,1,1-Trichloroethane	0.5 ug/L	-	<0.5	<0.5	<0.5	-	-
1,1,2-Trichloroethane	0.5 ug/L	-	<0.5	<0.5	<0.5	-	-
Trichloroethylene	0.5 ug/L	-	<0.5	<0.5	<0.5	-	-
Trichlorofluoromethane	1.0 ug/L	-	<1.0	<1.0	<1.0	-	-
Vinyl chloride	0.5 ug/L	-	<0.5	<0.5	<0.5	-	-
m,p-Xylenes	0.5 ug/L	-	<0.5	<0.5	<0.5	-	-
o-Xylene	0.5 ug/L	-	<0.5	<0.5	<0.5	-	-
Xylenes, total	0.5 ug/L	-	<0.5	<0.5	<0.5	-	-
Dibromofluoromethane	Surrogate	-	111%	110%	106%	-	-
4-Bromofluorobenzene	Surrogate	-	105%	109%	107%	-	-
Toluene-d8	Surrogate	-	115%	109%	114%	-	-
Benzene	0.5 ug/L	<0.5	-	-	-	-	-
Ethylbenzene	0.5 ug/L	<0.5	-	-	-	-	-
Toluene	0.5 ug/L	<0.5	-	-	-	-	-
m,p-Xylenes	0.5 ug/L	<0.5	-	-	-	-	-
o-Xylene	0.5 ug/L	<0.5	-	-	-	-	-

	Client ID:	BH6-GW1	BH3-GW1	BH8-GW1	BH3-24-GW1	-	-
	Sample Date:	03-Jan-25 09:00	03-Jan-25 12:00	03-Jan-25 12:00	03-Jan-25 12:00		
	Sample ID:	2501097-01	2501097-02	2501097-03	2501097-04		
	Matrix:	Ground Water	Ground Water	Ground Water	Ground Water		
	MDL/Units						
Volatiles							
Xylenes, total	0.5 ug/L	<0.5	-	-	-	-	-
Toluene-d8	Surrogate	110%	-	-	-	-	-
Hydrocarbons							
F1 PHCs (C6-C10)	25 ug/L	<25	<25	<25	<25	-	-
F2 PHCs (C10-C16)	100 ug/L	<100	<100	<100	<100	-	-
F3 PHCs (C16-C34)	100 ug/L	<100	<100	<100	<100	-	-
F4 PHCs (C34-C50)	100 ug/L	<100	<100	<100	<100	-	-
Semi-Volatiles							
Acenaphthene	0.05 ug/L	-	-	-	<0.05	-	-
Acenaphthylene	0.05 ug/L	-	-	-	<0.05	-	-
Anthracene	0.01 ug/L	-	-	-	<0.01	-	-
Benzo [a] anthracene	0.01 ug/L	-	-	-	<0.01	-	-
Benzo [a] pyrene	0.01 ug/L	-	-	-	<0.01	-	-
Benzo [b] fluoranthene	0.05 ug/L	-	-	-	<0.05	-	-
Benzo [g,h,i] perylene	0.05 ug/L	-	-	-	<0.05	-	-
Benzo [k] fluoranthene	0.05 ug/L	-	-	-	<0.05	-	-
Chrysene	0.05 ug/L	-	-	-	<0.05	-	-
Dibenzo [a,h] anthracene	0.05 ug/L	-	-	-	<0.05	-	-
Fluoranthene	0.01 ug/L	-	-	-	<0.01	-	-
Fluorene	0.05 ug/L	-	-	-	<0.05	-	-
Indeno [1,2,3-cd] pyrene	0.05 ug/L	-	-	-	<0.05	-	-
1-Methylnaphthalene	0.05 ug/L	-	-	-	<0.05	-	-
2-Methylnaphthalene	0.05 ug/L	-	-	-	<0.05	-	-
Methylnaphthalene (1&2)	0.10 ug/L	-	-	-	<0.10	-	-
Naphthalene	0.05 ug/L	-	-	-	<0.05	-	-

	Client ID:	BH6-GW1	BH3-GW1	BH8-GW1	BH3-24-GW1	-	-
	Sample Date:	03-Jan-25 09:00	03-Jan-25 12:00	03-Jan-25 12:00	03-Jan-25 12:00		
	Sample ID:	2501097-01	2501097-02	2501097-03	2501097-04		
	Matrix:	Ground Water	Ground Water	Ground Water	Ground Water		
	MDL/Units						
Semi-Volatiles							
Phenanthrene	0.05 ug/L	-	-	-	<0.05	-	-
Pyrene	0.01 ug/L	-	-	-	<0.01	-	-
2-Fluorobiphenyl	Surrogate	-	-	-	76.8%	-	-
Terphenyl-d14	Surrogate	-	-	-	88.3%	-	-

