PATERSON GROUP

Phase II Environmental Site Assessment

535 Legget Drive
Ottawa, Ontario

Prepared for KRP Properties Inc.

Report: PE6661-2
October 2, 2024

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EXECUTIVE SUMMARY

Assessment

A Phase II ESA was conducted for the property addressed 535 Legget Drive, in 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 ESA Property.

The Phase II ESA subsurface investigation consisted of drilling four boreholes across the Phase II Property. Three of the boreholes were constructed with groundwater monitoring wells. The general soil profile encountered during the field program consisted of fill material, followed by native silty clay. Limestone bedrock was encountered in BH1-24 to BH3-24 at a depth of 1.17 to 2.08 mbgs.

A total of three samples (plus one duplicate) were submitted for laboratory analysis of either, benzene, toluene, ethylbenzene, xylenes (BTEX), petroleum hydrocarbons (PHCs, F1-F4) and polychlorinated biphenyls (PCBs. Two representative samples were submitted for pH analysis. Based on the analytical test results, all soil results were observed to comply with the MECP Table 7 Residential Standards.

Groundwater samples from monitoring wells installed in BH1-24 through BH3-24 were submitted for laboratory analysis of PHCs (F1-F4) and BTEX. All groundwater results were observed to comply with the MECP Table 7 Non-Potable Standards.

Recommendations

Groundwater

It is recommended that the monitoring wells be maintained fur 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 KRP Properties Inc., Paterson Group (Paterson) conducted a Phase II Environmental Site Assessment at 535 Legget Drive (the Phase II ESA Property), in the City of Ottawa, Ontario. The purpose of this Phase II ESA has been to address areas of potential environmental concern (APECs) identified on the Phase II ESA Property, during the Phase I ESA conducted by Paterson in September 2024.

1.1 Site Description

Address:	535 Legget Drive, Ottawa, Ontario.
Legal Description:	Part of Lot 8, Concession 4, Geographic Township of March, City of Ottawa, Designated as Parts 5 & 6, 4R-16648, Parts 4, 5 & 9, 4R-17106.
Location:	The site is situated on the east side of Legget Drive, approximately 200 m south of Terry Fox Drive, in the City of Ottawa. For the purposes of this report, Legget Drive runs in a north-south orientation. Refer to Figure 1 – Key Plan, for the site location context.
Latitude and Longitude:	45° 20’ 52.70" N, 75° 55' 08.39" W

Site Description:

Configuration:	Rectangular
Area:	7900 m^2 (approximate).
Zoning:	IP6 [301] – Business Park Industrial Zone.

1.2 Property Ownership

Paterson was engaged to conduct this Phase I-ESA by Mr. Richard Goldstein, who is located at 555 Legget Drive, Suite 300, Tower B, Ottawa, Ontario K2K 2X3.

1.3 Current and Proposed Future Uses

The Phase II ESA Property is currently for commercial (office) purposes.

It is our understanding that the Phase II Property is to be redeveloped for residential purposes by the retrofitting of the current commercial office building.

1.4 Applicable Site Condition Standard

The site condition standards for the property were obtained from Table 7 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 7 Standards are based on the following considerations:

- ❒ Coarse-grained soil conditions
- ❒ Shallow bedrock conditions (less than 2m to bedrock surface)
- ❒ Non-potable groundwater conditions
- ❒ Residential land use

Section 35 of O.Reg. 153/04 does apply to the Phase II ESA Property in that the property does not rely upon potable groundwater.

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

Section 43.1 of O.Reg. 153/04 applies to the Phase II ESA Property in that the property is a Shallow Soil property.

The intended use of the Phase II ESA Property is for residential purposes; 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 ESA Property is located on the east side of Legget Drive, approximately 200m south of the Terry Fox Drive and Legget Drive intersection, in the City of Ottawa, Ontario. The Phase II Property is located within a business park, adjacent to commercial uses.

The Phase II ESA Property is occupied by a commercial office building and associated parking areas, with the remainder of the property occupied by landscaped areas. Site drainage consists primarily of surface run-off into catch basins in the parking area, and infiltration in the landscaped areas.

The site topography is relatively flat, while the regional topography appears to slope down slightly towards the northeast, in the general direction of the Ottawa River.

2.2 Past Investigations

Paterson completed a Phase I ESA in September 2024 for the Phase II ESA Property. Based on the findings of the Phase I ESA, 6 potentially contaminating activities (PCAs) were determined to result in areas of potential environmental concern (APECs) on the Phase II ESA Property:

- ❒ APEC 1: Existing Diesel AST (PCA 28).
- ❒ APEC 1B: Existing Penthouse Diesel AST (PCA 28).
- ❒ APEC 1C: Former Diesel ASTs (PCA 28).
- ❒ APEC 1D: Former Penthouse ASTs (PCA 28).
- ❒ APEC 2: Existing Pad-Mounted Transformer (PCA 55).
- ❒ APEC 3: Use of de-icing salt associated with on-site and adjacent roadways (PCA N/A).

The rationale for identifying the above APECs is based on, aerial photographs, field observations, and personal interviews. A Phase II ESA was recommended to address the aforementioned APECs.

3.0 SCOPE OF INVESTIGATION

3.1 Overview of Site Investigation

The subsurface investigation was conducted on September 20, 2024. The field program consisted of drilling four (4) boreholes to address the APECs identified on the Phase II ESA Property. Three (3) of the boreholes (BH1-24 through BH3-24) were completed with monitoring well installations. Boreholes were drilled to a maximum depth of 6.9m below the ground surface (mbgs).

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 this media is based on the Contaminants of Potential Concern identified in the Phase I ESA.

Contaminants of potential concern on the Phase II ESA Property include benzene, toluene, ethylbenzene and xylenes (BTEX) and petroleum hydrocarbons (PHCs, F1-F4). These CPCs may be present in the soil and/or groundwater beneath the Phase II ESA Property.

3.3 Phase I Conceptual Site Model

Geological and Hydrogeological Setting

Based on the available mapping information, the bedrock beneath the Phase I Property generally consists of interbedded sandstone and dolomite of the March Formation. The surficial geology consists largely of offshore marine sediments and alluvial sediments, consisting of sand, silt and fluvial terraces, with a drift thickness of approximately 5m to 10m.

Water Bodies and Areas of Natural and Scientific Interest

No water bodies are present on the Phase I Property or within the Phase I Study Area. The nearest named water body with respect to the Phase I Property is Shirleys Brook, located approximately 300m to the south.

There are no areas of natural and scientific interest on the Phase I Property or within the Phase I Study Area.

Drinking Water Wells

Based on the availability of municipal water services, no drinking water wells are expected to remain in use within the Phase I Study Area.

Existing Buildings and Structures

The Phase I Property is currently occupied by a commercial office tower located in the northern portion of the property.

Current and Future Property Use

The Phase I Property is currently used for commercial (office) purposes.

It is our understanding that the Phase I Property is to be redeveloped for residential purposes with the retrofitting of the current commercial office building. Since the land use will be changed to residential, a record of site condition (RSC) will be required to be filed with the MECP.

Neighbouring Land Use

The surrounding lands within the Phase I Study Area consist of commercial office buildings and commercial hospitality buildings. Current land use is depicted on Drawing PE6661-2 – Surrounding Land Use Plan, in the Figures section of this report.

Potentially Contaminating Activities and Areas of Potential Environmental Concern

As per Section 7.1 of the Phase I ESA, three (3) PCAs and the resultant APECs are summarized in the table below, along with their respective locations and contaminants of potential concern (CPCs).

Table 1: Potentially Contaminating Activities and Areas of Potential Environmental Concern

Area of Potential Environmental Concern	Location of Area of Potential Environmental Concern	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 Above Ground Diesel Storage Tank	Southeastern portion of the subject building.	PCA 28 – Gasoline and Associated Products Storage in Fixed Tanks	On-site	PHCs BTEX	Soil and Groundwater
APEC 1B Penthouse Diesel AST	Southeastern portion of the subject building.	PCA 28 – Gasoline and Associated Products Storage in Fixed Tanks	On-site	PHCs BTEX	Groundwater
APEC 1C Historical ASTs	Southeastern portion of the subject building.	PCA 28 – Gasoline and Associated Products Storage in Fixed Tanks	On-site	PHCs BTEX	Soil and Groundwater

Table 1: Potentially Contaminating Activities and Areas of Potential Environmental Concern

Area of Potential Environmental Concern	Location of Area of Potential Environmental Concern	Potentially Contaminating Activity	Location of PCA (on-site or off-site)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, Soil, and/or Sediment)
APEC 1D Historical Penthouse ASTs	Southeastern portion of the subject building.	PCA 28 – Gasoline and Associated Products Storage in Fixed Tanks	On-site	PHCs BTEX	Groundwater
APEC 2 Pad-mounted Hydro Transformer	Central portion of Phase I ESA Property	PCA 55 – Transformer Manufacturing, Processing and Use	On-site	BTEX PHCs	Soil
APEC 3[1] Application of Road Salt	Throughout the Phase I ESA Property	PCA N/A – Application of road salt for the safety of vehicular or pedestrian traffic under conditions of snow or ice.	On-site	Electrical Conductivity (EC) Sodium Adsorption Ratio (SAR)	Soil

1 - In accordance with Section 49.1 of O.Reg. 153/04 standards are deemed to be met if an applicable site condition standard at a property solely because the qualified person has determined 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 exemption outlined in Section 49.1 is being relied on, with respect to the Phase I ESA Property.

Contaminants of Potential Concern

As per the Table of Areas of Potential Environmental Concern, CPCs in the soil/groundwater beneath the Phase I Property include the following:

- ❑ Petroleum Hydrocarbons, Fractions 1 – 4 (PHCs F1-F4);
- ❑ Benzene, Toluene, Ethylbezene, and Xylenes (BTEX);

These CPCs have the potential to be present in the soil matrix and/or groundwater situated beneath the Phase I Property.

Assessment of Uncertainty and/or Absence of Information

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

A variety of independent sources were consulted as part of this assessment, and as such, the conclusions of this report are not affected by uncertainty which may be present with respect to the individual sources.

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, apart from the inclusion of PCB testing in the soil adjacent to the transformer. PCBs are not a CoPC for the Phase II ESA property, however were analysed in the adjacent soil.

3.5 Impediments

No physical impediments were encountered during the Phase II ESA field program, with exception of on-site buildings and underground utilities.

4.0 INVESTIGATION METHOD

4.1 Subsurface Investigation

The subsurface investigation was completed on September 20, 2024. The field program consisted of drilling four boreholes (BH1-24 through BH4-24) across the Phase II Property.