	Client ID:	DUP1				-	-
	Sample Date:	03-Jan-25 12:00					
	Sample ID:	2501097-05					
	Matrix:	Ground Water					
	MDL/Units						
Volatiles							
Benzene	0.5 ug/L	<0.5	-	-	-	-	-
Ethylbenzene	0.5 ug/L	<0.5	-	-	-	-	-
Toluene	0.5 ug/L	<0.5	-	-	-	-	-
m,p-Xylenes	0.5 ug/L	<0.5	-	-	-	-	-
o-Xylene	0.5 ug/L	<0.5	-	-	-	-	-
Xylenes, total	0.5 ug/L	<0.5	-	-	-	-	-
Toluene-d8	Surrogate	108%	-	-	-	-	-
Hydrocarbons							
F1 PHCs (C6-C10)	25 ug/L	<25	-	-	-	-	-
F2 PHCs (C10-C16)	100 ug/L	<100	-	-	-	-	-
F3 PHCs (C16-C34)	100 ug/L	<100	-	-	-	-	-
F4 PHCs (C34-C50)	100 ug/L	<100	-	-	-	-	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons								
F1 PHCs (C6-C10)	ND	25	ug/L					
F2 PHCs (C10-C16)	ND	100	ug/L					
F3 PHCs (C16-C34)	ND	100	ug/L					
F4 PHCs (C34-C50)	ND	100	ug/L					
Semi-Volatiles								
Acenaphthene	ND	0.05	ug/L					
Acenaphthylene	ND	0.05	ug/L					
Anthracene	ND	0.01	ug/L					
Benzo [a] anthracene	ND	0.01	ug/L					
Benzo [a] pyrene	ND	0.01	ug/L					
Benzo [b] fluoranthene	ND	0.05	ug/L					
Benzo [g,h,i] perylene	ND	0.05	ug/L					
Benzo [k] fluoranthene	ND	0.05	ug/L					
Chrysene	ND	0.05	ug/L					
Dibenzo [a,h] anthracene	ND	0.05	ug/L					
Fluoranthene	ND	0.01	ug/L					
Fluorene	ND	0.05	ug/L					
Indeno [1,2,3-cd] pyrene	ND	0.05	ug/L					
1-Methylnaphthalene	ND	0.05	ug/L					
2-Methylnaphthalene	ND	0.05	ug/L					
Methylnaphthalene (1&2)	ND	0.10	ug/L					
Naphthalene	ND	0.05	ug/L					
Phenanthrene	ND	0.05	ug/L					
Pyrene	ND	0.01	ug/L					
Surrogate: 2-Fluorobiphenyl	*17.7*		*%*	*88.7*	*50-140*			
Surrogate: Terphenyl-d14	*20.3*		*%*	*102*	*50-140*			
Volatiles								
Acetone	ND	5.0	ug/L					
Benzene	ND	0.5	ug/L					
Bromodichloromethane	ND	0.5	ug/L					
Bromoform	ND	0.5	ug/L					

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
Bromomethane	ND	0.5	ug/L					
Carbon Tetrachloride	ND	0.2	ug/L					
Chlorobenzene	ND	0.5	ug/L					
Chloroform	ND	0.5	ug/L					
Dibromochloromethane	ND	0.5	ug/L					
Dichlorodifluoromethane	ND	1.0	ug/L					
1,2-Dichlorobenzene	ND	0.5	ug/L					
1,3-Dichlorobenzene	ND	0.5	ug/L					
1,4-Dichlorobenzene	ND	0.5	ug/L					
1,1-Dichloroethane	ND	0.5	ug/L					
1,2-Dichloroethane	ND	0.5	ug/L					
1,1-Dichloroethylene	ND	0.5	ug/L					
cis-1,2-Dichloroethylene	ND	0.5	ug/L					
trans-1,2-Dichloroethylene	ND	0.5	ug/L					
1,2-Dichloropropane	ND	0.5	ug/L					
cis-1,3-Dichloropropylene	ND	0.5	ug/L					
trans-1,3-Dichloropropylene	ND	0.5	ug/L					
1,3-Dichloropropene, total	ND	0.5	ug/L					
Ethylbenzene	ND	0.5	ug/L					
Ethylene dibromide (dibromoethane, 1,2-)	ND	0.2	ug/L					
Hexane	ND	1.0	ug/L					
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L					
Methyl Isobutyl Ketone	ND	5.0	ug/L					
Methyl tert-butyl ether	ND	2.0	ug/L					
Methylene Chloride	ND	5.0	ug/L					
Styrene	ND	0.5	ug/L					
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L					
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L					
Tetrachloroethylene	ND	0.5	ug/L					
Toluene	ND	0.5	ug/L					
1,1,1-Trichloroethane	ND	0.5	ug/L					
1,1,2-Trichloroethane	ND	0.5	ug/L					
Trichloroethylene	ND	0.5	ug/L					

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
Trichlorofluoromethane	ND	1.0	ug/L					
Vinyl chloride	ND	0.5	ug/L					
m,p-Xylenes	ND	0.5	ug/L					
o-Xylene	ND	0.5	ug/L					
Xylenes, total	ND	0.5	ug/L					
Surrogate: 4-Bromofluorobenzene	*81.8*		*%*	*102*	*50-140*			
Surrogate: Dibromofluoromethane	*79.7*		*%*	*99.6*	*50-140*			
Surrogate: Toluene-d8	*93.1*		*%*	*116*	*50-140*			
Benzene	ND	0.5	ug/L					
Ethylbenzene	ND	0.5	ug/L					
Toluene	ND	0.5	ug/L					
m,p-Xylenes	ND	0.5	ug/L					
o-Xylene	ND	0.5	ug/L					
Xylenes, total	ND	0.5	ug/L					
Surrogate: Toluene-d8	*93.1*		*%*	*116*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	25	ug/L	ND			NC	30	
Volatiles									
Acetone	ND	5.0	ug/L	ND			NC	30	
Benzene	ND	0.5	ug/L	ND			NC	30	
Bromodichloromethane	ND	0.5	ug/L	ND			NC	30	
Bromoform	ND	0.5	ug/L	ND			NC	30	
Bromomethane	ND	0.5	ug/L	ND			NC	30	
Carbon Tetrachloride	ND	0.2	ug/L	ND			NC	30	
Chlorobenzene	ND	0.5	ug/L	ND			NC	30	
Chloroform	ND	0.5	ug/L	ND			NC	30	
Dibromochloromethane	ND	0.5	ug/L	ND			NC	30	
Dichlorodifluoromethane	ND	1.0	ug/L	ND			NC	30	
1,2-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,3-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,4-Dichlorobenzene	ND	0.5	ug/L	ND			NC	30	
1,1-Dichloroethane	ND	0.5	ug/L	ND			NC	30	
1,2-Dichloroethane	ND	0.5	ug/L	ND			NC	30	
1,1-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
cis-1,2-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
trans-1,2-Dichloroethylene	ND	0.5	ug/L	ND			NC	30	
1,2-Dichloropropane	ND	0.5	ug/L	ND			NC	30	
cis-1,3-Dichloropropylene	ND	0.5	ug/L	ND			NC	30	
trans-1,3-Dichloropropylene	ND	0.5	ug/L	ND			NC	30	
Ethylbenzene	ND	0.5	ug/L	ND			NC	30	
Ethylene dibromide (dibromoethane, 1,2-)	ND	0.2	ug/L	ND			NC	30	
Hexane	ND	1.0	ug/L	ND			NC	30	
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L	ND			NC	30	
Methyl Isobutyl Ketone	ND	5.0	ug/L	ND			NC	30	
Methyl tert-butyl ether	ND	2.0	ug/L	ND			NC	30	
Methylene Chloride	ND	5.0	ug/L	ND			NC	30	