The boreholes were drilled to a maximum depth of 6.9m below ground surface (bgs) to intercept groundwater. All boreholes, with the exception of BH4-24, were cored into the bedrock and three (BH1-24 to BH3-24) were completed as groundwater monitoring wells.

The boreholes were placed to address the aforementioned APECs presented in Table 1. The boreholes were drilled using a low-clearance track mounted drill-rig operated by George Downing Estate Drilling of Hawkesbury, Ontario, and OGC Drilling of Almonte, Ontario under full-time supervision of Paterson personnel. The borehole locations are indicated on the attached Drawing PE6661-3 - Test Hole Location Plan.

4.2 Soil Sampling

A total of eleven soil samples were obtained from the boreholes by means of grab sampling, sampling from auger flights and split spoon sampling. Split spoon samples were taken at approximate 0.76 m intervals. The depths at which grab samples, augur samples and split spoon were obtained from the boreholes are shown as "**G**", "**AU**" and "**SS**" respectively on the Soil Profile and Test Data Sheets.

The borehole profiles generally consist of pavement structure and disturbed native glacial till, underlain by native silty clay (silty sand to sandy silt, with gravel and cobbles) followed by limestone bedrock.

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 volatile organic 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 PID readings were found to range from 0.1 to 0.7 ppm in the soil samples obtained. These results do not indicate the potential for significant contamination from volatile contaminants. Vapour readings are noted on the Soil Profile and Test Data Sheets in Appendix 1. The results of the vapour survey are presented on the Soil Profile and Test Data sheets.

4.4 Groundwater Monitoring Well Installation

Three (3) groundwater monitoring wells were installed on the Phase II ESA Property as part of the subsurface investigation. The monitoring wells were constructed using 32 mm diameter, Schedule 40 threaded PVC risers and screens. Monitoring well construction details are listed in Table 1: Test Hole Summary Details in Appendix 2 and are also presented on the Soil Profile and Test Data Sheets, appended to this report.

4.5 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.

4.6 Analytical Testing

Based on the guidelines outlined in the Sampling and Analysis Plan, soil samples were submitted for analysis of the parameters listed in Table 2: Soil Testing Summary, in Appendix 2.

Based on the guidelines outlined in the Sampling and Analysis Plan, groundwater samples were submitted for analysis of the parameters listed in Table 3: Groundwater Testing Summary, in Appendix 2.

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.

4.7 Residue Management

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

4.8 Elevation Surveying

The ground surface elevations at each borehole location were surveyed using GPS Survey equipment by Paterson personnel and referenced to a geodetic datum.

4.9 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

Stratigraphy at the Phase II Property generally consists of the following:

- **Asphaltic Concrete** was identified at ground surface in BH2-24, BH3-24, BH4-24, and extended to a maximum depth of 0.10 mbgs.
- **Poured Concrete** was identified at ground surface in BH1-24 and extended to a maximum depth of 0.20 mbgs.
- **Reworked Native Soil** generally consisting of a mix of silty sand and clay, with gravel , was encountered in the interior borehole BH1-24 extending to a maximum depth of 2.08 mbgs. In the exterior boreholes BH2-24 and BH3-24, fill material extended to a maximum depth of 1.45 mbgs.
- **Native Silty Sand/Clay** was encountered in the interior borehole BH1-24 extending to a maximum depth of 2.08 mbgs. In the exterior boreholes BH2-24, silty sand/clay extended to a maximum depth of 1.96 mbgs. Silty sand/clay was not encountered in BH3-24 and BH4-24.
- **Limestone Bedrock** was encountered in the interior borehole BH1-24 at a depth of 2.08 mbgs. In the exterior boreholes BH2-24 and BH3-24, bedrock was encountered at depths ranging from approximately 4.37 to 4.51 mbgs. Groundwater was encountered in this layer in all boreholes.

The stratigraphy of the Phase II ESA Property, from ground to surface to the deepest aquifer or aquitard investigated, is provided in the Soil Profile and Test Data Sheets, in Appendix 1.

5.2 Groundwater Elevations, Flow Direction, and Hydraulic Gradient

Groundwater levels were measured during the groundwater sampling events on September 25, 2024 using an electronic water level meter. Groundwater levels were recorded from the monitoring wells installed in BH1-24 to BH3-24. The groundwater levels are summarized in Table 4: Groundwater Levels, in Appendix 2.

The groundwater at the Phase II ESA Property was encountered within the overburden throughout all boreholes at depths ranging from approximately 2.08m to 4.37m below the existing ground surface.

Using the groundwater elevations recorded during the September 25, 2024 sampling event, groundwater contour mapping was completed as part of this assessment. Groundwater contours are shown on Drawing PE6661-3 – Test Hole Location Plan. Based on the contour mapping, groundwater flow at the subject site is in an easterly direction. A horizontal hydraulic gradient of approximately 0.008m/m was calculated.

It should be noted that groundwater levels are expected to fluctuate throughout the year with seasonal variations.

5.3 Fine-Coarse Soil Texture

Grain size analysis was not completed as part of this investigation. Coarse grained soil standards were chosen based on the nature of the recovered soil samples.

5.4 Soil: Field Screening

Field screening of the soil samples collected during drilling resulted in vapour readings ranging from 0.1 to 0.7ppm. 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

A total of eleven soil samples (plus one duplicate) were submitted for laboratory analysis of either, BTEX, PHCs (F1-F4) and PCBs. Three soil samples were also submitted for pH analysis. The results of the analytical testing are presented in Table 5: Soil Analytical Test Results, as well as on the laboratory certificates of analysis, appended to this report.

BTEX and PHCs (F1-F4)

No BTEX or PHC parameters were identified above the MECP Table 7 Standards in any of the soil samples analyzed. The analytical results for the tested soil are shown on Drawing PE6661-4 – Analytical Testing Plan – Soil and Groundwater.

PCBs

No detectable PCB parameters were identified in any of the soil samples analyzed. The analytical results for the tested soil are shown on Drawing PE6661-4 – Analytical Testing Plan – Soil and Groundwater.

pH

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

Maximum Soil Parameter Concentrations

The maximum concentration of each parameter identified in soil samples analyzed on the Phase II Property are presented in Table 5A: Maximum Concentrations – Soil, appended to this report.

5.6 Groundwater Quality

Three groundwater samples (plus one duplicate) were recovered from the monitoring wells installed in boreholes BH1-24 through BH3-24 on September 25, 2024 and submitted for laboratory analysis of PHCs (F1-F4) and BTEX.

The results of the analytical testing are presented in Table 6: Groundwater Analytical Test Results, as well as on the laboratory certificates of analysis, appended to this report.

BTEX and PHCs (F1-F4)

No detectable BTEX and PHC concentrations were identified in any of the groundwater samples analyzed. The analytical results for the tested groundwater are shown on Drawing PE6661-4 – Analytical Testing Plan – Soil and Groundwater.

5.7 Quality Assurance and Quality Control Results

All samples submitted as part of the September 2024 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.

As per the Sampling and Analysis Plan, a duplicate soil sample was obtained from BH3-24-SS2 and submitted for laboratory analysis of BTEX and PHCs (F1-F4). The relative percent difference (RPD) calculations for the soil samples are provided in Table 7: QA/QC Calculations.

The RPD calculated for all, but two parameters fell within of the acceptable range of 20%. Given that there is a similarity in the list of parameters detected in both the original and duplicate sample, and that both samples comply with the site standards, the data quality objectives outlined in the Sampling and Analysis Plan, appended to this report, are considered to have been met.

Similarly, a duplicate groundwater sample was obtained from sample BH1-24-GW1 and submitted for laboratory analysis of BTEX and PHC parameters. No parameter concentrations were detected in either the original or the duplicate samples above the laboratory method detection limits, and as such, they are considered to meet the data quality objectives outlined in the Sampling and Analysis Plan, appended to this report.

Based on the results of the QA/QC analysis, the quality of the field data collected during this Phase II ESA is considered to be sufficient to meet the overall objectives of this 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

As indicated in Table 1, Section 2.2 of this report, the on-site PCAs that were identified to have resulted in APECs on the Phase II Property as follows:

- PCA 28 – "Gasoline and Associated Products Storage in Fixed Tanks" due to the presence of an aboveground storage tank containing diesel fuel (APEC 1);
- PCA 28 – "Gasoline and Associated Products Storage in Fixed Tanks' due to the presence of a penthouse aboveground storage tank containing diesel (APEC 1B);
- PCA 28 – "Gasoline and Associated Products Storage in Fixed Tanks" due to the historical presence of ASTs in the basement (APEC 1C);
- PCA 28 – "Gasoline and Associated Products Storage in Fixed Tanks' due to the historical presence of ASTs in the penthouse (APEC 1D);
- PCA 55 – "Transformer Manufacturing, Processing and Use" due to the presence of a pad-mounted transformer (APEC 2);
- PCA Other – "Application of road salt for the safety of vehicular or pedestrian traffic under conditions of snow or ice" across the Phase I Property (APEC 3).

In accordance with Section 49.1 of O.Reg. 153/04, the application of road salt is not considered a PCA that would result in an APC on the Phase II Property, if the application of road salt was applied to the surface of the parking lot and laneway for the safety of vehicular and pedestrian traffic under conditions of ice and/or snow. Therefore, APEC 3 is exempted.

Contaminants of Potential Concern

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

- Petroleum Hydrocarbons, Fractions 1 – 4 (PHCs F1-F4);
- Benzene, Toluene, Ethylbezene, and Xylenes (BTEX);

Electrical Conductivity (EC) and Sodium Adsorption Ratio (SAR).PCB analysis was conducted adjacent to the existing pad-mounted transformer. PCBs are not considered to be a CoPC on the Phase II ESA property.

Subsurface Structures and Utilities

Underground service locates were completed prior to the subsurface investigations. Buried utilities on the Phase II Property include gas, hydro, water and sewer services on the norther half of the Phase II Property

Several catch basins are situated within the asphaltic concrete parking lot. Hydro is located directly to the south of the subject building and runs from west to east across the Phase II Property from Legget Drive. Natural gas service enters the subject building from the western portion of the Phase II Property from Legget Drive.

Based on standard practice for subsurface utility installation, service trenches are expected to be present approximately 1 to 2m below existing grade. In general, trench backfill may provide a preferential pathway for contaminant transport if the water table is at or above the base of the trenches.

Based on the findings of this Phase II ESA, service trenches are not considered to have created preferential pathways for contaminant migration.

Physical Setting

Site Stratigraphy

Stratigraphy at the Phase II Property generally consists of the following:

- **Asphaltic Concrete** was identified at ground surface in BH2-24, BH3-24, BH4-24, and extended to a maximum depth of 0.10 mbgs.
- **Poured Concrete** was identified at ground surface in BH1-24 and extended to a maximum depth of 0.20 mbgs.

- **Reworked Native Soil** generally consisting of a mix of silty sand and clay, with gravel , was encountered in the interior borehole BH1-24 extending to a maximum depth of 2.08 mbgs. In the exterior boreholes BH2-24 and BH3-24, fill material extended to a maximum depth of 1.45 mbgs.
- **Native Silty Sand/Clay** was encountered in the interior borehole BH1-24 extending to a maximum depth of 2.08 mbgs. In the exterior boreholes BH2-24, silty sand/clay extended to a maximum depth of 1.96 mbgs. Silty sand/clay was not encountered in BH3-24 and BH4-24.
- **Limestone Bedrock** was encountered in the interior borehole BH1-24 at a depth of 2.08 mbgs. In the exterior boreholes BH2-24 and BH3-24, bedrock was encountered at depths ranging from approximately 4.37 to 4.51 mbgs. Groundwater was encountered in this layer in all boreholes.

The stratigraphy of the Phase II ESA Property, from ground to surface to the deepest aquifer or aquitard investigated, is provided in the Soil Profile and Test Data Sheets, in Appendix 1.

Hydrogeological Characteristics

Groundwater levels were measured during the groundwater sampling events on September 25, 2024 using an electronic water level meter. Groundwater levels were recorded from the monitoring wells installed in BH1-24 to BH3-24. The groundwater levels are summarized in Table 4: Groundwater Levels, in Appendix 2.

The groundwater at the Phase II ESA Property was encountered within the overburden throughout all boreholes at depths ranging from approximately 2.08m to 4.37m below the existing ground surface.

Using the groundwater elevations recorded during the September 25, 2024 sampling event, groundwater contour mapping was completed as part of this assessment. Groundwater contours are shown on Drawing PE6661-3 – Test Hole Location Plan. Based on the contour mapping, groundwater flow at the subject site is in an easterly direction. A horizontal hydraulic gradient of approximately 0.008m/m was calculated.

Free product was not observed during the Phase II ESA investigations.

Approximate Depth to Bedrock

Limestone bedrock was encountered during the interior drilling program in BH1-24 at a depth of 2.08 mbgs. Limestone bedrock was encountered during the exterior drilling program in BH2-24 and BH3-24 at depths ranging from approximately 1.17 to 1.96 mbgs.

Approximate Depth to Water Table

The depth to the water table at the subject site varies between approximately 4.37 m to 4.51 m below existing grade.

Sections 41 and 43.1 of the Regulation

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

Section 43.1 of the Regulation does apply to the Phase II ESA Property as bedrock is located less than 2m below ground surface.

Fill Placement

Fill material consisting of a mix of silty sand and clay, with gravel was identified in all of the boreholes, which extended to depths of 1.17 to 2.08 mbgs.

Existing Buildings and Structures

The Phase I Property is currently occupied by a commercial office tower located in the northern portion of the property.

Proposed Buildings and Other Structures

It is our understanding that the Phase I Property is to be redeveloped for residential purposes with the retrofitting of the current commercial office building.

Water Bodies and Areas of Natural Scientific Interest

No water bodies are present on the Phase I Property or within the Phase I Study Area. The nearest named water body with respect to the Phase I Property is Shirleys Brook, located approximately 300m to the south.

There are no areas of natural and scientific interest on the Phase I Property or within the Phase I Study Area.

Environmental Condition

Areas Where Contaminants are Present

Based on the analytical results for soil and groundwater, there are no contaminants present on or beneath the Phase II ESA Property.

6.0 CONCLUSIONS

Assessment

A Phase II ESA was conducted for the property addressed 535 Legget Drive, in 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 ESA Property.

The Phase II ESA subsurface investigation consisted of drilling four boreholes across the Phase II Property. Three of the boreholes were constructed with groundwater monitoring wells. The general soil profile encountered during the field program consisted of fill material, followed by native silty clay. Limestone bedrock was encountered in BH1-24 to BH3-24 at a depth of 1.17 to 2.08 mbgs.

A total of three samples (plus one duplicate) were submitted for laboratory analysis of either, benzene, toluene, ethylbenzene, xylenes (BTEX), petroleum hydrocarbons (PHCs, F1-F4) and polychlorinated biphenyls (PCBs. Two representative samples were submitted for pH analysis. Based on the analytical test results, all soil results were observed to comply with the MECP Table 7 Residential Standards.

Groundwater samples from monitoring wells installed in BH1-24 through BH3-24 were submitted for laboratory analysis of PHCs (F1-F4) and BTEX. All groundwater results were observed to comply with the MECP Table 7 Non-Potable Standards.

Recommendations

Groundwater

It is recommended that the monitoring wells be maintained fur 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, as amended, and meets the requirements of CSA Z769-00 (reaffirmed 2022). 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 subject site 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 KRP Properties Inc. Notification from above noted party and Paterson Group will be required to release this report to any other party.

Paterson Group Inc.

Joshua Dempsey, B.Sc.

Michael Beaudoin, P.Eng., QP$_{ESA}$

Report Distribution:

- KRP Properties Inc.
- Paterson Group Inc.

FIGURES

FIGURE 1 – KEY PLAN

DRAWING PE6661-1 – SITE PLAN

DRAWING PE6661-2 – SURROUNDING LAND USE PLAN

DRAWING PE6661-3 – TEST HOLE LOCATION PLAN & GROUNDWATER CONTOUR PLAN

DRAWING PE6661-4 – ANALYTICAL TESTING PLAN – SOIL AND GROUNDWATER

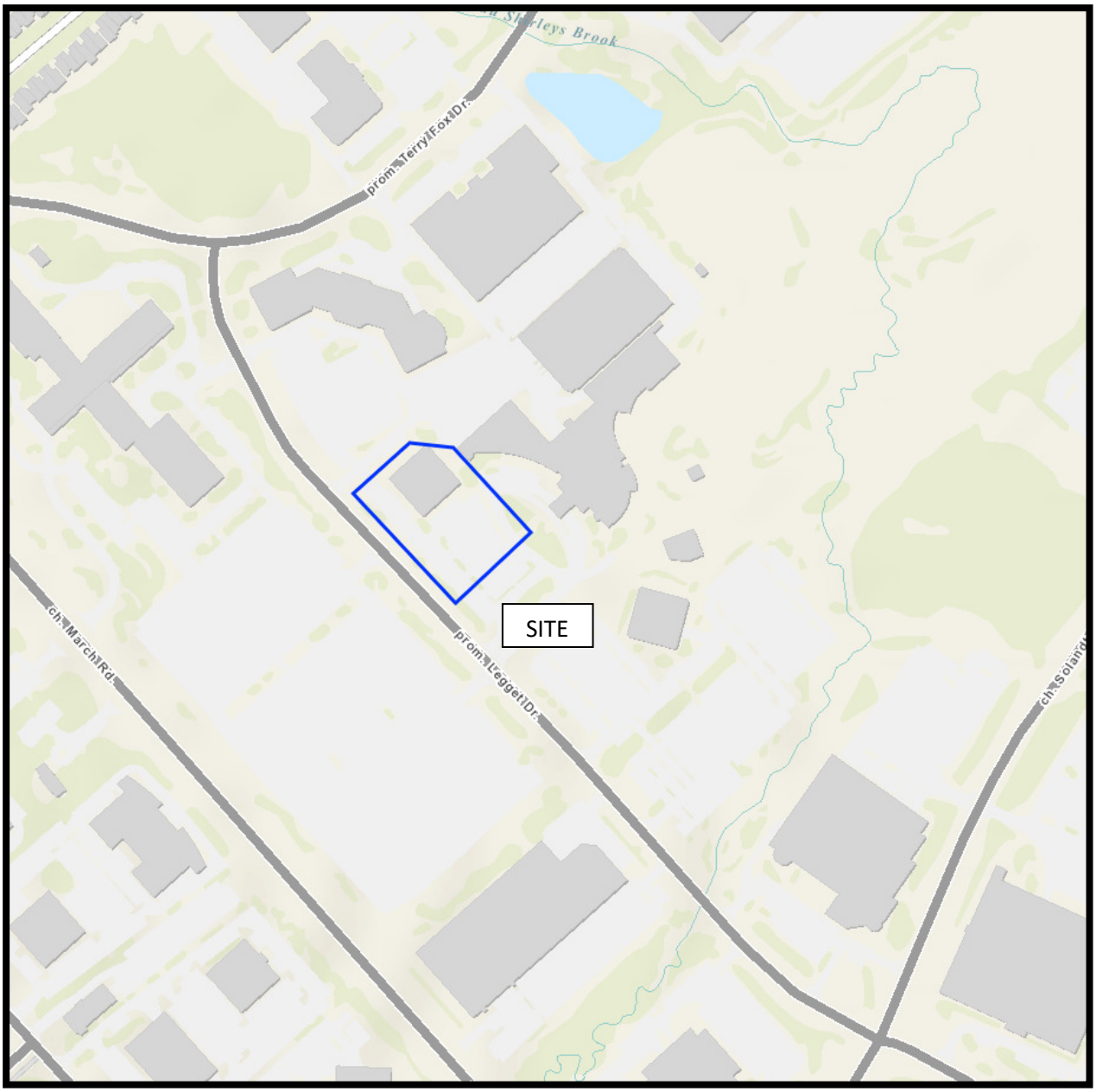
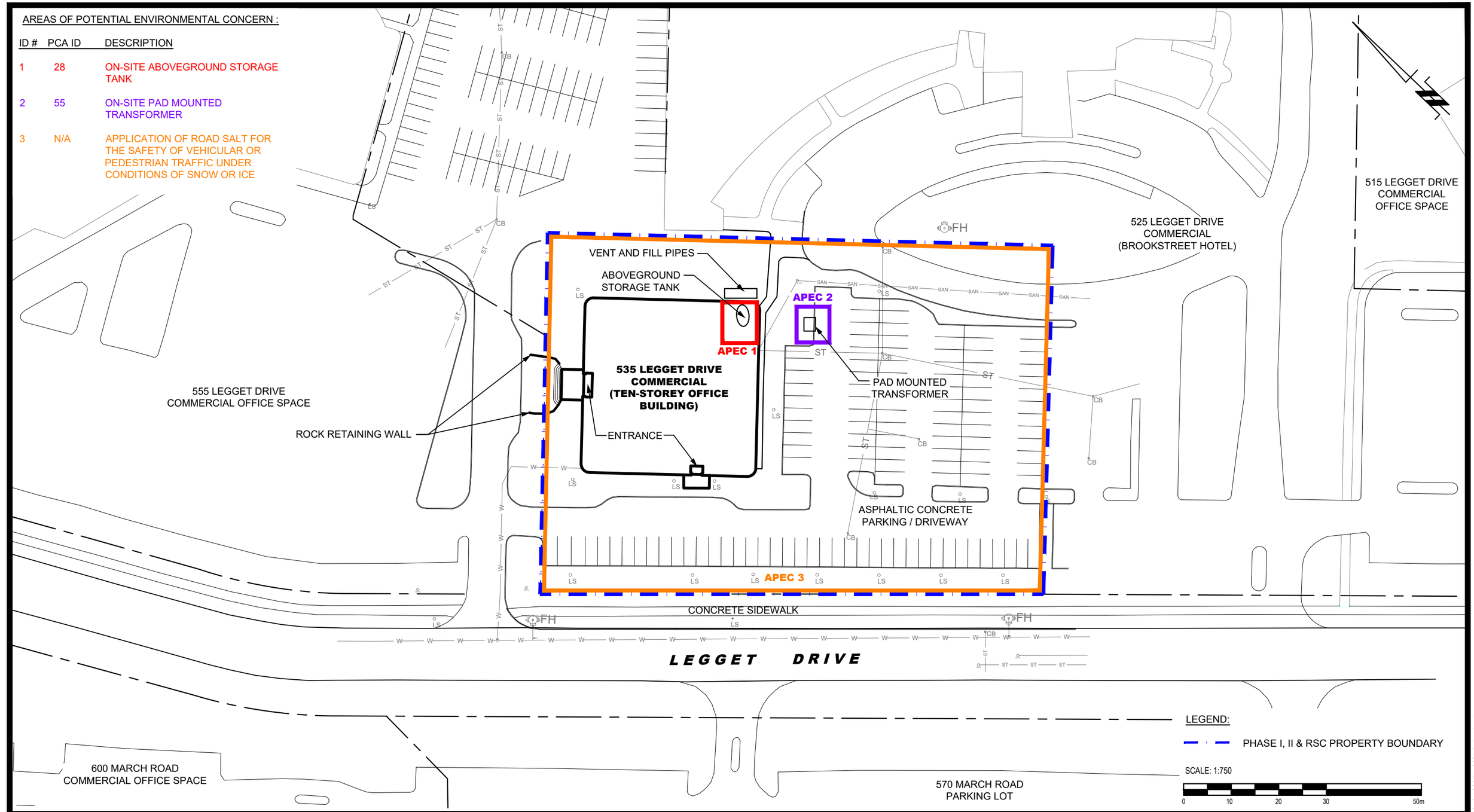


FIGURE 1

KEY PLAN

AREAS OF POTENTIAL ENVIRONMENTAL CONCERN :

ID #	PCA ID	DESCRIPTION
1	28	ON-SITE ABOVEGROUND STORAGE TANK
2	55	ON-SITE PAD MOUNTED TRANSFORMER
3	N/A	APPLICATION OF ROAD SALT FOR THE SAFETY OF VEHICULAR OR PEDESTRIAN TRAFFIC UNDER CONDITIONS OF SNOW OR ICE



LEGEND:

PHASE I, II & RSC 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

KRP PROPERTIES INC.

PHASE I - ENVIRONMENTAL SITE ASSESSMENT
535 LEGGET DRIVE

OTTAWA, ONTARIO

Title:

SITE PLAN

Scale: 1:750	Date: 09/2024
Drawn by: GK	Report No.: PE6661-1
Checked by: JD	Dwg. No.: PE6661-1
Approved by: MB	Revision No.:

11x17

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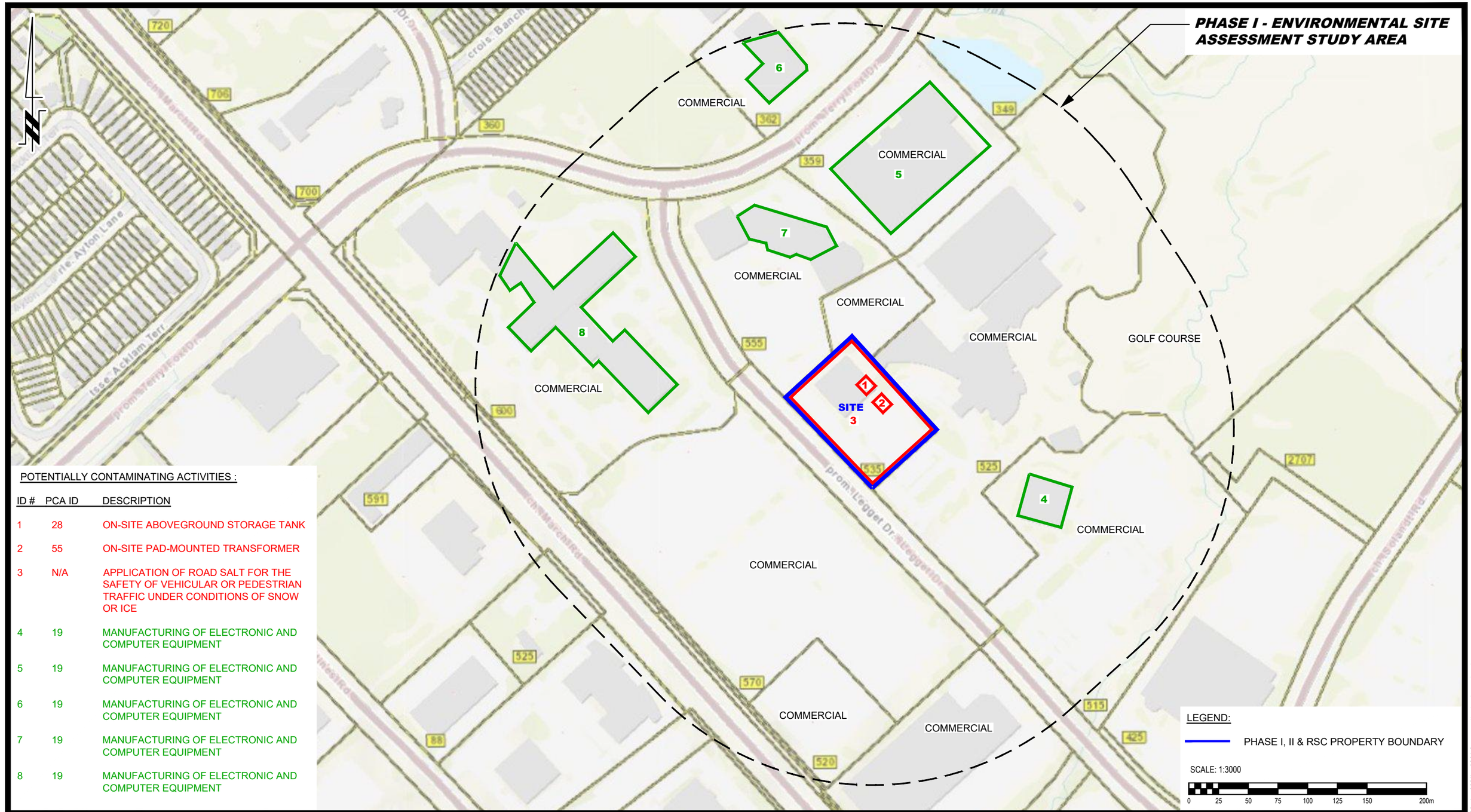


POTENTIALLY CONTAMINATING ACTIVITIES :

ID #	PCA ID	DESCRIPTION
1	28	ON-SITE ABOVEGROUND STORAGE TANK
2	55	ON-SITE PAD-MOUNTED TRANSFORMER
3	N/A	APPLICATION OF ROAD SALT FOR THE SAFETY OF VEHICULAR OR PEDESTRIAN TRAFFIC UNDER CONDITIONS OF SNOW OR ICE
4	19	MANUFACTURING OF ELECTRONIC AND COMPUTER EQUIPMENT
5	19	MANUFACTURING OF ELECTRONIC AND COMPUTER EQUIPMENT
6	19	MANUFACTURING OF ELECTRONIC AND COMPUTER EQUIPMENT
7	19	MANUFACTURING OF ELECTRONIC AND COMPUTER EQUIPMENT
8	19	MANUFACTURING OF ELECTRONIC AND COMPUTER EQUIPMENT

LEGEND:

PHASE I, II & RSC 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

KRP PROPERTIES INC.

PHASE I - ENVIRONMENTAL SITE ASSESSMENT
535 LEGGET DRIVE

OTTAWA, ONTARIO

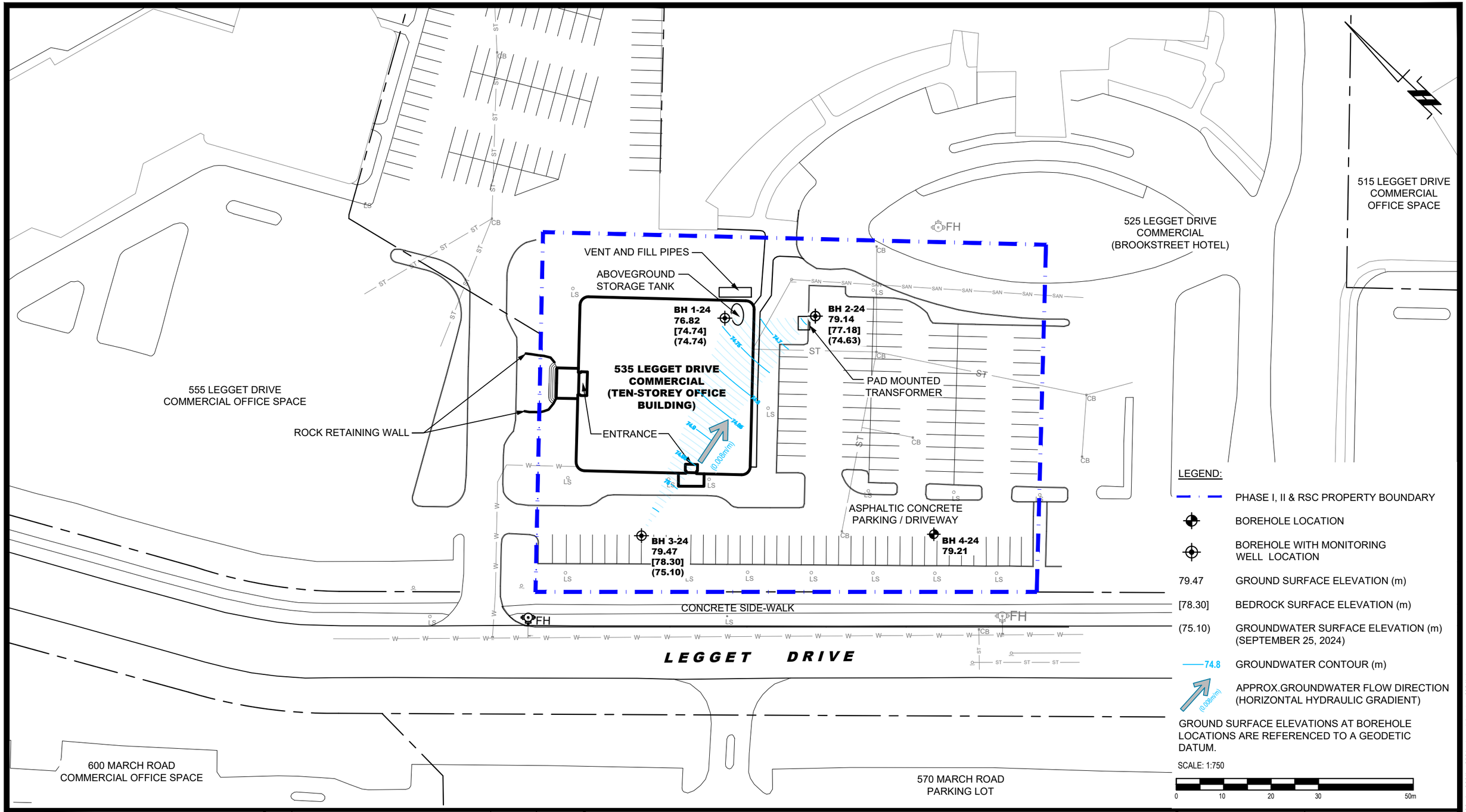
Title:

SURROUNDING LAND USE PLAN

Scale: 1:3000	Date: 09/2024
Drawn by: GK	Report No.: PE6661-1
Checked by: JD	Dwg. No.: PE6661-2
Approved by: MB	Revision No.:

11x17

p:\autocad drawings\environmental\pe66xx\pe6661\pe6661-2 surrounding land use plan.dwg



LEGEND:

- PHASE I, II & RSC PROPERTY BOUNDARY
- BOREHOLE LOCATION
- BOREHOLE WITH MONITORING WELL LOCATION
- 79.47 GROUND SURFACE ELEVATION (m)
- [78.30] BEDROCK SURFACE ELEVATION (m)
- (75.10) GROUNDWATER SURFACE ELEVATION (m) (SEPTEMBER 25, 2024)
- 74.8 GROUNDWATER CONTOUR (m)
- APPROX.GROUNDWATER FLOW DIRECTION (HORIZONTAL HYDRAULIC GRADIENT) (0.008m/m)

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

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

KRP PROPERTIES INC.

PHASE II - ENVIRONMENTAL SITE ASSESSMENT
535 LEGGET DRIVE

OTTAWA, ONTARIO

Title:

TEST HOLE LOCATION PLAN

Scale: 1:750	Date: 10/2024
Drawn by: YA	Report No.: PE6661-2
Checked by: JD	Dwg. No.: PE6661-3
Approved by: MB	Revision No.:

11x17

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BH1-24-SS2	0.46-1.07m	20-Sept-24
PHCs comply with the MECP Table 7 Residential Standards		
BTEX comply with the MECP Table 7 Residential Standards		
BH1-24-GW1	3.15-4.67m	25-Sept-24
PHCs comply with the MECP Table 7 Non-Potable Standards		
BTEX comply with the MECP Table 7 Non-Potable Standards		
DUP1	3.15-4.67 m	25-Sept-24
PHCs comply with the MECP Table 7 Non-Potable Standards		
BTEX comply with the MECP Table 7 Non-Potable Standards		

BH2-24-SS3	1.52-2.13m	20-Sept-24
PHCs comply with the MECP Table 7 Residential Standards		
BTEX comply with the MECP Table 7 Residential Standards		
PCBs comply with the MECP Table 7 Residential Standards		
BH2-24-GW1	3.78-6.83m	25-Sept-24
PHCs comply with the MECP Table 7 Non-Potable Standards		
BTEX comply with the MECP Table 7 Non-Potable Standards		

BH3-24-SS2	0.76-1.37m	20-Sept-24
PHCs comply with the MECP Table 7 Residential Standards		
BTEX comply with the MECP Table 7 Residential Standards		
DUP1	0.76-1.37m	20-Sept-24
PHCs comply with the MECP Table 7 Residential Standards		
BTEX comply with the MECP Table 7 Residential Standards		
BH3-24-GW1	3.53-6.58 m	25-Sept-24
PHCs comply with the MECP Table 7 Non-Potable Standards		
BTEX comply with the MECP Table 7 Non-Potable Standards		

555 LEGGET DRIVE
COMMERCIAL OFFICE SPACE

515 LEGGET DRIVE
COMMERCIAL
OFFICE SPACE

525 LEGGET DRIVE
COMMERCIAL
(BROOKSTREET HOTEL)

VENT AND FILL PIPES

ABOVEGROUND
STORAGE TANK

BH 1-24
76.82
[74.74]
(74.74)

BH 2-24
79.14
[77.18]
(74.63)

535 LEGGET DRIVE
COMMERCIAL
(TEN-STOREY OFFICE
BUILDING)

PAD MOUNTED
TRANSFORMER

ROCK RETAINING WALL

ENTRANCE

ASPHALTIC CONCRETE
PARKING / DRIVEWAY

BH 3-24
79.47
[78.30]
(75.10)

BH 4-24
79.21

CONCRETE SIDE-WALK

LEGGET DRIVE

600 MARCH ROAD
COMMERCIAL OFFICE SPACE

570 MARCH ROAD
PARKING LOT

LEGEND:

SOIL RESULT COMPLIES WITH THE MECP TABLE 7 RESIDENTIAL STANDARDS

GROUNDWATER RESULT COMPLIES WITH THE MECP TABLE 7 NON-POTABLE STANDARDS

- PHASE I, II & RSC PROPERTY BOUNDARY
- BOREHOLE LOCATION
- BOREHOLE WITH MONITORING WELL LOCATION
- 79.47 — GROUND SURFACE ELEVATION (m)
- [78.30] — BEDROCK SURFACE ELEVATION (m)
- (75.10) — GROUNDWATER SURFACE ELEVATION (m) (SEPTEMBER 25, 2024)
- A—A' — CROSS SECTION

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

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

KRP PROPERTIES INC.

PHASE II - ENVIRONMENTAL SITE ASSESSMENT
535 LEGGET DRIVE

OTTAWA, ONTARIO

Title:

ANALYTICAL TESTING PLAN - SOIL & GROUNDWATER

Scale: 1:750	**Date:** 10/2024
Drawn by: YA	**Report No.:** PE6661-2
Checked by: JD	**Dwg. No.:** PE6661-4
Approved by: MB	**Revision No.:**

11x17

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APPENDIX 1

SAMPLING AND ANALYSIS PLAN

SOIL PROFILE AND TEST DATA SHEETS

SYMBOLS AND TERMS

LABORATORY CERTIFICATES OF ANALYSIS

PATERSON GROUP

Sampling and Analysis Plan

535 Legget Drive
Ottawa, Ontario

Prepared for KRP Properties Inc.

Report: PE6661-SAP
Date: September 18, 2024

TABLE OF CONTENTS

1.0 SAMPLING PROGRAM

Paterson Group Inc. (Paterson) was commissioned by KRP Properties Inc., to conduct a Phase II – Environmental Site Assessment (Phase II ESA) at 535 Legget Drive, in the City of Ottawa, Ontario.

Based on the findings of the Phase I ESA, the following subsurface investigation program was developed.

Borehole	Location & Rationale	Proposed Depth & Rationale
BH1-24	Placed in the northeastern 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.	4-5 m; Drill to intercept water table for monitoring well installation. Core bedrock if there is no evidence of water in the overburden.
BH2-24	Placed on the central east 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. Core bedrock if there is no evidence of water in the overburden.
BH3-24	Placed on the northwestern 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. Core bedrock if there is no evidence of water in the overburden.
BH4-24	Placed on the southwestern portion of the Phase II Property for general site coverage purpopes.	6-7 m; For general coverage purposes.

Borehole locations are shown on Drawing PE6661-3 – 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 all boreholes for the collection of groundwater samples.

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

535 Legget Drive, Ottawa, Ontario

COORD. SYS.: MTM ZONE 9 **EASTING:** 350344.97 **NORTHING:** 5023275.74 **ELEVATION:** 76.82

PROJECT: Phase II Environmental Site Assessment

BORINGS BY: Portable Drill

REMARKS:

DATE: September 20, 2024

FILE NO. : PE6661

HOLE NO. : BH 1-24

SAMPLE DESCRIPTION	STRATA PLOT	DEPTH (m)	SAMPLE TYPE AND NO.	SAMPLE RECOVERY (%)	SAMPLE N, Nc OR RQD	SAMPLE ANALYTICAL TESTS	GASTECH (ppm) / GASTECH (% LEL) / PID (ppm) / PID (% LEL)	MONITORING WELL CONSTRUCTION	ELEVATION (m)
TOP OF SLAB									
CONCRETE SLAB 0.20m [76.62m]		0	G 1						
FILL: Gravel, with crushed stone and silty fine sand			SS 2		13-18-20-23 38	PHC/BTEX			76
- Trace clay below 1.07 m depth		1	SS 3		8-8-6-6 14				
2.08m [74.74m]		2	SS 4		7-50-/-/ 50/0.1				75
BEDROCK: Limestone / sandstone			RC 1	96				2.1 m ▼ 2024-09-25	74
		3	RC 2	98					73
4.67m [72.15m]		4	RC 3	106					
End of Borehole		5							72
(GWL at 2.08 m - September 25, 2024)		6							71
		7							70
		8							69

SOIL PROFILE AND TEST DATA

Phase II Environmental Site Assessment

535 Legget Drive, Ottawa, Ontario

COORD. SYS.: MTM ZONE 9 **EASTING:** 350358.46 **NORTHING:** 5023262.25 **ELEVATION:** 79.14

PROJECT: Phase II Environmental Site Assessment

BORINGS BY: CME-55 Low Clearance Drill

REMARKS:

DATE: September 20, 2024

FILE NO. : PE6661

HOLE NO. : BH 2-24

SAMPLE DESCRIPTION	DEPTH (m)	SAMPLE TYPE AND NO.	RECOVERY (%)	N, Nc OR RQD	ANALYTICAL TESTS	ELEVATION (m)
GROUND SURFACE						
ASPHALT 0.10m [79.04m]	0	AU 1				79
FILL: Gravel, with crushed stone, occasional cobbles 0.91m [78.23m]	1	SS 2	15	29-15-14-8 29		78
FILL: Reworked native glacial till 1.45m [77.69m]		SS 3	46	5-5-50-/ 55/0.13	PHC/BTEX/PCB/Ph	
GLACIAL TILL: Stiff, brown silty clay, trace sand 1.96m [77.18m]	2	RC 1	100	RQD 91		77
BEDROCK: Good to excellent quality limestone / sandstone	3					76
	4	RC 2	100	RQD 98		75
	5	RC 3	100	RQD 93		74
	6	RC 4	93	RQD 76		73
6.88m [72.26m] End of Borehole (GWL at 4.51 m - September 25, 2024)	7					72
	8					

GASTECH (ppm) ■ / GASTECH (% LEL) □ — 50 100 150 200

PID (ppm) ▲ / PID (% LEL) △ — 20 40 60 80

MONITORING WELL CONSTRUCTION: 4.5 m ▼ 2024-09-25

SOIL PROFILE AND TEST DATA

Phase II Environmental Site Assessment

535 Legget Drive, Ottawa, Ontario

COORD. SYS.: MTM ZONE 9 **EASTING:** 350299.61 **NORTHING:** 5023256.76 **ELEVATION:** 79.47

PROJECT: Phase II Environmental Site Assessment

BORINGS BY: CME-55 Low Clearance Drill

REMARKS:

DATE: September 20, 2024

FILE NO. : PE6661

HOLE NO. : BH 3-24

SAMPLE DESCRIPTION	STRATA PLOT	DEPTH (m)	SAMPLE TYPE AND NO.	SAMPLE RECOVERY (%)	SAMPLE N, Nc OR RQD	SAMPLE ANALYTICAL TESTS	GASTECH (ppm) / GASTECH (% LEL) / PID (ppm) / PID (% LEL)	MONITORING WELL CONSTRUCTION	ELEVATION (m)
GROUND SURFACE		0					50 100 150 200 / 20 40 60 80		79
ASPHALT 0.05m [79.42m]			AU 1						
FILL: Gravel, with crushed stone, occasional cobbles 0.48m [78.99m]									
FILL: Reworked native glacial till 1.17m [78.30m]		1	SS 2	81	4-6-50-/ 56/0.1	PHC/BTEX/Ph			78
BEDROCK: Good to excellent quality limestone / sandstone			RC 1	100	RQD 96				
		2	RC 2	100	RQD 88				77
		3	RC 3	100	RQD 85				76
		4						4.4 m 2024-09-25	75
		5	RC 4	100	RQD 83				74
		6	RC 5	74	RQD 86				73
6.58m [72.89m]									
End of Borehole		7							72
(GWL at 4.37 m - September 25, 2024)		8							

SOIL PROFILE AND TEST DATA

Phase II Environmental Site Assessment

535 Legget Drive, Ottawa, Ontario

COORD. SYS.: MTM ZONE 9 **EASTING:** 350342.44 **NORTHING:** 5023212.38 **ELEVATION:** 79.21

PROJECT: Phase II Environmental Site Assessment

BORINGS BY: CME-55 Low Clearance Drill

REMARKS:

DATE: September 20, 2024

FILE NO. : **PE6661**

HOLE NO. : **BH 4-24**

SAMPLE DESCRIPTION	STRATA PLOT	DEPTH (m)	SAMPLE TYPE AND NO.	SAMPLE RECOVERY (%)	SAMPLE N, Nc 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							79
ASPHALT 0.08m [79.13m]			AU 1						
FILL: Gravel, with crushed stone									
1.07m [78.14m]		1	SS 2	29	3-3-6-6 9				78
Brown **SILTY** fine **SAND** 1.37m [77.84m]									
End of Borehole		2							77
		3							76
		4							75
		5							74
		6							73
		7							72
		8							

SYMBOLS AND TERMS

SOIL DESCRIPTION

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

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

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

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

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

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

SYMBOLS AND TERMS (continued)

SOIL DESCRIPTION (continued)

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

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

ROCK DESCRIPTION

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

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

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

SAMPLE TYPES

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

SYMBOLS AND TERMS (continued)

GRAIN SIZE DISTRIBUTION

MC%	-	Natural moisture content or water content of sample, %
LL	-	Liquid Limit, % (water content above which soil behaves as a liquid)
PL	-	Plastic limit, % (water content above which soil behaves plastically)
PI	-	Plasticity index, % (difference between LL and PL)
Dxx	-	Grain size which xx% of the soil, by weight, is of finer grain sizes These grain size descriptions are not used below 0.075 mm grain size
D10	-	Grain size at which 10% of the soil is finer (effective grain size)
D60	-	Grain size at which 60% of the soil is finer
Cc	-	Concavity coefficient = $(D30)^2$ / (D10 x D60)
Cu	-	Uniformity coefficient = D60 / D10

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

CONSOLIDATION TEST

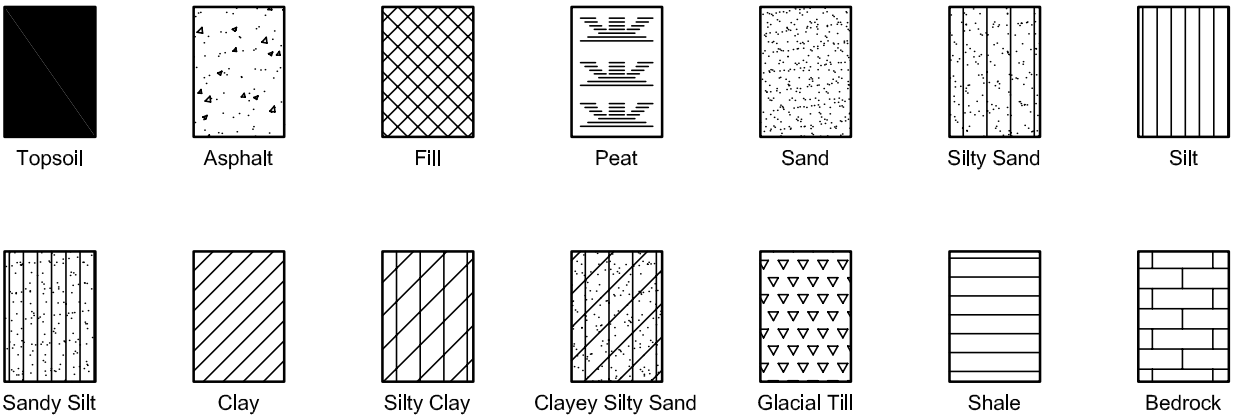
p'_o	-	Present effective overburden pressure at sample depth
p'_c	-	Preconsolidation pressure of (maximum past pressure on) sample
Ccr	-	Recompression index (in effect at pressures below p'_c)
Cc	-	Compression index (in effect at pressures above p'_c)
OC Ratio		Overconsolidaton ratio = p'_c / p'_o
Void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

PERMEABILITY TEST

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

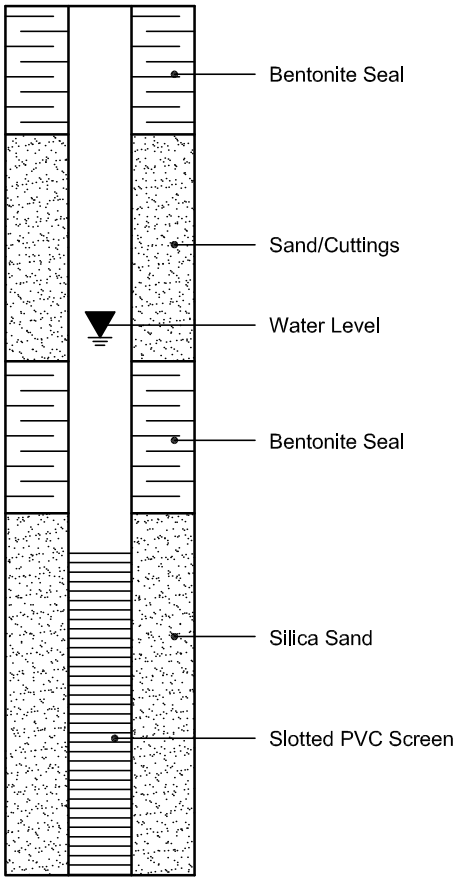
SYMBOLS AND TERMS (continued)

STRATA PLOT

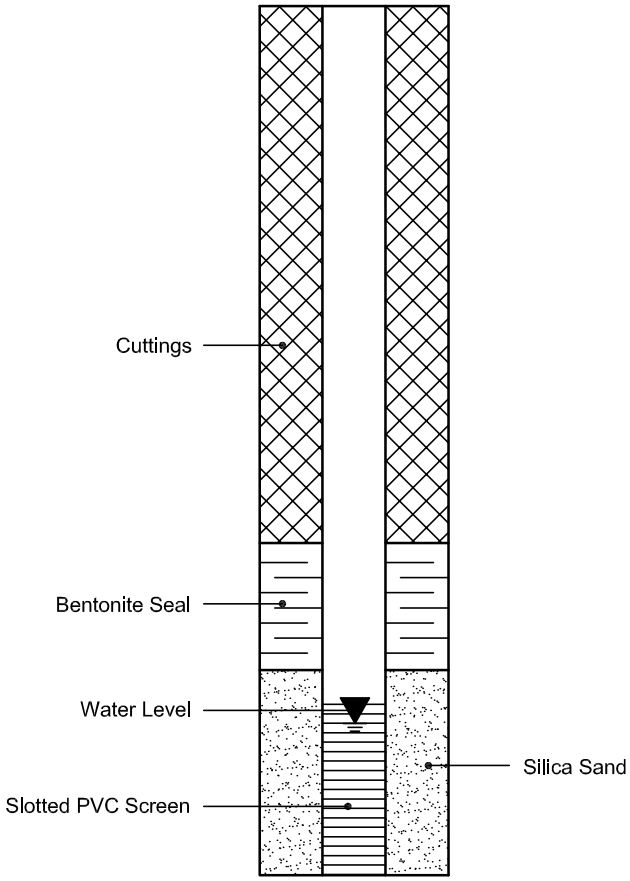


MONITORING WELL AND PIEZOMETER CONSTRUCTION

MONITORING WELL CONSTRUCTION



PIEZOMETER CONSTRUCTION



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Certificate of Analysis

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

Client PO: 61346
Project: PE6661
Custody:

Report Date: 26-Sep-2024
Order Date: 23-Sep-2024

Order #: 2439086

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

Paracel ID	Client ID
2439086-01	BH1-24-SS2
2439086-02	BH2-24-SS3
2439086-03	BH3-24-SS2
2439086-04	DUP1-24 (BH3-24-SS2)

Approved By:

Mark Foto, M.Sc.
Lab Supervisor

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
BTEX by P&T GC-MS	EPA 8260 - P&T GC-MS	24-Sep-24	24-Sep-24
PCBs, total	SW846 8082A - GC-ECD	25-Sep-24	25-Sep-24
pH, soil	EPA 150.1 - pH probe @ 25 °C, CaCl buffered ext.	24-Sep-24	24-Sep-24
PHC F1	CWS Tier 1 - P&T GC-FID	24-Sep-24	24-Sep-24
PHC F4G (gravimetric)	CWS Tier 1 - Extraction Gravimetric	25-Sep-24	25-Sep-24
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	24-Sep-24	24-Sep-24
Solids, %	CWS Tier 1 - Gravimetric	24-Sep-24	25-Sep-24

Certificate of Analysis

Report Date: 26-Sep-2024

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

Order Date: 23-Sep-2024

Client PO: 61346

Project Description: PE6661

	Client ID:	BH1-24-SS2	BH2-24-SS3	BH3-24-SS2	DUP1-24 (BH3-24-SS2)	-	-
	Sample Date:	20-Sep-24 09:00	20-Sep-24 09:00	20-Sep-24 09:00	20-Sep-24 09:00		
	Sample ID:	2439086-01	2439086-02	2439086-03	2439086-04		
	Matrix:	Soil	Soil	Soil	Soil		
	MDL/Units						
Physical Characteristics							
% Solids	0.1 % by Wt.	95.8	78.4	82.0	85.8	-	-
General Inorganics							
pH	0.05 pH Units	-	7.32	7.59	7.49	-	-
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	-	-
Toluene-d8	Surrogate	112%	124%	123%	119%	-	-
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	38	<8	68	51	-	-
F4 PHCs (C34-C50)	6 ug/g	31	<6	193 [1]	178 [1]	-	-
F4G PHCs (gravimetric)	50 ug/g	-	-	373	233	-	-
PCBs							
PCBs, total	0.05 ug/g	-	<0.05	-	-	-	-
Decachlorobiphenyl	Surrogate	-	139%	-	-	-	-

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					
PCBs								
PCBs, total	ND	0.05	ug/g					
Surrogate: Decachlorobiphenyl	*0.136*		*%*	*136*	*60-140*			
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	*8.90*		*%*	*111*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics									
pH	7.45	0.05	pH Units	7.40			0.7	2.3	
Hydrocarbons									
F1 PHCs (C6-C10)	42	7	ug/g	59			34.4	40	
F2 PHCs (C10-C16)	ND	4	ug/g	ND			NC	30	
F3 PHCs (C16-C34)	20	8	ug/g	38			60.0	30	QR-04
F4 PHCs (C34-C50)	21	6	ug/g	31			37.8	30	QR-04
PCBs									
PCBs, total	ND	0.05	ug/g	ND			NC	40	
Surrogate: Decachlorobiphenyl	*0.171*		*%*		*134*	*60-140*			
Physical Characteristics									
% Solids	66.9	0.1	% by Wt.	67.1			0.4	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	*19.8*		*%*		*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)	193	7	ug/g	ND	112	85-115			
F2 PHCs (C10-C16)	87	4	ug/g	ND	104	60-140			
F3 PHCs (C16-C34)	208	8	ug/g	38	83.2	60-140			
F4 PHCs (C34-C50)	132	6	ug/g	31	78.0	60-140			
F4G PHCs (gravimetric)	994	50	ug/g	ND	99.4	80-120			
PCBs									
PCBs, total	0.623	0.05	ug/g	ND	122	60-140			
Surrogate: Decachlorobiphenyl	*0.177*		*%*		*139*	*60-140*			
Volatiles									
Benzene	2.89	0.02	ug/g	ND	72.2	60-130			
Ethylbenzene	3.14	0.05	ug/g	ND	78.4	60-130			
Toluene	3.07	0.05	ug/g	ND	76.9	60-130			
m,p-Xylenes	6.74	0.05	ug/g	ND	84.2	60-130			
o-Xylene	3.37	0.05	ug/g	ND	84.2	60-130			
Surrogate: Toluene-d8	*8.62*		*%*		*108*	*50-140*			

Qualifier Notes:

Sample Qualifiers :

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

Applies to Samples: BH3-24-SS2, DUP1-24 (BH3-24-SS2)

QC Qualifiers:

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

Sample Data Revisions:

None

Certificate of Analysis

Report Date: 26-Sep-2024

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

Order Date: 23-Sep-2024

Client PO: 61346

Project Description: PE6661

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.

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Paracel ID: 2439086

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2439086	

Client Name: Paterson Group	Project Ref: PE6661	Page 1 of 1
Contact Name: Michael Beaudoin	Quote #:	Turnaround Time
Address: 9 Auriga Drive.	PO #: 61346	☐ 1 day ☐ 3 day
	E-mail: mbeaudoin@patersongroup.ca	☐ 2 day ☒ Regular
Telephone:	authoiz@patersongroup.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 ___
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)	PCBs	pH			
1	BH1-24-SS2	S		2	Sept. 20, 2024		X											
2	BH2-24-SS3	S		2	↓		X							X	X			
3	BH3-24-SS2	S		2			X								X			
4	DUP1-24 (BH3-24-SS2)	S		2			X								X			
5																		
6																		
7																		
8																		
9																		
10																		

Required Analysis

Comments:

Method of Delivery: Swift.

Relinquished By (Sign): Amelia Uphoitz	Received at Depot:	Received at Lab: Jillian	Verified By: SO
Relinquished By (Print): Amelia Uphoitz	Date/Time:	Date/Time: 23-Sept-24 1552 hrs	Date/Time: Sept 23, 2024 4:22p
Date/Time: Sept. 2, 2024	Temperature: °C	Temperature: 18.0	pH Verified: ☐ By:

Chain of Custody (Env).xlsx Revision 5.0

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Certificate of Analysis

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

Client PO: 61379
Project: PE6661
Custody:

Report Date: 27-Sep-2024
Order Date: 25-Sep-2024

Order #: 2439313

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

Paracel ID	Client ID
2439313-01	BH1-24-GW1
2439313-02	BH2-24-GW1
2439313-03	BH3-24-GW1
2439313-04	DUP1

Approved By:

Mark Foto, M.Sc.
Lab Supervisor

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
BTEX by P&T GC-MS	EPA 624 - P&T GC-MS	27-Sep-24	27-Sep-24
PHC F1	CWS Tier 1 - P&T GC-FID	26-Sep-24	27-Sep-24
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	26-Sep-24	27-Sep-24

	Client ID:	BH1-24-GW1	BH2-24-GW1	BH3-24-GW1	DUP1	-	-
	Sample Date:	25-Sep-24 09:00	25-Sep-24 09:00	25-Sep-24 09:00	25-Sep-24 09:00		
	Sample ID:	2439313-01	2439313-02	2439313-03	2439313-04		
	Matrix:	Ground Water	Ground Water	Ground Water	Ground Water		
	MDL/Units						
Volatiles							
Benzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5	-	-
Ethylbenzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5	-	-
Toluene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5	-	-
m,p-Xylenes	0.5 ug/L	<0.5	<0.5	<0.5	<0.5	-	-
o-Xylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5	-	-
Xylenes, total	0.5 ug/L	<0.5	<0.5	<0.5	<0.5	-	-
Toluene-d8	Surrogate	110%	110%	110%	109%	-	-
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	-	-

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					
Volatiles								
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	*87.4*		*%*	*109*	*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									
Benzene	2.27	0.5	ug/L	2.26			0.4	30	
Ethylbenzene	ND	0.5	ug/L	ND			NC	30	
Toluene	1.02	0.5	ug/L	1.02			0.0	30	
m,p-Xylenes	2.39	0.5	ug/L	2.27			5.2	30	
o-Xylene	ND	0.5	ug/L	ND			NC	30	
Surrogate: Toluene-d8	*91.7*		*%*		*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)	1700	25	ug/L	ND	85.0	85-115			
F2 PHCs (C10-C16)	1480	100	ug/L	ND	92.8	60-140			
F3 PHCs (C16-C34)	3800	100	ug/L	ND	96.9	60-140			
F4 PHCs (C34-C50)	1900	100	ug/L	ND	76.7	60-140			
Volatiles									
Benzene	39.5	0.5	ug/L	ND	98.8	60-130			
Ethylbenzene	34.6	0.5	ug/L	ND	86.5	60-130			
Toluene	40.1	0.5	ug/L	ND	100	60-130			
m,p-Xylenes	74.6	0.5	ug/L	ND	93.2	60-130			
o-Xylene	38.2	0.5	ug/L	ND	95.4	60-130			
Surrogate: Toluene-d8	*83.8*		*%*		*105*	*50-140*			

Certificate of Analysis

Report Date: 27-Sep-2024

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

Order Date: 25-Sep-2024

Client PO: 61379

Project Description: PE6661

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 LTD.

Paracel ID: 2439313

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2439313	

Client Name: Paterson
Contact Name: Joshua Dempsey
Address: 9 Auriga Drive
Telephone: 613-226-7381

Project Ref: PE6661
Quote #:
PO #: 61379
E-mail: jdempsey@patersongroup.ca
kpanchal@patersongroup.ca

Page 1 of 1

Turnaround Time

☐ 1 day ☐ 3 day
☑ 2 day ☐ Regular
Date Required:

☑ REG 153/04 ☐ REG 406/19

☐ Table 1 ☐ Res/Park ☐ Med/Fine
☐ Table 2 ☐ Ind/Comm ☐ Coarse
☐ Table 3 ☐ Agri/Other
☐ 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	Sample Taken: Date	Sample Taken: Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)					
1	BH1-24-GW1	GW		3	09/25/2024		✓											
2	BH2-24-GW1	↓		↓	↓		✓											
3	BH3-24-GW1						✓											
4	DUP 1						✓											
5																		
6																		
7																		
8																		
9																		
10																		

Required Analysis

Comments:

Method of Delivery: Paracel Courier

Relinquished By (Sign):	Received By Driver/Depot:	Received at Lab: Jillian	Verified By:
Relinquished By (Print): Kuldeep Panchal	Date/Time:	Date/Time: 25-Sept-24 13:56	Date/Time: Sep. 25 /24
Date/Time: 09/25/2024	Temperature: °C	Temperature: 15.9	pH Verified: ☐ By: NA

APPENDIX 2

TABLE 1: TEST HOLE SUMMARY

TABLE 2: SOIL TESTING SUMMARY

TABLE 3: GROUNDWATER TESTING SUMMARY

TABLE 4: GROUNDWATER LEVELS

TABLE 5: SOIL ANALYTICAL TEST RESULTS

TABLE 5A: MAXIMUM CONCENTRATIONS – SOIL

TABLE 6: GROUNDWATER ANALYTICAL TEST RESULTS

TABLE 6A: MAXIMUM CONCENTRATIONS – GROUNDWATER

TABLE 7: QA/QC CALCULATIONS

Test Hole ID	Date of Construction (dd-mm-yy)	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
BH1-24	20/Sep/2024	32	76.82	4.67	72.15	1.52	3.15 - 4.67	73.67 - 72.15	Limestone Bedrock
BH2-24	20/Sep/2024	32	79.14	6.83	72.311	3.04	3.79 - 6.83	75.351 - 72.311	Limestone Bedrock
BH3-24	20/Sep/2024	32	79.47	6.58	72.886	3.04	3.54 - 6.58	75.926 - 72.886	Limestone Bedrock
BH4-24	20/Sep/2024	-	79.21	1.37	77.836		-	-	-

Sample ID and Laboratory ID	Sample Depth (mbgs)	Sampling Date (dd-mm-yy)	Rationale	PID Vapour Reading (ppm)	Parameter Groups Analyzed			
					PHCs	BTEX	PCBs	pH
BH1-24-SS2	0.46-1.07	20/Sep/2024	To assess soil beneath the on-site diesel AST (APEC 1).	0.4	✓	✓		
BH2-24-SS3	1.52-2.13	20/Sep/2024	To assess soil beneath the on-site pad-mounted transformer (APEC 2).	0.4	✓	✓	✓	✓
BH3-24-SS2	0.76-1.37	20/Sep/2024	To assess the underlying soil quality of the Phase II Property.	0.7	✓	✓		✓
DUP1-24 (BH3-24-SS2)	0.76-1.37	20/Sep/2024	Duplicate soil sample (BH3-24-SS2) for QA/QC purposes.	0.7	✓	✓		✓

Sample ID and Laboratory ID	Sample Depth (mbgs)	Sampling Date (dd-mm-yy)	Rationale	Parameter Groups Analyzed	
				PHCs	BTEX
BH1-24-GW1	3.15 - 4.67	25/Sep/2024	To assess groundwater beneath the on-site AST location (APEC 1).	✓	✓
BH2-24-GW1	3.79 - 6.83	25/Sep/2024	To assess groundwater beneath the on-site pad-mounted transformer (APEC 2).	✓	✓
BH3-24-GW1	3.54 - 6.58	25/Sep/2024	To assess the underlying groundwater quality benath the Phase II Property.	✓	✓
DUP1	3.15 - 4.67	25/Sep/2024	Duplicate groundwater sample (BH1-24-GW1) for QA/QC purposes	✓	✓

Test Hole ID	Ground Surface Elevation (masl)	Water Level Depth (m)	Water Level Elevation (masl)	Date of Measurement (dd-mm-yyyy)
BH1-24	76.82	2.08	74.74	25/Sep/2024
BH2-24	79.14	4.51	74.63	25/Sep/2024
BH3-24	79.47	4.37	75.10	25/Sep/2024

Parameter	Units	Regulation	BH1-24-SS2	BH2-24-SS3	BH3-24-SS2	DUP1-24 (BH3-24-SS2)
Sample Depth (m)		**Reg 153/04-Table 7 Residential, coarse**	**0.46-1.07**	**1.52-2.13**	**0.76-1.37**	**0.76-1.37**
Sample Date			**20/Sep/2024**	**20/Sep/2024**	**20/Sep/2024**	**20/Sep/2024**
Physical Characteristics						
% Solids	% by Wt.		95.8	78.4	82	85.8
General Inorganics						
pH	uS/cm	5-9 (surf); 5-11 (subsurf)	N/A	7.32	7.59	7.49
BTEX						
Benzene	ug/g dry	0.21	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)
Ethylbenzene	ug/g dry	2.0	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Toluene	ug/g dry	2.3	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
m/p-Xylene	ug/g dry	3.1	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
o-Xylene	ug/g dry	3.1	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Xylenes, total	ug/g dry	3.1	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Hydrocarbons						
F1 PHCs (C6-C10)	ug/g dry	55	ND (7)	ND (7)	ND (7)	ND (7)
F2 PHCs (C10-C16)	ug/g dry	98	ND (4)	ND (4)	ND (4)	ND (4)
F3 PHCs (C16-C34)	ug/g dry	300	36	ND (8)	68	51
F4 PHCs (C34-C50)	ug/g dry	2800	30	ND (6)	193	178
F4G PHCs (gravimetric)	ug/g dry	2800	N/A	N/A	373	233
PCBs						
PCBs, total	ug/g dry	0.35	N/A	ND (0.05)	N/A	N/A

2.00	Result exceeds Reg 153/04-Table 7 Residential, coarse Standards
ND (0.2)	MDL exceeds Reg 153/04-Table 7 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 7 Residential, coarse Standards	Concentration
Benzene	BH1-24-SS2 - 0.46-1.07	ug/g dry	0.21	ND (0.02)
Ethylbenzene	BH1-24-SS2 - 0.46-1.07	ug/g dry	2.0	ND (0.05)
Toluene	BH1-24-SS2 - 0.46-1.07	ug/g dry	2.3	ND (0.05)
m/p-Xylene	BH1-24-SS2 - 0.46-1.07	ug/g dry	3.1	ND (0.05)
o-Xylene	BH1-24-SS2 - 0.46-1.07	ug/g dry	3.1	ND (0.05)
Xylenes, total	BH1-24-SS2 - 0.46-1.07	ug/g dry	3.1	ND (0.05)
F1 PHCs (C6-C10)	BH1-24-SS2 - 0.46-1.07	ug/g dry	55	ND (7)
F2 PHCs (C10-C16)	BH1-24-SS2 - 0.46-1.07	ug/g dry	98	ND (4)
F3 PHCs (C16-C34)	BH3-24-SS2 - 0.76-1.37	ug/g dry	300	68
F4G PHCs (gravimetric)	BH3-24-SS2 - 0.76-1.37	ug/g dry	2800	373
PCBs, total	BH2-24-SS3 - 1.52-2.13	ug/g dry	0.35	ND (0.05)
Note: ND (x) = parameter analysed was reported non-detect				

Parameter	Units	Regulation	BH1-24-GW1	BH2-24-GW1	BH3-24-GW1	DUP1
Sample Depth (m)		**Reg 153/04-Table 7 Non-Potable Groundwater, coarse**	**3.15 - 4.67**	**3.79 - 6.83**	**3.54 - 6.58**	**3.15 - 4.67**
Sample Date			**25/Sep/2024**	**25/Sep/2024**	**25/Sep/2024**	**25/Sep/2024**
BTEX						
Benzene	ug/L	0.5	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Ethylbenzene	ug/L	54	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Toluene	ug/L	320	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
m/p-Xylene	ug/L	72	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
o-Xylene	ug/L	72	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Xylenes, total	ug/L	72	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Hydrocarbons						
F1 PHCs (C6-C10)	ug/L	420	ND (25)	ND (25)	ND (25)	ND (25)
F2 PHCs (C10-C16)	ug/L	150	ND (100)	ND (100)	ND (100)	ND (100)
F3 PHCs (C16-C34)	ug/L	500	ND (100)	ND (100)	ND (100)	ND (100)
F4 PHCs (C34-C50)	ug/L	500	ND (100)	ND (100)	ND (100)	ND (100)

Parameter	Sample ID / Screen Interval (m)	Units	Reg 153/04-Table 7 Non-Potable Groundwater, coarse Standards	Concentration
Benzene	BH1-24-GW1 - 3.15 - 4.67	ug/L	0.5	ND (0.5)
Ethylbenzene	BH1-24-GW1 - 3.15 - 4.67	ug/L	54	ND (0.5)
Toluene	BH1-24-GW1 - 3.15 - 4.67	ug/L	320	ND (0.5)
m/p-Xylene	BH1-24-GW1 - 3.15 - 4.67	ug/L	72	ND (0.5)
o-Xylene	BH1-24-GW1 - 3.15 - 4.67	ug/L	72	ND (0.5)
Xylenes, total	BH1-24-GW1 - 3.15 - 4.67	ug/L	72	ND (0.5)
F1 PHCs (C6-C10)	BH1-24-GW1 - 3.15 - 4.67	ug/L	420	ND (25)
F2 PHCs (C10-C16)	BH1-24-GW1 - 3.15 - 4.67	ug/L	150	ND (100)
F3 PHCs (C16-C34)	BH1-24-GW1 - 3.15 - 4.67	ug/L	500	ND (100)
F4 PHCs (C34-C50)	BH1-24-GW1 - 3.15 - 4.67	ug/L	500	ND (100)
Note: ND (x) = parameter analysed was reported non-detect.				

Parameter	MDL	BH3-24-SS2	DUP1-24 (BH3-24-SS2)	RPD (%)	QA/QC Result
BTEX					
Benzene	0.02	ND (0.02)	ND (0.02)	0.0%	Within the acceptable range
Ethylbenzene	0.05	ND (0.05)	ND (0.05)	0.0%	Within the acceptable range
Toluene	0.05	ND (0.05)	ND (0.05)	0.0%	Within the acceptable range
m/p-Xylene	0.05	ND (0.05)	ND (0.05)	0.0%	Within the acceptable range
o-Xylene	0.05	ND (0.05)	ND (0.05)	0.0%	Within the acceptable range
Xylenes, total	0.05	ND (0.05)	ND (0.05)	0.0%	Within the acceptable range
Hydrocarbons					
F1 PHCs (C6-C10)	7	ND (7)	ND (7)	0.0%	Within the acceptable range
F2 PHCs (C10-C16)	4	ND (4)	ND (4)	0.0%	Within the acceptable range
F3 PHCs (C16-C34)	8	68	51	28.6%	Outside the acceptable range
F4 PHCs (C34-C50)	6	193	178	8.1%	Within the acceptable range
F4G PHCs (gravimetric)	50	373	233	46.2%	Outside the acceptable range

Parameter	MDL	BH1-24-GW1	DUP1	RPD (%)	QA/QC Result
BTEX					
Benzene	0.5	ND (0.5)	ND (0.5)	0.0%	Within the acceptable range
Ethylbenzene	0.5	ND (0.5)	ND (0.5)	0.0%	Within the acceptable range
Toluene	0.5	ND (0.5)	ND (0.5)	0.0%	Within the acceptable range
m/p-Xylene	0.5	ND (0.5)	ND (0.5)	0.0%	Within the acceptable range
o-Xylene	0.5	ND (0.5)	ND (0.5)	0.0%	Within the acceptable range
Xylenes, total	0.5	ND (0.5)	ND (0.5)	0.0%	Within the acceptable range
Hydrocarbons					
F1 PHCs (C6-C10)	25	ND (25)	ND (25)	0.0%	Within the acceptable range
F2 PHCs (C10-C16)	100.0	ND (100)	ND (100)	0.0%	Within the acceptable range
F3 PHCs (C16-C34)	100	ND (100)	ND (100)	0.0%	Within the acceptable range
F4 PHCs (C34-C50)	100.0	ND (100)	ND (100)	0.0%	Within the acceptable range