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Styrene	ND	0.5	ug/L	ND			NC	30	
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L	ND			NC	30	
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L	ND			NC	30	
Tetrachloroethylene	ND	0.5	ug/L	ND			NC	30	
Toluene	ND	0.5	ug/L	ND			NC	30	
1,1,1-Trichloroethane	ND	0.5	ug/L	ND			NC	30	
1,1,2-Trichloroethane	ND	0.5	ug/L	ND			NC	30	
Trichloroethylene	ND	0.5	ug/L	ND			NC	30	
Trichlorofluoromethane	ND	1.0	ug/L	ND			NC	30	
Vinyl chloride	ND	0.5	ug/L	ND			NC	30	
m,p-Xylenes	ND	0.5	ug/L	ND			NC	30	
o-Xylene	ND	0.5	ug/L	ND			NC	30	
Surrogate: 4-Bromofluorobenzene	*86.1*		*%*		*108*	*50-140*			
Surrogate: Dibromofluoromethane	*86.4*		*%*		*108*	*50-140*			
Surrogate: Toluene-d8	*91.9*		*%*		*115*	*50-140*			
Benzene	ND	0.5	ug/L	ND			NC	30	
Ethylbenzene	ND	0.5	ug/L	ND			NC	30	
Toluene	ND	0.5	ug/L	ND			NC	30	
m,p-Xylenes	ND	0.5	ug/L	ND			NC	30	
o-Xylene	ND	0.5	ug/L	ND			NC	30	
Surrogate: Toluene-d8	*91.9*		*%*		*115*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	1940	25	ug/L	ND	96.8	85-115			
F2 PHCs (C10-C16)	1680	100	ug/L	ND	105	60-140			
F3 PHCs (C16-C34)	4350	100	ug/L	ND	111	60-140			
F4 PHCs (C34-C50)	2690	100	ug/L	ND	108	60-140			
Semi-Volatiles									
Acenaphthene	4.53	0.05	ug/L	ND	90.6	50-140			
Acenaphthylene	4.40	0.05	ug/L	ND	88.1	50-140			
Anthracene	4.45	0.01	ug/L	ND	89.1	50-140			
Benzo [a] anthracene	4.59	0.01	ug/L	ND	91.8	50-140			
Benzo [a] pyrene	4.98	0.01	ug/L	ND	99.6	50-140			
Benzo [g,h,i] perylene	5.21	0.05	ug/L	ND	104	50-140			
Benzo [k] fluoranthene	5.30	0.05	ug/L	ND	106	50-140			
Chrysene	5.35	0.05	ug/L	ND	107	50-140			
Dibenzo [a,h] anthracene	5.37	0.05	ug/L	ND	107	50-140			
Fluoranthene	5.15	0.01	ug/L	ND	103	50-140			
Fluorene	4.55	0.05	ug/L	ND	90.9	50-140			
Indeno [1,2,3-cd] pyrene	5.03	0.05	ug/L	ND	101	50-140			
1-Methylnaphthalene	4.04	0.05	ug/L	ND	80.8	50-140			
2-Methylnaphthalene	4.45	0.05	ug/L	ND	89.0	50-140			
Naphthalene	4.23	0.05	ug/L	ND	84.6	50-140			
Phenanthrene	4.78	0.05	ug/L	ND	95.6	50-140			
Pyrene	5.09	0.01	ug/L	ND	102	50-140			
Surrogate: 2-Fluorobiphenyl	*16.3*		*%*		*81.7*	*50-140*			
Surrogate: Terphenyl-d14	*18.8*		*%*		*93.9*	*50-140*			
Volatiles									
Acetone	102	5.0	ug/L	ND	102	50-140			
Benzene	48.2	0.5	ug/L	ND	120	60-130			
Bromodichloromethane	50.2	0.5	ug/L	ND	126	60-130			
Bromoform	50.8	0.5	ug/L	ND	127	60-130			
Bromomethane	42.5	0.5	ug/L	ND	106	50-140			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Carbon Tetrachloride	49.5	0.2	ug/L	ND	124	60-130			
Chlorobenzene	44.8	0.5	ug/L	ND	112	60-130			
Chloroform	49.2	0.5	ug/L	ND	123	60-130			
Dibromochloromethane	45.8	0.5	ug/L	ND	114	60-130			
Dichlorodifluoromethane	32.0	1.0	ug/L	ND	79.9	50-140			
1,2-Dichlorobenzene	48.6	0.5	ug/L	ND	122	60-130			
1,3-Dichlorobenzene	47.7	0.5	ug/L	ND	119	60-130			
1,4-Dichlorobenzene	48.0	0.5	ug/L	ND	120	60-130			
1,1-Dichloroethane	48.4	0.5	ug/L	ND	121	60-130			
1,2-Dichloroethane	47.1	0.5	ug/L	ND	118	60-130			
1,1-Dichloroethylene	44.2	0.5	ug/L	ND	111	60-130			
cis-1,2-Dichloroethylene	47.5	0.5	ug/L	ND	119	60-130			
trans-1,2-Dichloroethylene	48.3	0.5	ug/L	ND	121	60-130			
1,2-Dichloropropane	46.2	0.5	ug/L	ND	115	60-130			
cis-1,3-Dichloropropylene	48.3	0.5	ug/L	ND	121	60-130			
trans-1,3-Dichloropropylene	46.4	0.5	ug/L	ND	116	60-130			
Ethylbenzene	48.6	0.5	ug/L	ND	121	60-130			
Ethylene dibromide (dibromoethane, 1,2-)	49.3	0.2	ug/L	ND	123	60-130			
Hexane	35.3	1.0	ug/L	ND	88.2	60-130			
Methyl Ethyl Ketone (2-Butanone)	109	5.0	ug/L	ND	109	50-140			
Methyl Isobutyl Ketone	121	5.0	ug/L	ND	121	50-140			
Methyl tert-butyl ether	129	2.0	ug/L	ND	129	50-140			
Methylene Chloride	44.4	5.0	ug/L	ND	111	60-130			
Styrene	47.0	0.5	ug/L	ND	118	60-130			
1,1,1,2-Tetrachloroethane	48.3	0.5	ug/L	ND	121	60-130			
1,1,2,2-Tetrachloroethane	48.5	0.5	ug/L	ND	121	60-130			
Tetrachloroethylene	49.9	0.5	ug/L	ND	125	60-130			
Toluene	49.1	0.5	ug/L	ND	123	60-130			
1,1,1-Trichloroethane	48.2	0.5	ug/L	ND	121	60-130			
1,1,2-Trichloroethane	43.9	0.5	ug/L	ND	110	60-130			
Trichloroethylene	46.6	0.5	ug/L	ND	117	60-130			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Trichlorofluoromethane	43.8	1.0	ug/L	ND	109	60-130			
Vinyl chloride	37.8	0.5	ug/L	ND	94.6	50-140			
m,p-Xylenes	94.0	0.5	ug/L	ND	117	60-130			
o-Xylene	50.1	0.5	ug/L	ND	125	60-130			
Surrogate: 4-Bromofluorobenzene	*74.1*		*%*		*92.6*	*50-140*			
Surrogate: Dibromofluoromethane	*83.1*		*%*		*104*	*50-140*			
Surrogate: Toluene-d8	*79.6*		*%*		*99.5*	*50-140*			
Benzene	48.2	0.5	ug/L	ND	120	60-130			
Ethylbenzene	48.6	0.5	ug/L	ND	121	60-130			
Toluene	49.1	0.5	ug/L	ND	123	60-130			
m,p-Xylenes	94.0	0.5	ug/L	ND	117	60-130			
o-Xylene	50.1	0.5	ug/L	ND	125	60-130			
Surrogate: Toluene-d8	*79.6*		*%*		*99.5*	*50-140*			

Certificate of Analysis

Report Date: 09-Jan-2025

Client: **Paterson Group Consulting Engineers (Ottawa)**

Order Date: 3-Jan-2025

Client PO: **62090**

Project Description: PE6830

Qualifier Notes:

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

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 criteria.

- When reported, data for F4G has been processed using a silica gel cleanup.

PARACEL LABORATORIES

Paracel ID: 2501097

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os.com

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2501097	№ 76487

Client Name: Paterson	Project Ref: PE6538	Page 1 of 1
Contact Name: Mark Bujaki	Quote #:	**Turnaround Time**
Address: 9 Auriga drive	PO #: 62090	☐ 1 day ☐ 3 day
	E-mail: mbujaki@patersongroup.ca	☐ 2 day ☒ Regular
Telephone: 613-226-7381	kmunch@patersongroup.ca	Date Required:

☒ REG 153/04 ☐ REG 406/19

☐ Table 1 ☐ Agri/Other ☐ Med/Fine
☐ Table 2 ☐ Res/Park ☐ Coarse
☐ Table 3 ☐ Ind/Comm
☒ Table 9
For RSC: ☐ Yes ☐ No

Other Regulation

☐ REG 558 ☐ PWQO
☐ CCME ☐ MISA
☐ SU - Sani ☐ SU - Storm
Mun:
☐ Other:

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Field Filtered	Sample Taken: Date	Sample Taken: Time	Required Analysis: BTEX	PHCs	VOCs	PAH
1	BH6 - GW1	GW		4		Jan 3/2025	AM	X	X		
2	BH3 - GW1	GW		4		↓	PM		X	X	
3	BH8 - GW1	GW		4			PM		X	X	
4	BH3-24 - GW1	GW		5			PM		X	X	X
5	DUP1	GW		4			PM	X	X		
6											
7											
8											
9											
10											

Comments:

Method of Delivery: Walk-In

Relinquished By (Sign): Mark Bujaki	Received at Depot:	Received at Lab: SD	Verified By:
Relinquished By (Print): Mark Bujaki	Date/Time:	Date/Time: Jan 3, 2025 3:40pm	Date/Time: Jan 3 16:04
Date/Time: Jan 3 2025	Temperature: °C	Temperature: 5.8 °C	pH Verified: ☐ By: