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Phase II – Environmental Site Assessment

337 & 345 Montgomery Street
and 94 Selkirk Street
Ottawa, Ontario

Prepared For

Serco Realty Group

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EXECUTIVE SUMMARY

Assessment

A Phase II ESA was conducted for the properties addressed 337 & 345 Montgomery Street and 94 Selkirk 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 were considered to result in areas of potential environmental concern (APECs) on the Phase I Property.

A previous subsurface investigation carried out by others in 2019 consisted of the placement of three boreholes on the property addressed 337 Montgomery Street (BH1 to BH3).

Three soil samples were submitted for laboratory analysis of a combination of PHCs (F_1-F_4), VOCs, PAHs, metals, and/or pH parameters. Based on the analytical test results, the concentrations of hexane as well as PHCs F_1 and F_2 in the soil sample analyzed from BH1 were in excess of the MECP Table 3 residential soil standards. In addition, the concentrations of PHCs F_2, benzo(a)pyrene, and fluoranthene in the soil sample analyzed from BH2 were in excess of the MECP Table 3 residential soil standards.

Three groundwater samples (one from each monitoring well) were submitted for laboratory analysis of BTEX, PHCs (F_1-F_4), metals, and VOCs. No BTEX, PHC, or VOC parameters identified in the samples analyzed. Metal concentrations identified in the samples analyzed were in compliance with the MECP Table 3 non-potable groundwater standards.

The current subsurface investigation, conducted on September 9 and September 10, 2021, consisted of drilling six boreholes (BH1-21 to BH6-21) across the Phase II Property. BH1-21, BH3-21, BH4-21, and BH6-21 were advanced to shallow depths ranging from approximately 2.95 m to 3.25 m below ground surface and terminated within a layer of native brown silty sand (glacial till). BH2-21 and BH5-21 were advanced to deeper depths of 9.04 m and 9.12 m below ground surface, respectively, and terminated within the underlying bedrock. Upon completion, two of the boreholes (BH2-21 and BH5-21) were instrumented with groundwater monitoring wells. Three groundwater monitoring wells (BH1-19–BH3-19), installed in 2019 as part of a previous subsurface investigation completed by EXP Services Inc., were located and utilized as part of this current investigation.

In general, the stratigraphy at the Phase II Property consisted of topsoil or a pavement structure (consisting of asphalt over engineered fill material) at ground surface, followed by fill material and/or native glacial till. Overburden was underlain by limestone bedrock interbedded with shale. The fill material observed generally consisted of brown silty sand with crushed stone, gravel and/or trace clay. Brick, concrete and/or glass fragments were identified in BH1-21 and BH6-21.

Six soil samples were submitted for laboratory analysis of either PHCs (F_1-F_4), VOCs, PAHs, metals, and/or pH parameters. Based on the analytical test results, the concentrations of metals and PAHs within the soil/fill sample recovered from BH4-21 were in excess of the selected MECP Table 3 residential standards.

Two groundwater samples, recovered from the monitoring wells installed in BH2-21 and BH5-21, were submitted for laboratory analysis of PHCs (F_1-F_4) and VOCs. Based on the analytical results no parameter concentrations were identified in the groundwater samples analyzed, and as such, are in compliance with the MECP Table 3 non-potable groundwater standards.

Recommendations

Soil

Based on the findings of the Phase II ESA, it is recommended that a soil remediation program be carried out at the Phase II Property in conjunction with site redevelopment activities.

Prior to off-site disposal of impacted soils at a licensed landfill, a leachate analysis of a representative sample of contaminated soil must be conducted in accordance with Ontario Regulation 347/558.

It is recommended that Paterson personnel be on-site at the time of the remedial activities to direct excavation and segregation of impacted soil and to collect additional delineation and confirmatory soil samples are required in accordance with O.Reg. 347/558.

Excess Soil

Excess soil requiring off-site disposal during construction must be managed in accordance with Ontario Regulation 406/19: On-site and Excess Soil Management.

Monitoring Wells

If the groundwater monitoring wells installed on-site are not going to be used in the future, or will be destroyed during future construction activities, then they must be decommissioned according to Ontario Regulation 903 (Ontario Water Resources Act), however, we recommend that the wells be maintained for future sampling purposes. The monitoring wells will be registered with the MECP under this regulation. Further information can be provided upon request in this regard.

1.0 INTRODUCTION

At the request of Serco Realty Group, Paterson Group (Paterson) conducted a Phase II – Environmental Site Assessment (Phase II ESA) for the properties addressed 337 & 345 Montgomery Street and 94 Selkirk Street, in the City of Ottawa, Ontario. The purpose of this Phase II ESA has been to address the areas of potential environmental concern (APECs) identified on the Phase I Property as a result the findings of the Phase I ESA. This report includes the findings of a 2019 Phase II ESA prepared by EXP.

1.1 Site Description

Addresses:	337 Montgomery Street, Ottawa, Ontario; 345 Montgomery Street, Ottawa, Ontario; and 94 Selkirk Street, Ottawa, Ontario.
Legal Description:	Part of Lot 7, Junction Gore Concession (Rideau Front), Formerly the Township of Gloucester, in the City of Ottawa, Ontario.
Location:	The Phase II Property is located on the southeastern corner of the Montgomery Street and Selkirk Street intersection, in the City of Ottawa, Ontario. Refer to Figure 1 – Key Plan, appended to this report.
Latitude and Longitude:	45° 25' 54" N, 75° 39' 57" W
Site Description:	
Configuration:	Irregular
Site Area:	1,695 m^2 (approximate)
Zoning:	R5C H(25) – Residential Fourth Density Zone.
Current Use:	The Phase II Property is currently occupied with a mixed-use building (337 Montgomery Street) and two residential dwellings (345 Montgomery Street and 94 Selkirk Street).
Services:	The Phase I Property is located within a municipally serviced area.

1.2 Property Ownership

The Phase II Property is currently owned by Serco Realty Group. Paterson was retained to complete this Phase II ESA by Ms. Loredana Porcari of Serco Realty Group, whose offices are located at 9 Capella Court, Suite 200, Ottawa, Ontario. Ms. Porcari can be contacted via telephone at 613-226-2221.

1.3 Current and Proposed Future Uses

The Phase II Property is currently occupied by three residential dwellings. It should be noted that the commercial unit at 337 Montgomery Street is currently vacant. It is our understanding that the Phase I Property is to be redeveloped with a multi-storey residential building.

1.4 Applicable Site Condition Standard

The site condition standards for the Phase II 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 Ministry of the Environment, Conservation and Parks (MECP), and dated April 15, 2011. The selected MECP standards are based on the following considerations:

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

Section 35 of O.Reg.153/04 does apply to the Phase II Property in that the property relies upon municipal drinking water.

Section 41 of O.Reg. 153/04 does not apply to the Phase II Property, as the property is not within 30 m of an environmentally sensitive area and the pH of the soil is between 5 and 9.

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

The residential standards were selected based on the future intended land use of the Phase II Property.

Grain size analysis was not conducted as part of this assessment. The coarse-grained soil standards were selected as a conservative approach.

2.0 BACKGROUND INFORMATION

2.1 Physical Setting

The Phase II Property is currently occupied with three residential dwellings (the commercial unit at 337 Montgomery Street is currently vacant), while the remainder of the site is largely paved with asphaltic concrete or consists of landscaped areas. The site topography appears to be relatively flat, whereas the regional topography appears to slope down to the northwest, in the general direction of the Rideau River. Water drainage on the Phase I Property occurs primarily via infiltration within the landscaped areas, as well as via sheet flow towards catch basins located on the adjacent streets.

3.0 SCOPE OF INVESTIGATION

3.1 Overview of Site Investigation

The subsurface investigation for was conducted on September 9 and September 10, 2021 and consisted of drilling six boreholes (BH1-21 to BH6-21) across the Phase I Property. Boreholes BH1-21, BH3-21, BH4-21, and BH6-21 were advanced to shallow depths ranging from approximately 2.95 m to 3.25 m below ground surface and terminated within a layer of native brown silty sand (glacial till). Boreholes BH2-21 and BH5-21 were advanced to deeper depths of 9.04 m and 9.12 m below ground surface, respectively, and cored into the underlying bedrock. Upon completion, BH2-21 and BH5-21, were instrumented with groundwater monitoring wells.

Three groundwater monitoring wells (BH1-19 to BH3-19), installed in 2019 as part of a previous subsurface investigation completed by EXP Services Inc., were located and utilized as part of this current investigation.

3.2 Media Investigated

During the subsurface investigation, soil 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 (CPCs) identified in the Phase I ESA.

The CPCs for the soil and/or groundwater on the Phase II Property include the following:

- ❒ Benzene, Toluene, Ethylbenzene, Xylenes (BTEX);

- ❒ Volatile Organic Compounds (VOCs);
- ❒ Petroleum Hydrocarbons, fractions 1 - 4 (PHCs F_1-F_4);
- ❒ Polycyclic Aromatic Hydrocarbons (PAHs);
- ❒ Metals (including As, Sb, Se);
- ❒ Mercury (Hg); and
- ❒ Hexavalent Chromium (CrVI).

3.3 Phase I ESA Conceptual Site Model

Geological and Hydrogeological Setting

Based on the available information, the bedrock in the area of the subject site consists of shale of the Billings Formation. The surficial geology generally consists of offshore marine sediments (erosional terraces), with an overburden thickness ranging from approximately 3 m to 5 m.

According to the 2019 Phase II ESA report prepared by EXP Services Inc., the groundwater flow beneath the Phase I Property is towards the south. It is considered likely that the redevelopment of the property at 350 Montgomery Street has influenced the local groundwater flow. Based on our knowledge of the area, the regional groundwater flow is anticipated to be in a westerly direction toward the Rideau River.

Existing Buildings and Structures

The Phase I Property is currently occupied with five buildings, each described as follows:

- ❑ *337 Montgomery Street*

  This property is currently occupied with a two-storey residential dwelling (currently vacant), with one basement level. The residence was constructed sometime in the early-1900's with a stone and mortar foundation and is finished on the exterior with stone and brick siding, as well as a sloped-shingled roof.

  Additionally, a one-storey, slab-on-grade style addition is attached to the east side of the subject building, formerly occupied by a restaurant and currently vacant.

The addition was constructed sometime in the 1930's or 1940's with a poured concrete foundation and is finished on the exterior with stone and concrete block siding as well as a flat tar-and-gravel style roof. The residence and the addition are currently heated via with a natural gas-fired furnace, located in the basement.

- *345 Montgomery Street*

  This property is currently occupied with a two-and-a-half-storey residential dwelling, with one basement level. Built sometime in the early-1900's, the subject building is constructed with a stone and mortar foundation and is finished on the exterior with brick and wood siding, as well as a sloped-shingled roof. The subject building is currently heated with a natural gas-fired furnace, located in the basement.

- A one-storey, slab-on-grade style private garage is also present on this property. The garage is constructed with a poured concrete foundation and is finished on the exterior with stone siding, as well as a flat tar-and-gravel style roof. The garage does not contain any heating equipment.

- *94 Selkirk Street*

  This property is currently occupied with a two-and-a-half-storey residential dwelling, with one basement level. Built sometime in the early-1900's, the subject building is constructed with a stone foundation and is finished on the exterior with vinyl siding, as well as a sloped-shingled roof. The subject building is currently heated with natural gas-fired equipment, located in the basement.

  A one-storey, slab-on-grade style private garage is also present on this property. The garage is constructed with a poured concrete foundation and is finished on the exterior with vinyl siding, as well as a flat tar-and-gravel style roof. The garage does not contain any heating equipment.

Underground Utilities and Below Grade Structures

Underground service locates were completed in conjunction with this assessment. Underground utilities on the Phase I Property include electrical cables, natural gas pipelines, as well as municipal water and wastewater services.

Water Bodies

No water bodies were identified within the Phase I Study Area. The nearest named water body with respect to the Phase I Property is the Rideau River, located approximately 300 m to the west.

Areas of Natural and Scientific Interest

No areas of natural and scientific interest were identified within the Phase I Study Area.

Drinking Water Wells

Based on the available well record information, as well as the availability of municipal water services, no drinking water wells are expected to be present within the Phase I Study Area.

Neighbouring Land Use

The neighbouring lands within the Phase I Study Area consist of a combination of residential and commercial properties. Current land use is shown on Drawing PE5412-2 – 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, two on-site and two off-site potentially contaminating activities (PCAs), have resulted in three areas of potential environmental concern (APECs) on the Phase I Property. The PCAs, APECs, and CPCs are presented below 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	Central Portion of the Phase I Property	PCA #30 - Importation of Fill Material of Unknown Quality	On-site	Metals As, Sb, Se Hg, CrVI	Soil (Fill Material)
APEC 2	Central Portion of the Phase I Property	Other – Impacted Soil Previously Identified by Others	On-site	BTEX PHCs (F_1-F_4) VOCs PAHs	Soil Groundwater
APEC 3	Southwestern Portion of Phase I Property	PCA #28 – Gasoline and Associated Products Storage in Fixed Tanks	Off-site	BTEX PHCs (F_1-F_4) VOCs	Groundwater
		PCA #52 - Storage, Maintenance, Fuelling and Repair of Equipment, Vehicles and Material Used to Maintain Transportation Systems	Off-site		

Other existing or historical off-site PCAs identified within the Phase I Study Area are not considered to represent APECs on the Phase I Property based on their separation distances and/or their cross- or down-gradient orientations relative to the Phase I Property.

According to the 2019 Phase II ESA report prepared by EXP Services Inc., the groundwater flow beneath the Phase I Property is towards the south. It is considered likely that the redevelopment of the property at 350 Montgomery Street has influenced the local groundwater flow. Based on our knowledge of the area, the regional groundwater flow is anticipated to be in a westerly direction toward the Rideau River.

Contaminants of Potential Concern

As noted above in Table 3, the contaminants of potential concern (CPCs) in the soil and/or groundwater at the Phase I Property include the following:

- ❒ Benzene, Toluene, Ethylbenzene, Xylenes (BTEX);
- ❒ Volatile Organic Compounds (VOCs);
- ❒ Petroleum Hydrocarbons, fractions 1 - 4 (PHCs F_1-F_4);
- ❒ Polycyclic Aromatic Hydrocarbons (PAHs);
- ❒ Metals (including As, Sb, Se);
- ❒ Mercury (Hg^+);
- ❒ Hexavalent Chromium (Cr^{VI}).

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 PCAs and APECs associated with the Phase I Property.

The presence of PCAs was confirmed by a variety of independent sources, and as such, the conclusions of this report are not affected by uncertainty which may be present with respect to the individual sources.

4.0 INVESTIGATION METHOD

4.1 Subsurface Investigation

The subsurface investigation for was conducted on September 9 and September 10, 2021 and consisted of drilling six boreholes (BH1-21 to BH6-21) across the Phase I Property. Boreholes BH1-21, BH3-21, BH4-21, and BH6-21 were advanced to shallow depths ranging from approximately 2.95 m to 3.25 m below ground surface and terminated within a layer of native brown silty sand (glacial till). Boreholes BH2-21 and BH5-21 were advanced to deeper depths of 9.04 m and 9.12 m below ground surface, respectively, and cored into the underlying bedrock. Upon completion, BH2-21 and BH5-21, were instrumented with groundwater monitoring wells.

Three groundwater monitoring wells (BH1-19 to BH3-19), installed in 2019 as part of a previous subsurface investigation completed by EXP Services Inc., were located and utilized as part of this current investigation.

Under the full-time supervision of Paterson personnel, the boreholes were drilled using a low-clearance drill rig provided by George Downing Estate Drilling of Hawkesbury, Ontario. The locations of the boreholes are illustrated on Drawing PE5412-3 – Test Hole Location Plan, appended to this report.

4.2 Soil Sampling

Soil 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.

The samples were recovered using a stainless-steel split spoon while wearing protective gloves (changed after each sample), and immediately placed into plastic bags. If significant contamination was encountered, the samples were instead placed into glass jars.

Sampling equipment was routinely washed in soapy water and rinsed with methylhydrate after each split spoon to prevent any cross contamination of the samples. The samples were also stored in coolers to reduce analyte volatilization during transportation.

A total of 31 soil samples and 8 rock core samples were obtained from the boreholes by means of auger and split spoon sampling. The depths at which auger, split spoon, and rock core samples were obtained from the boreholes are shown as "**AU**", "**SS**", and "**RC**", respectively, on the Soil Profile and Test Data Sheets, appended to this report.

4.3 Field Screening Measurements

All soil samples collected were subjected to a preliminary screening procedure, which included visual screening for colour and evidence of metals, as well as soil vapour screening with an RKI Eagle GasTech Detector.

The recovered soil samples 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, ensuring consistency of readings between samples. To measure the soil vapours, the analyser probe was inserted into the nominal headspace above the sample.

The sample was then agitated and manipulated gently by hand as the measurement was taken. The peak reading registered within the first 15 seconds was recorded as the vapour measurement. The parts per million (ppm) scale was used to measure concentrations of organic vapours. The results of the vapour survey are presented on the Soil Profile and Test Data Sheets, appended to this report.

4.4 Groundwater Monitoring Well Installation

Two groundwater monitoring wells (BH2-21 and BH5-21) were installed on the Phase II Property as part of this Phase II ESA investigation. The monitoring wells were constructed using 32 mm diameter Schedule 40 threaded PVC risers and screens. A sand pack consisting of silica sand was placed around the screen and a bentonite seal was placed above the screen to minimize cross-contamination. A summary of the monitoring well construction details are listed below in Table 2 as well as on the Soil Profile and Test Data Sheets provided in Appendix 1.

Upon completion, the groundwater monitoring wells were developed using a dedicated inertial lift pump; the wells were purged until a minimum of three well volumes had been removed or the wells were dry.

Table 2
Monitoring Well Construction Details

Well ID	Ground Surface Elevation (m ASL)	Total Depth (m BGS)	Screened Interval (m BGS)	Sand Pack (m BGS)	Bentonite Seal (m BGS)	Casing Type
BH2-21	57.58	9.04	6.04 – 9.04	5.48 – 9.04	0.30 – 5.48	Flushmount
BH5-21	57.86	9.12	6.12 – 9.12	5.77 – 9.12	0.30 – 5.77	Flushmount

4.5 Field Measurement of Water Quality Parameters

Groundwater monitoring and sampling was conducted at BH2-21 and BH5-21 on September 16, 2021. Field parameters, including temperature, pH, and electrical conductivity, 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 3.

Table 3
Measurement of Water Quality Parameters

Well ID	Temperature (˚C)	Conductivity (µS)	pH (Units)	Date of Measurement
BH2-21	15.9	11.78	7.30	September 16, 2021
BH5-21	14.5	11.07	7.00	

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.

Standing water was purged from each monitoring well prior to the recovery of the groundwater samples using dedicated sampling equipment. The samples were then stored in coolers to reduce possible analyte volatilization during their transportation.

Further details of our standard operating procedure for groundwater sampling are provided in the Sampling and Analysis Plan, appended to this report.

4.7 Analytical Testing

The following soil and groundwater samples were submitted for laboratory analysis:

Table 4
Testing Parameters for Submitted Soil Samples

Sample ID	Sample Depth (m BGS) & Stratigraphic Unit	Parameters Analyzed					Rationale
		VOCs	PHCs (F_1-F_4)	PAHs	Metals[1]	pH	
BH1-21-AU2	0.20 m – 0.46 m Fill Material			X	X		To assess for potential impacts resulting from the presence of fill material of unknown quality.
BH1-21-SS5	2.29 m – 2.90 m Glacial Till	X	X				To assess for potential impacts resulting from a former off-site auto service garage.
BH3-21-SS5	2.29 m – 2.90 m Glacial Till	X	X				To assess for potential impacts resulting from a former off-site auto service garage.
BH4-21-AU2	0.23 m – 0.46 m Fill Material			X	X	X	To assess for potential impacts resulting from the presence of fill material of unknown quality.
BH4-21-SS6	3.05 m – 3.35 m Glacial Till	X	X			X	To assess for potential impacts resulting from a former off-site auto service garage.
BH5-21-SS5	3.05 m – 3.66 m Glacial Till	X	X				To assess for potential impacts resulting from a former off-site auto service garage.
DUP-1[2]	0.20 m – 0.46 m Fill Material			X	X		For laboratory QA/QC purposes.
DUP-2[3]	2.29 m – 2.90 m Glacial Till	X	X				For laboratory QA/QC purposes.

1 – Includes Mercury (Hg^{+}) and Hexavalent Chromium (Cr^{6+})
2 – Duplicate Sample of BH1-21-AU2
3 – Duplicate Sample of BH3-21-SS5

Table 5
Testing Parameters for Submitted Groundwater Samples

Sample ID	Screened Interval (m BGS) & Stratigraphic Unit	Parameters Analyzed		Rationale
		VOCs	PHCs (F_1-F_4)	
BH2-21-GW1	6.04 m – 9.04 m Bedrock	X	X	To assess for potential impacts resulting from a former off-site auto service garage.
BH5-21-GW1	6.12 m – 9.12 m Bedrock	X	X	To assess for potential impacts resulting from a former off-site auto service garage.
DUP-1[1]	6.04 m – 9.04 m Bedrock	X		For laboratory QA/QC purposes.
Trip Blank	N/A	X		For laboratory QA/QC purposes.

1 – Duplicate sample of BH2-21-GW1

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

4.8 Residue Management

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

4.9 Elevation Surveying

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

4.10 Quality Assurance and Quality Control Measures

A summary of the quality assurance and quality control (QA/QC) measures, undertaken as part of this assessment, is provided in the Sampling and Analysis Plan in Appendix 1.

5.0 REVIEW AND EVALUATION

5.1 Geology

In general, the stratigraphy encountered at the borehole locations consisted of a pavement structure (a thin layer of asphaltic concrete over engineered fill) followed by fill material and/or native glacial till.

The fill material encountered beneath the pavement structure was observed to extend up to depths of approximately 1.07 m below ground surface. Brick and concrete fragments were identified in the fill material at BH1-21, while glass fragments were identified in the fill material at BH6-21.

Bedrock, consisting of interbedded limestone and shale, was confirmed in BH2-21 and BH5-21 at depths of approximately 4.60 m and 3.53 m below ground surface, respectively.

Site geology details are 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 at BH2-21 and BH5-21 on September 16, 2021, using an electronic water level meter. The groundwater levels are summarized below in Table 6.

Table 6
Groundwater Level Measurements

Borehole Location	Ground Surface Elevation (m ASL)	Water Level Depth (m BGS)	Water Level Elevation (m ASL)	Date of Measurement
BH2-21	57.58	6.20	51.38	September 16, 2021
BH5-21	57.86	6.72	51.14	

The groundwater at the Phase II Property was encountered within the bedrock at depths ranging from approximately 6.20 m to 6.72 m below the existing ground surface. No unusual visual or olfactory observations were identified in any the recovered groundwater samples.

According to the 2019 Phase II ESA by EXP, the groundwater was encountered within the overburden at depths ranging from approximately 3.2 m to 3.6 m below the existing ground surface. Based on the measured levels, the groundwater flow direction was interpreted to be in a southerly direction.

It should be noted that, during the September 16, 2021 sampling event, the wells installed by EXP were dry. It is suspected that the redevelopment of 350 Montgomery Street (20 m to the south of the Phase II Property) has contributed to the lowering of the local groundwater table, and as a result, has influenced the local groundwater flow.

5.3 Fine/Coarse Soil Texture

Grain size analysis was not completed as part of this investigation. As a result, the coarse-grained soil standards were chosen as a conservative approach.

5.4 Field Screening

Field screening of the soil samples collected during the drilling program resulted in vapour readings ranging from 15 ppm to 35 ppm and were not considered to be indicative of potential hydrocarbon impacts No obvious staining or odours were noted in the soil samples. As previously noted, fragments of concrete, brick and/or glass were observed in the fill material at BH1-21 and BH6-21; otherwise, no evidence of deleterious material were identified during the field program.

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

2019 Phase II ESA – EXP Services Inc.

As part of the previous 2019 Phase II ESA completed for 337 Montgomery Street, EXP submitted three soil samples for analysis of a combination of PHCs (F_1-F_4), VOCs, PAHs, metals, and/or pH parameters. Based on the analytical test results, the concentrations of hexane as well as PHCs F_1 and F_2 in the soil sample analyzed from BH1 were in excess of the MECP Table 3 residential soil standards. In addition, the concentrations of PHCs F_2, benzo(a)pyrene, and fluoranthene in the soil sample analyzed from BH2 were in excess of the MECP Table 3 residential soil standards. Refer to the laboratory Certificates of Analysis presented in Appendix 2.

2021 Phase II ESA – Paterson Group Inc.

Six soil samples were submitted for laboratory analysis of a combination of PHCs (F_1-F_4), VOCs, PAHs, metals, and/or pH parameters. The results of the analytical testing are presented below in Tables 7 to 11, as well as on the laboratory Certificates of Analysis included in Appendix 1.

Table 7
Analytical Test Results – Soil
Petroleum Hydrocarbons (PHCs F_1-F_4)

Parameter	MDL (µg/g)	Soil Samples (µg/g)				MECP Table 3 Residential Soil Standards (µg/g)
		September 9 & 10, 2021				
		BH1-21-SS5	BH3-21-SS5	BH4-21-SS6	BH5-21-SS5	
		Sample Depth (m BGS)				
		(2.3 – 2.5)	(2.3 – 2.5)	(3.0 – 3.3)	(3.1 – 3.4)	
PHCs F_1	7	nd	nd	8	nd	55
PHCs F_2	4	44	10	40	35	98
PHCs F_3	8	63	27	96	53	300
PHCs F_4	6	37	31	83	31	2,800

Notes:
- MDL – Method Detection Limit
- nd – not detected above the MDL
- **Bold and Underlined** – value exceeds selected MECP standards

Concentrations of PHC F_2-F_4 parameters were identified in each of the samples analysed, while a concentration of PHC F_1 was identified only in Sample BH4-21-SS6. All detected PHC concentrations comply with the selected MECP Table 3 residential soil standards.

Table 8
Analytical Test Results – Soil
Volatile Organic Compounds (VOCs)

Parameter	MDL (µg/g)	Soil Samples (ug/g)				MECP Table 3 Residential Soil Standards (µg/g)
		September 9 & 10, 2021				
		BH1-21-SS5	BH3-21-SS5	BH4-21-SS6	BH5-21-SS5	
		Sample Depth (m BGS)				
		(2.3 – 2.5)	(2.3 – 2.5)	(3.0 – 3.3)	(3.1 – 3.4)	
Acetone	0.50	nd	nd	nd	nd	16
Benzene	0.02	nd	nd	nd	nd	0.21
Bromodichloromethane	0.05	nd	nd	nd	nd	13
Bromoform	0.05	nd	nd	nd	nd	0.27
Bromomethane	0.05	nd	nd	nd	nd	0.05
Carbon Tetrachloride	0.05	nd	nd	nd	nd	0.05
Chlorobenzene	0.05	nd	nd	nd	nd	2.4
Chloroform	0.05	nd	nd	nd	nd	0.05
Dibromochloromethane	0.05	nd	nd	nd	nd	9.4
Dichlorodifluoromethane	0.05	nd	nd	nd	nd	16
1,2-Dichlorobenzene	0.05	nd	nd	nd	nd	3.4
1,3-Dichlorobenzene	0.05	nd	nd	nd	nd	4.8
1,4-Dichlorobenzene	0.05	nd	nd	nd	nd	0.083
1,1-Dichloroethane	0.05	nd	nd	nd	nd	3.5
1,2-Dichloroethane	0.05	nd	nd	nd	nd	0.05
1,1-Dichloroethylene	0.05	nd	nd	nd	nd	0.05
cis-1,2-Dichloroethylene	0.05	nd	nd	nd	nd	3.4
trans-1,2-Dichloroethylene	0.05	nd	nd	nd	nd	0.084
1,2-Dichloropropane	0.05	nd	nd	nd	nd	0.05
1,3-Dichloropropene	0.05	nd	nd	nd	nd	0.05
Ethylbenzene	0.05	nd	nd	nd	nd	2
Ethylene Dibromide	0.05	nd	nd	nd	nd	0.05
Hexane	0.05	nd	nd	nd	nd	2.8
Methyl Ethyl Ketone	0.50	nd	nd	nd	nd	16
Methyl Isobutyl Ketone	0.50	nd	nd	nd	nd	1.7
Methyl tert-butyl ether	0.05	nd	nd	nd	nd	0.75
Methylene Chloride	0.05	nd	nd	nd	nd	0.1
Styrene	0.05	nd	nd	nd	nd	0.7
1,1,1,2-Tetrachloroethane	0.05	nd	nd	nd	nd	0.058
1,1,2,2-Tetrachloroethane	0.05	nd	nd	nd	nd	0.05
Tetrachloroethylene	0.05	nd	nd	nd	nd	0.28
Toluene	0.05	nd	nd	nd	nd	2.3
1,1,1-Trichloroethane	0.05	nd	nd	nd	nd	0.38
1,1,2-Trichloroethane	0.05	nd	nd	nd	nd	0.05
Trichloroethylene	0.05	nd	nd	nd	nd	0.061
Trichlorofluoromethane	0.05	nd	nd	nd	nd	4
Vinyl Chloride	0.02	nd	nd	nd	nd	0.02
Xylenes	0.05	nd	nd	nd	nd	3.1

Notes:

- MDL – Method Detection Limit
- nd – not detected above the MDL
- **Bold and Underlined** – value exceeds selected MECP standards

No VOC concentrations were identified in any of the samples analysed. As such, the results are in compliance with the selected MECP Table 3 residential soil standards.

Table 9
Analytical Test Results – Soil
Polycyclic Aromatic Hydrocarbons (PAHs)

Parameter	MDL (µg/g)	Soil Samples (µg/g)		MECP Table 3 Residential Soil Standards (µg/g)
		September 9 & 10, 2021		
		BH1-21-AU2	BH4-21-AU2	
		Sample Depth (m BGS)		
		(0.1 – 0.2)	(0.0 – 0.2)	
Acenaphthene	0.02	nd	0.08	7.9
Acenaphthylene	0.02	0.03	0.12	0.15
Anthracene	0.02	0.05	0.33	0.67
Benzo[a]anthracene	0.02	0.13	**1.33**	0.5
Benzo[a]pyrene	0.02	0.16	**1.51**	0.3
Benzo[b]fluoranthene	0.02	0.24	**1.84**	0.78
Benzo[g,h,i]perylene	0.02	0.13	0.99	6.6
Benzo[k]fluoranthene	0.02	0.13	**0.88**	0.78
Chrysene	0.02	0.15	1.29	7
Dibenzo[a,h]anthracene	0.02	nd	**0.23**	0.1
Fluoranthene	0.02	0.28	**2.76**	0.69
Fluorene	0.02	nd	0.08	62
Indeno[1,2,3-cd]pyrene	0.02	0.11	**0.95**	0.38
1-Methylnaphthalene	0.02	nd	0.04	0.99
2-Methylnaphthalene	0.02	nd	0.05	0.99
Methylnaphthalene (1&2)	0.04	nd	0.10	0.99
Naphthalene	0.01	0.02	0.06	0.6
Phenanthrene	0.02	0.15	1.16	6.2
Pyrene	0.02	0.23	2.36	78

Notes:
- MDL – Method Detection Limit
- nd – not detected above the MDL
- **Bold and Underlined** – value exceeds selected MECP standards

Concentrations of various PAH parameters were identified in each sample analysed. Those identified in Sample BH1-21-AU2 comply with the MECP Table 3 standards, however several parameter concentrations identified in Sample BH4-21-AU2 exceed the MECP Table 3 residential standards.

Table 10
Analytical Test Results – Soil
Metals

Parameter	MDL (µg/g)	Soil Samples (µg/g)		MECP Table 3 Residential Soil Standards (µg/g)
		September 9 & 10, 2021		
		BH1-21-AU2	BH4-21-AU2	
		Sample Depth (m BGS)		
		(0.1 – 0.2)	(0.0 – 0.2)	
Antimony	1.0	nd	nd	7.5
Arsenic	1.0	5.5	5.3	18
Barium	1.0	82.3	91.6	390
Beryllium	0.5	nd	nd	4
Boron	5.0	5.6	6.3	120
Cadmium	0.5	nd	0.6	1.2
Chromium (VI)	5.0	nd	nd	8
Chromium	0.2	19.7	15.9	160
Cobalt	1.0	5.8	5.4	22
Copper	5.0	31.9	29.0	140
Lead	1.0	94.9	**151**	120
Mercury	0.1	nd	nd	0.27
Molybdenum	1.0	1.0	1.2	6.9
Nickel	5.0	17.2	22.4	100
Selenium	1.0	nd	nd	2.4
Silver	0.3	nd	nd	20
Thallium	1.0	nd	nd	1
Uranium	1.0	nd	nd	23
Vanadium	10.0	26.1	27.6	86
Zinc	20.0	169	119	340

Notes:
- MDL – Method Detection Limit
- nd – not detected above the MDL
- **Bold and Underlined** – value exceeds selected MECP standards

Concentrations of various metal parameters were identified in each sample analysed. Those identified in Sample BH1-21-AU2 comply with the MECP Table 3 standards, however the concentration of lead identified in Sample BH4-21-AU2 exceeds the MECP Table 3 residential standards

Table 11
Analytical Test Results – Soil
Inorganic Parameters

Parameter	MDL (units)	Soil Samples (µg/g)		MECP Table 3 Residential Soil Standards (units)
		September 9 & 10, 2021		
		BH4-21-AU2	BH4-21-SS6	
		Sample Depth (m BGS)		
		(0.0 – 0.2)	(3.0 – 3.3)	
pH	0.05	7.75	7.83	5.00 – 9.00

Notes:
- MDL – Method Detection Limit

The pH levels detected in the soil samples analyzed are in compliance with the selected MECP Table 3 residential soil standards.

Table 12
Maximum Concentrations – Soil

Parameter	Maximum Concentration (µg/g)	Sample ID	Depth Interval (m BGS)
PHCs F_1	8	BH4-21-SS6	3.05 m – 3.35 m
PHCs F_2	44	BH1-21-SS5	2.29 m – 2.90 m
PHCs F_3	96	BH4-21-SS6	3.05 m – 3.35 m
PHCs F_4	83	BH4-21-SS6	3.05 m – 3.35 m
Acenaphthene	0.08	BH4-21-AU2	0.23 m – 0.46 m
Acenaphthylene	0.12	BH4-21-AU2	0.23 m – 0.46 m
Anthracene	0.33	BH4-21-AU2	0.23 m – 0.46 m
Benzo[a]anthracene	**1.33**	BH4-21-AU2	0.23 m – 0.46 m
Benzo[a]pyrene	**1.51**	BH4-21-AU2	0.23 m – 0.46 m
Benzo[b]fluoranthene	**1.84**	BH4-21-AU2	0.23 m – 0.46 m
Benzo[g,h,i]perylene	0.99	BH4-21-AU2	0.23 m – 0.46 m
Benzo[k]fluoranthene	**0.88**	BH4-21-AU2	0.23 m – 0.46 m
Chrysene	1.29	BH4-21-AU2	0.23 m – 0.46 m
Dibenzo[a,h]anthracene	**0.23**	BH4-21-AU2	0.23 m – 0.46 m
Fluoranthene	**2.76**	BH4-21-AU2	0.23 m – 0.46 m
Fluorene	0.08	BH4-21-AU2	0.23 m – 0.46 m
Indeno[1,2,3-cd]pyrene	**0.95**	BH4-21-AU2	0.23 m – 0.46 m
1-Methylnaphthalene	0.04	BH4-21-AU2	0.23 m – 0.46 m
2-Methylnaphthalene	0.05	BH4-21-AU2	0.23 m – 0.46 m
Methylnaphthalene (1&2)	0.10	BH4-21-AU2	0.23 m – 0.46 m
Naphthalene	0.06	BH4-21-AU2	0.23 m – 0.46 m
Phenanthrene	1.16	BH4-21-AU2	0.23 m – 0.46 m
Pyrene	2.36	BH4-21-AU2	0.23 m – 0.46 m
Arsenic	5.5	BH1-21-AU2	0.20 m – 0.46 m
Barium	91.6	BH4-21-AU2	0.23 m – 0.46 m
Boron	6.3	BH4-21-AU2	0.23 m – 0.46 m
Cadmium	0.6	BH4-21-AU2	0.23 m – 0.46 m
Chromium	19.7	BH1-21-AU2	0.20 m – 0.46 m
Cobalt	5.8	BH1-21-AU2	0.20 m – 0.46 m
Copper	31.9	BH1-21-AU2	0.20 m – 0.46 m
Lead	**151**	BH4-21-AU2	0.23 m – 0.46 m
Molybdenum	1.2	BH4-21-AU2	0.23 m – 0.46 m
Nickel	22.4	BH4-21-AU2	0.23 m – 0.46 m
Vanadium	27.6	BH4-21-AU2	0.23 m – 0.46 m
Zinc	169	BH1-21-AU2	0.20 m – 0.46 m
pH	7.83	BH4-21-SS6	3.05 m – 3.35 m

Notes:
- **Bold and Underlined** – value exceeds selected MECP standards

All other parameter concentrations analyzed were below the laboratory detection limits. The laboratory Certificates of Analysis are provided in Appendix 1.

5.6 Groundwater Quality

2019 Phase II ESA – EXP Services Inc.

As part of the previous 2019 Phase II ESA completed for 337 Montgomery Street, EXP submitted three groundwater samples (one from each monitoring well) for laboratory analysis of BTEX, PHCs (F_1-F_4), metals, and VOCs. No BTEX, PHC, or VOC parameters identified in the samples analyzed. Metal concentrations identified in the samples analyzed were in compliance with the MECP Table 3 non-potable groundwater standards.

2020 Phase II ESA – Paterson Group Inc.

Groundwater samples were recovered from the monitoring wells installed in BH2-21 and BH5-21 and submitted for laboratory analysis of PHCs (F_1-F_4) and VOCs. The results of the analytical testing are presented below in Table 13 and 14.

Table 13
Analytical Test Results – Groundwater
PHCs (F_1-F_4)

Parameter	MDL (µg/L)	Groundwater Samples (µg/L)		MECP Table 3 Non-Potable Groundwater Standards (µg/L)
		September 16, 2021		
		BH2-21-GW1	BH5-21-GW1	
		Screened Interval (m BGS)		
		(6.04 – 9.04)	(6.12 – 9.12)	
PHC F_1	25	nd	nd	750
PHC F_2	100	nd	nd	150
PHC F_3	100	nd	nd	500
PHC F_4	100	nd	nd	500

Notes:
- MDL – Method Detection Limit
- nd – not detected above the MDL

No PHC parameter concentrations identified above the laboratory method detection limits, and as such, the results comply with the MECP Table 3 non-potable groundwater standards.

Table 14
Analytical Test Results – Groundwater
VOCs

Parameter	MDL (µg/L)	Groundwater Samples (ug/L)		MECP Table 3 Non-Potable Groundwater Standards (µg/L)
		September 16, 2021		
		BH2-21-GW1	BH5-21-GW1	
		Screened Interval (m BGS)		
		(6.04 – 9.04)	(6.12 – 9.12)	
Acetone	5.0	nd	nd	130,000
Benzene	0.5	nd	nd	44
Bromodichloromethane	0.5	nd	nd	85,000
Bromoform	0.5	nd	nd	380
Bromomethane	0.5	nd	nd	5.6
Carbon Tetrachloride	0.2	nd	nd	0.79
Chlorobenzene	0.5	nd	nd	630
Chloroform	0.5	nd	nd	2.4
Dibromochloromethane	0.5	nd	nd	82,000
Dichlorodifluoromethane	1.0	nd	nd	4,400
1,2-Dichlorobenzene	0.5	nd	nd	4,600
1,3-Dichlorobenzene	0.5	nd	nd	9,600
1,4-Dichlorobenzene	0.5	nd	nd	8
1,1-Dichloroethane	0.5	nd	nd	320
1,2-Dichloroethane	0.5	nd	nd	1.6
1,1-Dichloroethylene	0.5	nd	nd	1.6
cis-1,2-Dichloroethylene	0.5	nd	nd	1.6
trans-1,2-Dichloroethylene	0.5	nd	nd	1.6
1,2-Dichloropropane	0.5	nd	nd	16
1,3-Dichloropropene	0.5	nd	nd	5.2
Ethylbenzene	0.5	nd	nd	2,300
Ethylene Dibromide	0.2	nd	nd	0.25
Hexane	1.0	nd	nd	51
Methyl Ethyl Ketone	5.0	nd	nd	470,000
Methyl Isobutyl Ketone	5.0	nd	nd	140,000
Methyl tert-butyl ether	2.0	nd	nd	190
Methylene Chloride	5.0	nd	nd	610
Styrene	0.5	nd	nd	1,300
1,1,1,2-Tetrachloroethane	0.5	nd	nd	3.3
1,1,2,2-Tetrachloroethane	0.5	nd	nd	3.2
Tetrachloroethylene	0.5	nd	nd	1.6
Toluene	0.5	nd	nd	18,000
1,1,1-Trichloroethane	0.5	nd	nd	640
1,1,2-Trichloroethane	0.5	nd	nd	4.7
Trichloroethylene	0.5	nd	nd	1.6
Trichlorofluoromethane	1.0	nd	nd	2,500
Vinyl Chloride	0.5	nd	nd	0.5
Xylenes	0.5	nd	nd	4,200

Notes:
- MDL – Method Detection Limit
- nd – not detected above the MDL

No VOC parameters were identified in the samples analysed; the results comply with the MECP Table 3 non-potable groundwater standards.

5.7 Quality Assurance and Quality Control Results

As per the Sampling and Analysis Plan, a duplicate soil sample was obtained from BH1-21-AU2 and submitted for laboratory analysis of PAHs and metals. The relative percent difference (RPD) calculations for the original and duplicate samples are provided below in Table 15.

Table 15
QA/QC Calculations – Soil (PAHs & Metals)

Parameter	MDL (µg/g)	BH1-21-AU2	DUP-1	RPD (%)	QA/QC Result (Target: <20% RPD)
Acenaphthene	0.02	nd	nd	0	Meets Target
Acenaphthylene	0.02	0.03	0.03	0	Meets Target
Anthracene	0.02	0.05	0.03	50	Does Not Meet Target
Benzo[a]anthracene	0.02	0.13	0.10	26.1	Does Not Meet Target
Benzo[a]pyrene	0.02	0.16	0.12	28.6	Does Not Meet Target
Benzo[b]fluoranthene	0.02	0.24	0.16	40	Does Not Meet Target
Benzo[g,h,i]perylene	0.02	0.13	0.10	26.1	Does Not Meet Target
Benzo[k]fluoranthene	0.02	0.13	0.08	47.6	Does Not Meet Target
Chrysene	0.02	0.15	0.11	30.8	Does Not Meet Target
Dibenzo[a,h]anthracene	0.02	nd	0.02	N/A	N/A
Fluoranthene	0.02	0.28	0.18	43.5	Does Not Meet Target
Fluorene	0.02	nd	nd	0	Meets Target
Indeno[1,2,3-cd]pyrene	0.02	0.11	0.09	20	Meets Target
1-Methylnaphthalene	0.02	nd	nd	0	Meets Target
2-Methylnaphthalene	0.02	nd	nd	0	Meets Target
Methylnaphthalene (1&2)	0.04	nd	nd	0	Meets Target
Naphthalene	0.01	0.02	0.02	0	Meets Target
Phenanthrene	0.02	0.15	0.08	60.9	Does Not Meet Target
Pyrene	0.02	0.23	0.16	35.9	Does Not Meet Target
Antimony	1.0	nd	nd	0	Meets Target
Arsenic	1.0	5.5	5.9	7	Meets Target
Barium	1.0	82.3	88.3	7	Meets Target
Beryllium	0.5	nd	nd	0	Meets Target
Boron	5.0	5.6	6.0	6.9	Meets Target
Cadmium	0.5	nd	nd	0	Meets Target
Chromium (VI)	5.0	nd	nd	0	Meets Target
Chromium	0.2	19.7	20.8	5.4	Meets Target
Cobalt	1.0	5.8	6.0	3.4	Meets Target
Copper	5.0	31.9	36.8	14.3	Meets Target
Lead	1.0	94.9	110	14.7	Meets Target
Mercury	0.1	nd	nd	0	Meets Target
Molybdenum	1.0	1.0	nd	N/A	N/A
Nickel	5.0	17.2	16.8	2.4	Meets Target
Selenium	1.0	nd	nd	0	Meets Target
Silver	0.3	nd	nd	0	Meets Target
Thallium	1.0	nd	nd	0	Meets Target
Uranium	1.0	nd	nd	0	Meets Target
Vanadium	10.0	26.1	27.5	5.2	Meets Target
Zinc	20.0	169	190	11.7	Meets Target

Notes:
- **Bold and Underlined** – value exceeds selected MECP standards

The RPD values for several PAH parameters fell outside of the acceptable range of 20%. It should be noted that these discrepancies are likely due to the variability in the low level concentrations detected between the samples. Furthermore, the RPD values for all metal parameters fell within the acceptable range. As a result, the results are considered to be acceptable.

A duplicate soil sample was also obtained from BH3-21-SS5 and submitted for laboratory analysis of VOCs and PHCs. The relative percent difference (RPD) calculations for the original and duplicate samples are provided below in Table 16.

Table 16
QA/QC Calculations – Soil (VOCs & PHCs)

Parameter	MDL (µg/g)	BH3-21-SS5	DUP-2	RPD (%)	QA/QC Result (Target: <20% RPD)
Acetone	0.50	nd	nd	0	Meets Target
Benzene	0.02	nd	nd	0	Meets Target
Bromodichloromethane	0.05	nd	nd	0	Meets Target
Bromoform	0.05	nd	nd	0	Meets Target
Bromomethane	0.05	nd	nd	0	Meets Target
Carbon Tetrachloride	0.05	nd	nd	0	Meets Target
Chlorobenzene	0.05	nd	nd	0	Meets Target
Chloroform	0.05	nd	nd	0	Meets Target
Dibromochloromethane	0.05	nd	nd	0	Meets Target
Dichlorodifluoromethane	0.05	nd	nd	0	Meets Target
1,2-Dichlorobenzene	0.05	nd	nd	0	Meets Target
1,3-Dichlorobenzene	0.05	nd	nd	0	Meets Target
1,4-Dichlorobenzene	0.05	nd	nd	0	Meets Target
1,1-Dichloroethane	0.05	nd	nd	0	Meets Target
1,2-Dichloroethane	0.05	nd	nd	0	Meets Target
1,1-Dichloroethylene	0.05	nd	nd	0	Meets Target
cis-1,2-Dichloroethylene	0.05	nd	nd	0	Meets Target
trans-1,2-Dichloroethylene	0.05	nd	nd	0	Meets Target
1,2-Dichloropropane	0.05	nd	nd	0	Meets Target
1,3-Dichloropropene	0.05	nd	nd	0	Meets Target
Ethylbenzene	0.05	nd	nd	0	Meets Target
Ethylene Dibromide	0.05	nd	nd	0	Meets Target
Hexane	0.05	nd	nd	0	Meets Target
Methyl Ethyl Ketone	0.50	nd	nd	0	Meets Target
Methyl Isobutyl Ketone	0.50	nd	nd	0	Meets Target
Methyl tert-butyl ether	0.05	nd	nd	0	Meets Target
Methylene Chloride	0.05	nd	nd	0	Meets Target
Styrene	0.05	nd	nd	0	Meets Target
1,1,1,2-Tetrachloroethane	0.05	nd	nd	0	Meets Target
1,1,2,2-Tetrachloroethane	0.05	nd	nd	0	Meets Target
Tetrachloroethylene	0.05	nd	nd	0	Meets Target
Toluene	0.05	nd	nd	0	Meets Target
1,1,1-Trichloroethane	0.05	nd	nd	0	Meets Target
1,1,2-Trichloroethane	0.05	nd	nd	0	Meets Target
Trichloroethylene	0.05	nd	nd	0	Meets Target
Trichlorofluoromethane	0.05	nd	nd	0	Meets Target
Vinyl Chloride	0.02	nd	nd	0	Meets Target
Xylenes	0.05	nd	nd	0	Meets Target
PHCs F_1	7	nd	nd	0	Meets Target
PHCs F_2	4	10	8	22.2	Does Not Meet Target
PHCs F_3	8	27	47	54.1	Does Not Meet Target
PHCs F_4	6	31	65	70.8	Does Not Meet Target

Notes:
- **Bold and Underlined** – value exceeds selected MECP standards

The RPD values for several PHC parameters fell outside of the acceptable range of 20%. While there are some discrepancies between the results, it should be noted that there is a consistency in the detected parameters between the samples. Furthermore, no VOCs were detected between the original or duplicate sample. As a result, the results are considered to be acceptable.

A duplicate groundwater sample was obtained from sample BH2-21-GW1 and submitted for laboratory analysis of VOCs. The relative percent difference (RPD) calculations for the original and duplicate samples are provided below in Table 17.

Table 17
QA/QC Calculations – Groundwater

Parameter	MDL (µg/L)	BH1-21-GW1	DUP	RPD (%)	QA/QC Result (Target: <20% RPD)
Acetone	5.0	nd	nd	0	Meets Target
Benzene	0.5	nd	nd	0	Meets Target
Bromodichloromethane	0.5	nd	nd	0	Meets Target
Bromoform	0.5	nd	nd	0	Meets Target
Bromomethane	0.5	nd	nd	0	Meets Target
Carbon Tetrachloride	0.2	nd	nd	0	Meets Target
Chlorobenzene	0.5	nd	nd	0	Meets Target
Chloroform	0.5	nd	nd	0	Meets Target
Dibromochloromethane	0.5	nd	nd	0	Meets Target
Dichlorodifluoromethane	1.0	nd	nd	0	Meets Target
1,2-Dichlorobenzene	0.5	nd	nd	0	Meets Target
1,3-Dichlorobenzene	0.5	nd	nd	0	Meets Target
1,4-Dichlorobenzene	0.5	nd	nd	0	Meets Target
1,1-Dichloroethane	0.5	nd	nd	0	Meets Target
1,2-Dichloroethane	0.5	nd	nd	0	Meets Target
1,1-Dichloroethylene	0.5	nd	nd	0	Meets Target
cis-1,2-Dichloroethylene	0.5	nd	nd	0	Meets Target
trans-1,2-Dichloroethylene	0.5	nd	nd	0	Meets Target
1,2-Dichloropropane	0.5	nd	nd	0	Meets Target
1,3-Dichloropropene	0.5	nd	nd	0	Meets Target
Ethylbenzene	0.5	nd	nd	0	Meets Target
Ethylene Dibromide	0.2	nd	nd	0	Meets Target
Hexane	1.0	nd	nd	0	Meets Target
Methyl Ethyl Ketone	5.0	nd	nd	0	Meets Target
Methyl Isobutyl Ketone	5.0	nd	nd	0	Meets Target
Methyl tert-butyl ether	2.0	nd	nd	0	Meets Target
Methylene Chloride	5.0	nd	nd	0	Meets Target
Styrene	0.5	nd	nd	0	Meets Target
1,1,1,2-Tetrachloroethane	0.5	nd	nd	0	Meets Target
1,1,2,2-Tetrachloroethane	0.5	nd	nd	0	Meets Target
Tetrachloroethylene	0.5	nd	nd	0	Meets Target
Toluene	0.5	nd	nd	0	Meets Target
1,1,1-Trichloroethane	0.5	nd	nd	0	Meets Target
1,1,2-Trichloroethane	0.5	nd	nd	0	Meets Target
Trichloroethylene	0.5	nd	nd	0	Meets Target
Trichlorofluoromethane	1.0	nd	nd	0	Meets Target
Vinyl Chloride	0.5	nd	nd	0	Meets Target
Xylenes	0.5	nd	nd	0	Meets Target

Notes:
- **Bold and Underlined** – value exceeds selected MECP standards

No parameter concentrations were detected in either the original or the duplicate sample, and as such, the results are considered to be acceptable.

A Trip Blank sample was also acquired and submitted for laboratory analysis of VOCs. The results of the analytical testing are presented below in Table 18.

Table 18
Analytical Test Results – Groundwater
VOCs

Parameter	MDL (µg/L)	Groundwater Samples (ug/L)	MECP Table 3 Non-Potable Groundwater Standards (µg/L)
		September 16, 2021	
		Trip Blank	
Acetone	5.0	nd	130,000
Benzene	0.5	nd	44
Bromodichloromethane	0.5	nd	85,000
Bromoform	0.5	nd	380
Bromomethane	0.5	nd	5.6
Carbon Tetrachloride	0.2	nd	0.79
Chlorobenzene	0.5	nd	630
Chloroform	0.5	nd	2.4
Dibromochloromethane	0.5	nd	82,000
Dichlorodifluoromethane	1.0	nd	4,400
1,2-Dichlorobenzene	0.5	nd	4,600
1,3-Dichlorobenzene	0.5	nd	9,600
1,4-Dichlorobenzene	0.5	nd	8
1,1-Dichloroethane	0.5	nd	320
1,2-Dichloroethane	0.5	nd	1.6
1,1-Dichloroethylene	0.5	nd	1.6
cis-1,2-Dichloroethylene	0.5	nd	1.6
trans-1,2-Dichloroethylene	0.5	nd	1.6
1,2-Dichloropropane	0.5	nd	16
1,3-Dichloropropene	0.5	nd	5.2
Ethylbenzene	0.5	nd	2,300
Ethylene Dibromide	0.2	nd	0.25
Hexane	1.0	nd	51
Methyl Ethyl Ketone	5.0	nd	470,000
Methyl Isobutyl Ketone	5.0	nd	140,000
Methyl tert-butyl ether	2.0	nd	190
Methylene Chloride	5.0	nd	610
Styrene	0.5	nd	1,300
1,1,1,2-Tetrachloroethane	0.5	nd	3.3
1,1,2,2-Tetrachloroethane	0.5	nd	3.2
Tetrachloroethylene	0.5	nd	1.6
Toluene	0.5	nd	18,000
1,1,1-Trichloroethane	0.5	nd	640
1,1,2-Trichloroethane	0.5	nd	4.7
Trichloroethylene	0.5	nd	1.6
Trichlorofluoromethane	1.0	nd	2,500
Vinyl Chloride	0.5	nd	0.5
Xylenes	0.5	nd	4,200

Notes:
- MDL – Method Detection Limit
- nd – not detected above the MDL
- **Bold and Underlined** – value exceeds selected MECP standards

No parameter concentrations were detected in the Trip Blank sample, and as such, the results are considered to be acceptable.

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.

All samples submitted as part of this Phase II ESA were handled in accordance with the analytical protocols with respect to holding time, preservation method, storage requirement, and container type.

As per Subsection 47(3) of O. Reg. 153/04, as amended by the Environmental Protection Act, the certificates of analysis have been received for each sample submitted for laboratory analysis and have been appended to this report.

5.8 Phase II Conceptual Site Model

The following section has been prepared in general accordance with the requirements of O. Reg. 153/04 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 described in Section 7.1 of the Phase I ESA report, as well as in Section 2.2 of this report, the following PCAs, as defined by Table 2 of O. Reg. 153/04, are considered to result in APECs on the Phase I Property:

- *Item 30: "Importation of Fill Material of Unknown Quality"*

This PCA was identified as a result of the presence of fill material of unknown quality, situated beneath the asphaltic concrete parking lot in the central portion of the Phase I Property (APEC 1).

- *No Item Number: "Impacted Soils Previously Identified By Others"*

This PCA was identified as a result of the presence of impacted soil, previously identified by EXP's 2019 Phase II ESA, and is situated beneath the asphaltic concrete parking lot in the central portion of the Phase I Property (APEC 2).

- *Item 52: "Storage, Maintenance, Fuelling, and Repair of Equipment, Vehicles, and Material Used to Maintain Transportation Systems"*

This PCA was identified as a result of the presence of a former off-site auto service garage located at 350 Montgomery Street, situated approximately 20 m to the south of the Phase I Property (APEC 3).

Contaminants of Potential Concern

The contaminants of potential concern (CPCs) associated with the aforementioned APECs are considered to be:

- Benzene, Toluene, Ethylbenzene, Xylenes (BTEX);
- Volatile Organic Compounds (VOCs);
- Petroleum Hydrocarbons, fractions 1 - 4 (PHCs F_1-F_4);
- Polycyclic Aromatic Hydrocarbons (PAHs);
- Metals (including As, Sb, Se);
- Mercury (Hg^+);
- Hexavalent Chromium (Cr^{VI}).

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

Subsurface Structures and Utilities

Underground service locates were completed prior to the subsurface investigation. Underground utilities on the Phase II Property include electrical cables, natural gas pipelines, as well as municipal water and wastewater services.

Physical Setting

Site Stratigraphy

The stratigraphy of the Phase I Property generally consists of:

- Pavement structure (consisting of asphalt over engineered fill) or topsoil at ground surface to depths ranging from approximately ; encountered at ground surface and extending to an average depth of approximately 0.2 m to 0.7 m below ground surface.

- Fill Material consisting of dark brown silty sand with crushed stone, gravel, and trace clay, and extending to depths ranging from approximately 0.61 m to 1.07 m below ground surface. (BH1-21, BH4-21, BH5-21, and BH6-21 only).
- Glacial Till consisting of brown silty sand with gravel, cobbles, and boulders, and extending to depths ranging from approximately 3.53 m to 4.60 m below ground surface.
- Interbedded Limestone and Shale Bedrock confirmed in BH1, BH2, BH3, BH2-21, and BH5-21, at depths ranging from approximately 3.53 m to 5.20 m below ground surface.

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

Hydrogeological Characteristics

According to the 2019 Phase II ESA by EXP, the groundwater was encountered within the overburden at depths ranging from approximately 3.2 m to 3.6 m below the existing ground surface. Based on the measured levels, the groundwater flow direction was interpreted to be in a southerly direction.

It should be noted that, during the September 16, 2021 sampling event, the wells installed by EXP were dry. It is suspected that the redevelopment of 350 Montgomery Street (20 m to the south of the Phase II Property) has contributed to the lowering of the local groundwater table, and as a result, has influenced the local groundwater flow.

During the September 16, 2021 sampling event, the groundwater at the Phase II Property was encountered within the bedrock in BH2-21 and BH5-21 at depths ranging from approximately 6.20 m to 6.72 m below ground surface.

Approximate Depth to Bedrock

Bedrock, consisting of interbedded limestone and shale, was encountered at depths ranging from approximately 3.53 m to 5.20 m below ground surface, respectively.

Approximate Depth to Water Table

The depth to the water table is approximately 6.20 m to 6.72 m below ground surface.

Sections 41 and 43.1 of Ontario Regulation 153/04

Section 41 of the Regulation does not apply to the Phase I Property, as there are no bodies of water or areas of natural significance located on or within 30 m of the Phase II Property. The Phase II Property is therefore not considered to be environmentally sensitive.

Section 43.1 of the Regulation does not apply to the Phase I Property, since the bedrock is situated at depths greater than 2 m below ground surface, and thus is not considered to be a shallow soil property.

Water Bodies

No water bodies were identified within 250m of the Phase II Property. The nearest named water body with respect to the Phase II Property is the Rideau River, located approximately 300 m to the west.

Areas of Natural and Scientific Interest

No areas of natural and scientific interest were identified within 250 m of the Phase II Property.

Existing Buildings and Structures

The Phase I Property is currently occupied with five buildings, each described as follows:

- *337 Montgomery Street*

  This property is currently occupied with a two-storey residential dwelling (currently vacant), with one basement level. The residence was constructed sometime in the early-1900's with a stone and mortar foundation and is finished on the exterior with stone and brick siding, as well as a sloped-shingled roof.

  Additionally, a one-storey, slab-on-grade style addition is attached to the east side of the subject building, formerly occupied by a restaurant and currently vacant. The addition was constructed sometime in the 1930's or 1940's with a poured concrete foundation and is finished on the exterior with stone and concrete block siding as well as a flat tar-and-gravel style roof. The residence and the addition are currently heated via with a natural gas-fired furnace, located in the basement.

- *345 Montgomery Street*

  This property is currently occupied with a two-and-a-half-storey residential dwelling, with one basement level. Built sometime in the early-1900's, the subject building is constructed with a stone and mortar foundation and is finished on the exterior with brick and wood siding, as well as a sloped-shingled roof. The subject building is currently heated with a natural gas-fired furnace, located in the basement.

  A one-storey, slab-on-grade style private garage is also present on this property. The garage is constructed with a poured concrete foundation and is finished on the exterior with stone siding, as well as a flat tar-and-gravel style roof. The garage does not contain any heating equipment.

- *94 Selkirk Street*

  This property is currently occupied with a two-and-a-half-storey residential dwelling, with one basement level. Built sometime in the early-1900's, the subject building is constructed with a stone foundation and is finished on the exterior with vinyl siding, as well as a sloped-shingled roof. The subject building is currently heated with natural gas-fired equipment, located in the basement.

A one-storey, slab-on-grade style private garage is also present on this property. The garage is constructed with a poured concrete foundation and is finished on the exterior with vinyl siding, as well as a flat tar-and-gravel style roof. The garage does not contain any heating equipment.

Proposed Buildings and Other Structures

It is our understanding that the Phase II Property is to be redeveloped with a multi-storey residential building.

Environmental Condition

Areas Where Contaminants are Present

Based on the findings of the 2019 subsurface investigation conducted by EXP, soil impacted with hexane, PHC and/or PAH concentrations exceeding the MECP Table 3 standards is present on the central portion of the Phase II Property, at the locations of BH1 and BH2.

Based on the findings of the current investigation, additional PAH and lead impacts were identified on the central portion of the Phase II Property at the location of BH4-21.

Based on the findings of the 2019 and 2021 investigations, groundwater beneath the Phase II Property complies with the MECP Table 3 standards.

Types of Contaminants

Based on the findings of this assessment, the following contaminants were detected in the soil/fill at concentrations exceeding the selected MECP Table 3 residential soil standards:

- PHC fractions F1 and F2;
- Volatile Organic Compounds: Hexane;
- PAHs: Benzo[a]anthracene, Benzo[a]pyrene, Benzo[b]fluoranthene, Benzo[k]fluoranthene, Dibenzo[a,h]anthracene, Fluoranthene, Indeno[1,2,3-cd]pyrene
- Metals: Lead

Groundwater beneath the Phase II Property complies with the MECP Table 3 standards.

Contaminated Media

The deeper native soils in the vicinity of BH1 and BH2 are impacted with hexane and/or PHC F_1 and F_2, while the fill material in the vicinity of BH2 and BH4 is impacted with lead and/or PAHs.

Groundwater beneath the Phase II Property complies with the MECP Table 3 standards.

What Is Known About Areas Where Contaminants Are Present

Based on the findings of this assessment, as well as the previous 2019 Phase II ESA, metal and PAH contaminants were identified within the shallow soil/fill material situated beneath the asphaltic concrete parking lot on 337 Montgomery Street. The presence of these contaminants is likely the result of the importation of poor-quality fill material used for grading the parking area on the central portion of the Phase II Property (337 Montgomery Street).

Based on the findings of the previous 2019 Phase II ESA, some minor VOC and PHC contamination was identified within the deeper native soils (approximate depth of 3.0 m to 4.5 m below ground surface) beneath the asphaltic concrete parking lot on 337 Montgomery Street. The presence of these contaminants may be due to small fuel releases (gasoline and/or diesel) from vehicles.

Distribution and Migration of Contaminants

Based on the findings of the Phase II ESA, identified soil impacts are considered to be limited to the central portion of the Phase II Property. Given the clean groundwater results, soil impacts are not considered to have vertically migrated into the bedrock. No significant distribution or migration of contaminants is considered to have occurred on the Phase II Property.

Discharge of Contaminants

The contamination identified within the fill material situated beneath the asphaltic concrete parking lot on 337 Montgomery Street is considered to likely be the result of the importation of poor-quality fill material used for grading of the paved parking lot

The contamination identified within the deeper native soils beneath the asphaltic concrete parking lot on 337 Montgomery Street may be the result of small releases of fuels from vehicles parked 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 via the infiltration of precipitation, and the migration of contaminants via groundwater levels and/or flow, which may fluctuate seasonally.

Some amount of downward leaching is suspected to have occurred, based on the detection of impacted soil within the deeper native soils on-site.

Fluctuations in the groundwater level and groundwater flow are not considered to have affected contaminant distribution based on clean groundwater results.

Potential for Vapour Intrusion

Given the location of volatile contaminants with respect to the subject buildings, the potential for vapour intrusion is considered to be low.

During redevelopment of the Phase II Property, all soil exceeding the selected MECP Table 3 residential standards will be removed and disposed of off-site. As such, there is no anticipated potential for future vapour intrusion at the Phase II Property.

6.0 CONCLUSIONS

Assessment

A Phase II ESA was conducted for the properties addressed 337 & 345 Montgomery Street and 94 Selkirk 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 were considered to result in areas of potential environmental concern (APECs) on the Phase I Property.

A previous subsurface investigation carried out by others in 2019 consisted of the placement of three boreholes on the property addressed 337 Montgomery Street (BH1 to BH3).

Three soil samples were submitted for laboratory analysis of a combination of PHCs (F_1-F_4), VOCs, PAHs, metals, and/or pH parameters. Based on the analytical test results, the concentrations of hexane as well as PHCs F_1 and F_2 in the soil sample analyzed from BH1 were in excess of the MECP Table 3 residential soil standards. In addition, the concentrations of PHCs F_2, benzo(a)pyrene, and fluoranthene in the soil sample analyzed from BH2 were in excess of the MECP Table 3 residential soil standards.

Three groundwater samples (one from each monitoring well) were submitted for laboratory analysis of BTEX, PHCs (F_1-F_4), metals, and VOCs. No BTEX, PHC, or VOC parameters identified in the samples analyzed. Metal concentrations identified in the samples analyzed were in compliance with the MECP Table 3 non-potable groundwater standards.

The current subsurface investigation, conducted on September 9 and September 10, 2021, consisted of drilling six boreholes (BH1-21 to BH6-21) across the Phase II Property. BH1-21, BH3-21, BH4-21, and BH6-21 were advanced to shallow depths ranging from approximately 2.95 m to 3.25 m below ground surface and terminated within a layer of native brown silty sand (glacial till). BH2-21 and BH5-21 were advanced to deeper depths of 9.04 m and 9.12 m below ground surface, respectively, and terminated within the underlying bedrock. Upon completion, two of the boreholes (BH2-21 and BH5-21) were instrumented with groundwater monitoring wells. Three groundwater monitoring wells (BH1-19–BH3-19), installed in 2019 as part of a previous subsurface investigation completed by EXP Services Inc., were located and utilized as part of this current investigation.

In general, the stratigraphy at the Phase II Property consisted of topsoil or a pavement structure (consisting of asphalt over engineered fill material) at ground surface, followed by fill material and/or native glacial till. Overburden was underlain by limestone bedrock interbedded with shale. The fill material observed generally consisted of brown silty sand with crushed stone, gravel and/or trace clay. Brick, concrete and/or glass fragments were identified in BH1-21 and BH6-21.

Six soil samples were submitted for laboratory analysis of either PHCs (F_1-F_4), VOCs, PAHs, metals, and/or pH parameters. Based on the analytical test results, the concentrations of metals and PAHs within the soil/fill sample recovered from BH4-21 were in excess of the selected MECP Table 3 residential standards.

Two groundwater samples, recovered from the monitoring wells installed in BH2-21 and BH5-21, were submitted for laboratory analysis of PHCs (F_1-F_4) and VOCs. Based on the analytical results no parameter concentrations were identified in the groundwater samples analyzed, and as such, are in compliance with the MECP Table 3 non-potable groundwater standards.

Recommendations

Soil

Based on the findings of the Phase II ESA, it is recommended that a soil remediation program be carried out at the Phase II Property in conjunction with site redevelopment activities.

Prior to off-site disposal of impacted soils at a licensed landfill, a leachate analysis of a representative sample of contaminated soil must be conducted in accordance with Ontario Regulation 347/558.

It is recommended that Paterson personnel be on-site at the time of the remedial activities to direct excavation and segregation of impacted soil and to collect additional delineation and confirmatory soil samples are required in accordance with O.Reg. 347/558.

Excess Soil

Excess soil requiring off-site disposal during construction must be managed in accordance with Ontario Regulation 406/19: On-site and Excess Soil Management.

Monitoring Wells

If the groundwater monitoring wells installed on-site are not going to be used in the future, or will be destroyed during future construction activities, then they must be decommissioned according to Ontario Regulation 903 (Ontario Water Resources Act), however, we recommend that the wells be maintained for future sampling purposes. The monitoring wells will be registered with the MECP under this regulation. Further information can be provided upon request in this regard.

7.0 STATEMENT OF LIMITATIONS

This Phase II – Environmental Site Assessment report has been prepared in general accordance with O.Reg. 153/04, as amended, and meets the requirements of CSA Z769-00. 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 I 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 Serco Realty Group. Permission and notification from Serco Realty Group and Paterson Group will be required prior to the release of this report to any other party.

Paterson Group Inc.



Nick Sullivan, B.Sc.





Karyn Munch, P.Eng., QP_{ESA}

Report Distribution:

- Serco Realty Group
- Paterson Group Inc.

FIGURES

FIGURE 1 – KEY PLAN

DRAWING PE5412-3 – TEST HOLE LOCATION PLAN

DRAWING PE5412-4 – ANALYTICAL TESTING PLAN – SOIL (PHCs)

DRAWING PE5412-4A – CROSS SECTION A-A' – SOIL (PHCs)

DRAWING PE5412-4B – CROSS SECTION B-B' – SOIL (PHCs)

DRAWING PE5412-5 – ANALYTICAL TESTING PLAN – SOIL (VOCs)

DRAWING PE5412-5A – CROSS SECTION A-A' – SOIL (VOCs)

DRAWING PE5412-5B – CROSS SECTION B-B' – SOIL (VOCs)

DRAWING PE5412-6 – ANALYTICAL TESTING PLAN – SOIL (PAHs)

DRAWING PE5412-6A – CROSS SECTION A-A' – SOIL (PAHs)

DRAWING PE5412-6B – CROSS SECTION B-B' – SOIL (PAHs)

DRAWING PE5412-7 – ANALYTICAL TESTING PLAN – SOIL (METALS)

DRAWING PE5412-7A – CROSS SECTION A-A' – SOIL (METALS)

DRAWING PE5412-7B – CROSS SECTION B-B' – SOIL (METALS)

DRAWING PE5412-8 – ANALYTICAL TESTING PLAN – GROUNDWATER

DRAWING PE5412-8A – CROSS SECTION A-A' – GROUNDWATER

DRAWING PE5412-8B – CROSS SECTION B-B' – GROUNDWATER

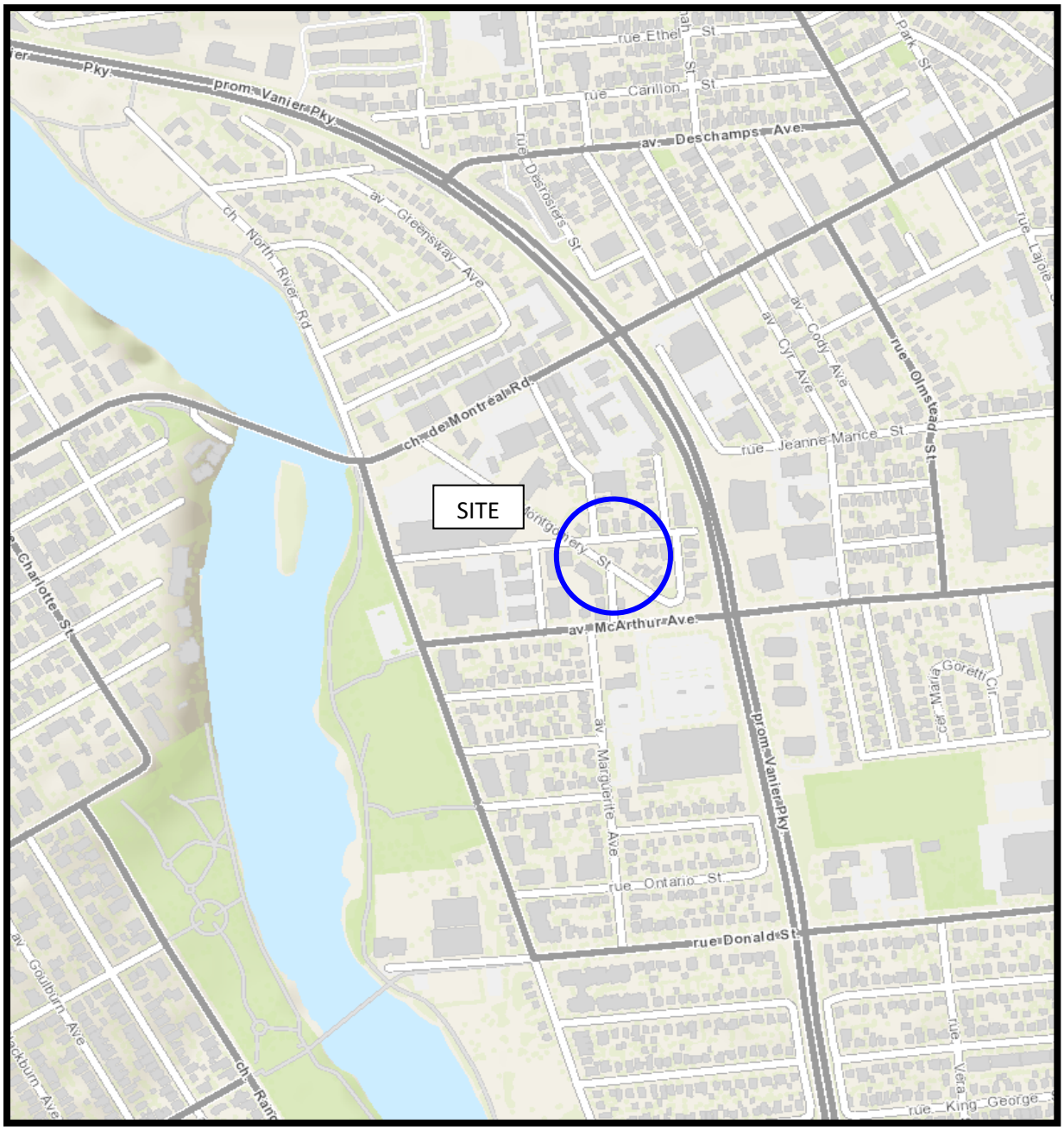
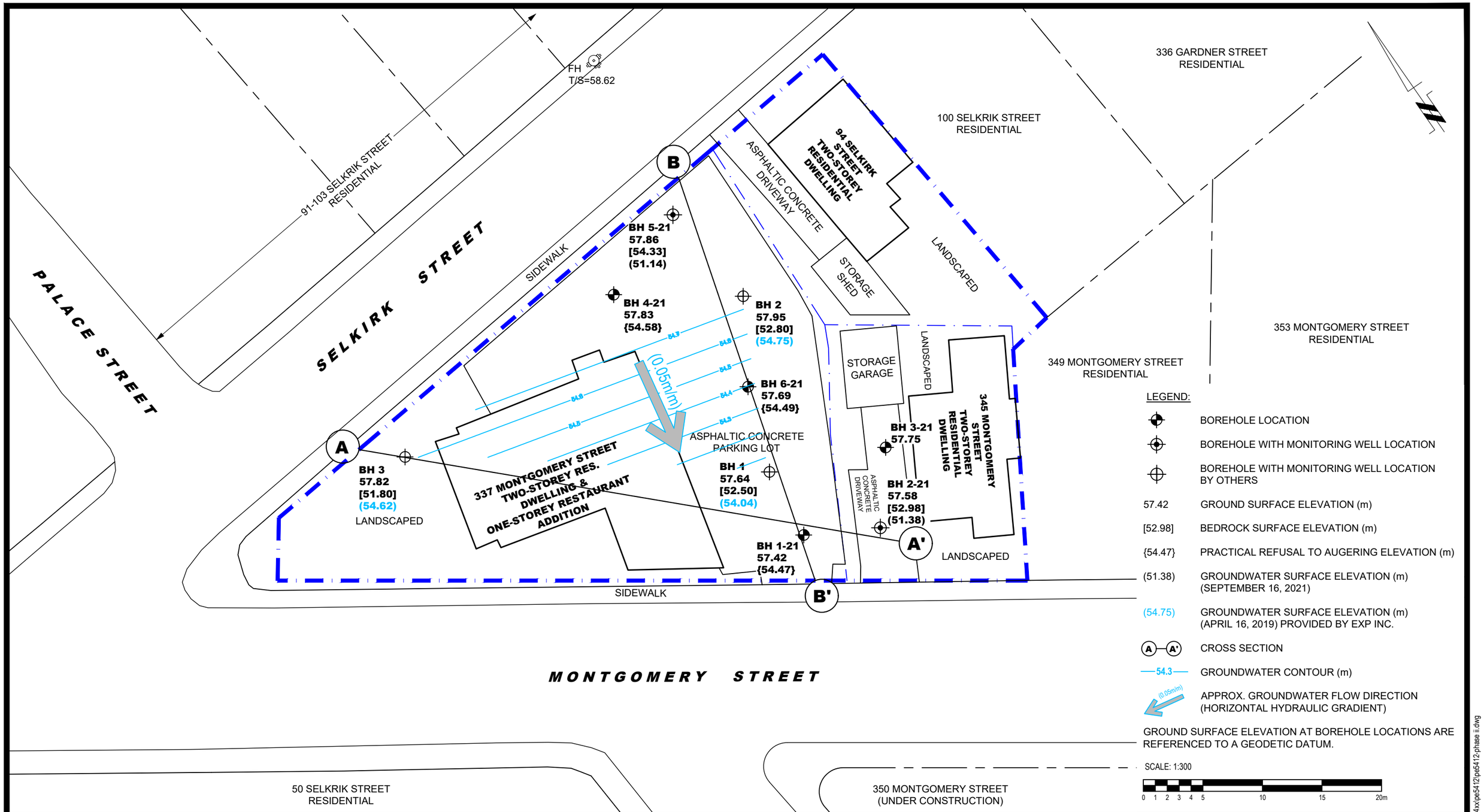


FIGURE 1

KEY PLAN



LEGEND:

- BOREHOLE LOCATION
- BOREHOLE WITH MONITORING WELL LOCATION
- BOREHOLE WITH MONITORING WELL LOCATION BY OTHERS
- 57.42 GROUND SURFACE ELEVATION (m)
- [52.98] BEDROCK SURFACE ELEVATION (m)
- {54.47} PRACTICAL REFUSAL TO AUGERING ELEVATION (m)
- (51.38) GROUNDWATER SURFACE ELEVATION (m) (SEPTEMBER 16, 2021)
- (54.75) GROUNDWATER SURFACE ELEVATION (m) (APRIL 16, 2019) PROVIDED BY EXP INC.
- A—A' CROSS SECTION
- 54.3 GROUNDWATER CONTOUR (m)
- (0.05m/m) APPROX. GROUNDWATER FLOW DIRECTION (HORIZONTAL HYDRAULIC GRADIENT)

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

SCALE: 1:300

0 1 2 3 4 5 10 15 20m

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NO.	REVISIONS	DATE	INITIAL

SERCO REALTY GROUP

GEOTECHNICAL INVESTIGATION

337 AND 345 MONTGOMERY STREET AND 94 SELKIRK STREET

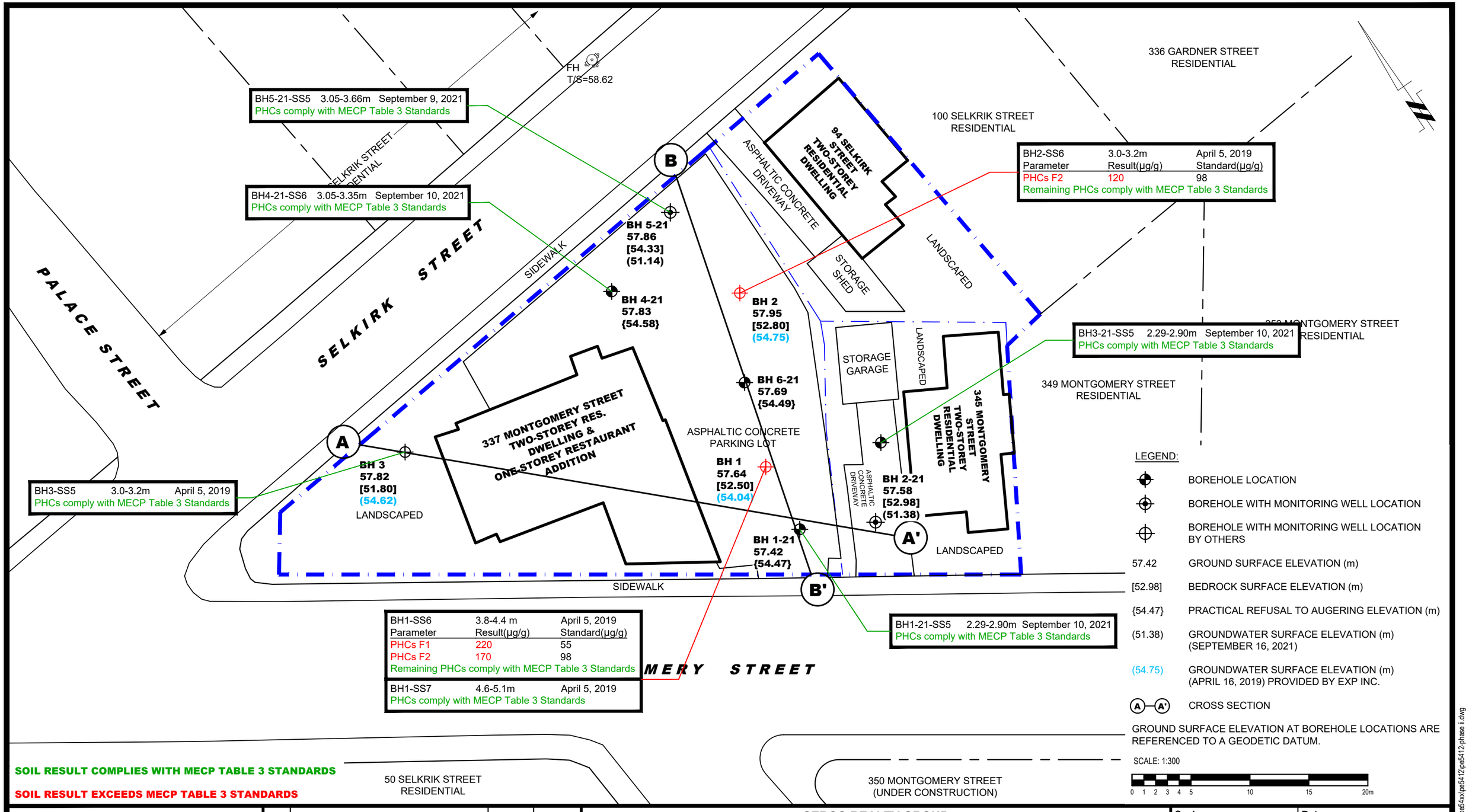
OTTAWA, ONTARIO

Title:

TEST HOLE LOCATION PLAN

Scale: 1:300	Date: 11/2021
Drawn by: YA	Report No.: PE5412-2
Checked by: NS	Dwg. No.: PE5412-3
Approved by: MSD	Revision No.:

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GEOTECHNICAL INVESTIGATION

337 AND 345 MONTGOMERY STREET AND 94 SELKIRK STREET

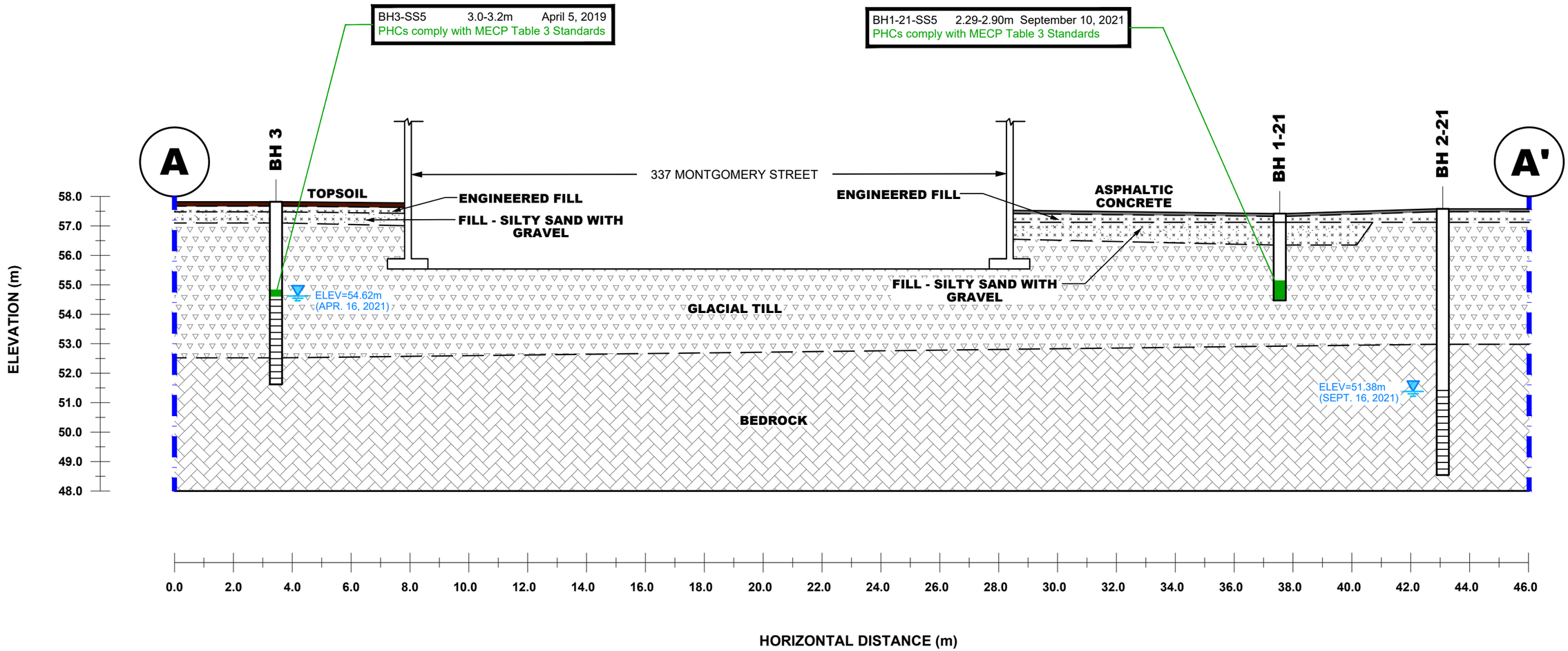
OTTAWA, ONTARIO

Title:

ANALYTICAL TESTING PLAN - SOIL (PHCs)

Scale: 1:300	Date: 11/2021
Drawn by: YA	Report No.: PE5412-2
Checked by: NS	Dwg. No.: PE5412-4
Approved by: MSD	Revision No.:

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SOIL RESULT COMPLIES WITH MECP TABLE 3 STANDARDS

SOIL RESULT EXCEEDS MECP TABLE 3 STANDARDS

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NO.	REVISIONS	DATE	INITIAL

SERCO REALTY GROUP

GEOTECHNICAL INVESTIGATION

337 AND 345 MONTGOMERY STREET AND 94 SELKIRK STREET

OTTAWA, ONTARIO

Title:

CROSS SECTION A-A' - SOIL (PHCs)

Scale: AS SHOWN	Date: 11/2021
Drawn by: YA	Report No.: PE5412-2
Checked by: NS	Dwg. No.: PE5412-4A
Approved by: MSD	Revision No.:

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BH5-21-SS5 3.05-3.66m September 9, 2021
PHCs comply with MECP Table 3 Standards

BH2-SS6	3.0-3.2m	April 5, 2019
Parameter	Result(µg/g)	Standard(µg/g)
PHCs F2	120	98

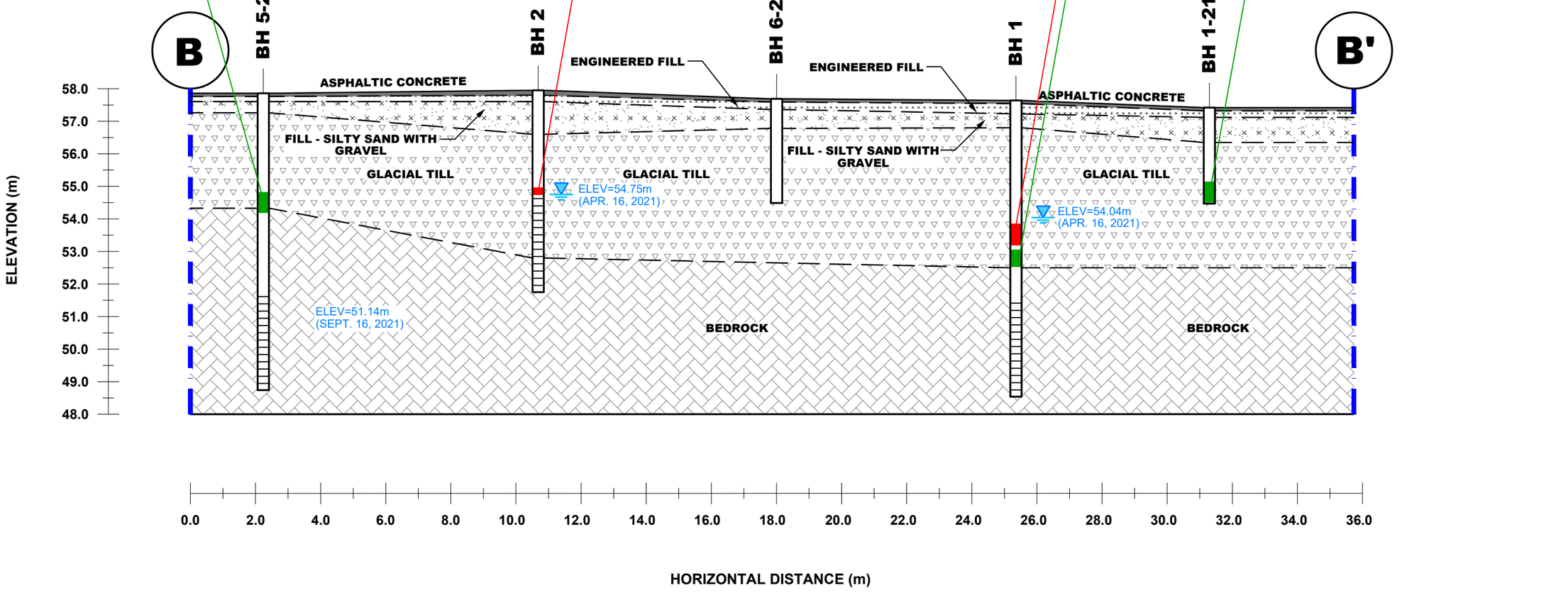
Remaining PHCs comply with MECP Table 3 Standards

BH1-SS6	3.8-4.4 m	April 5, 2019
Parameter	Result(µg/g)	Standard(µg/g)
PHCs F1	220	55
PHCs F2	170	98

Remaining PHCs comply with MECP Table 3 Standards

BH1-SS7 4.6-5.1m April 5, 2019
PHCs comply with MECP Table 3 Standards

BH1-21-SS5 2.29-2.90m September 10, 2021
PHCs comply with MECP Table 3 Standards



SOIL RESULT COMPLIES WITH MECP TABLE 3 STANDARDS

SOIL RESULT EXCEEDS MECP TABLE 3 STANDARDS

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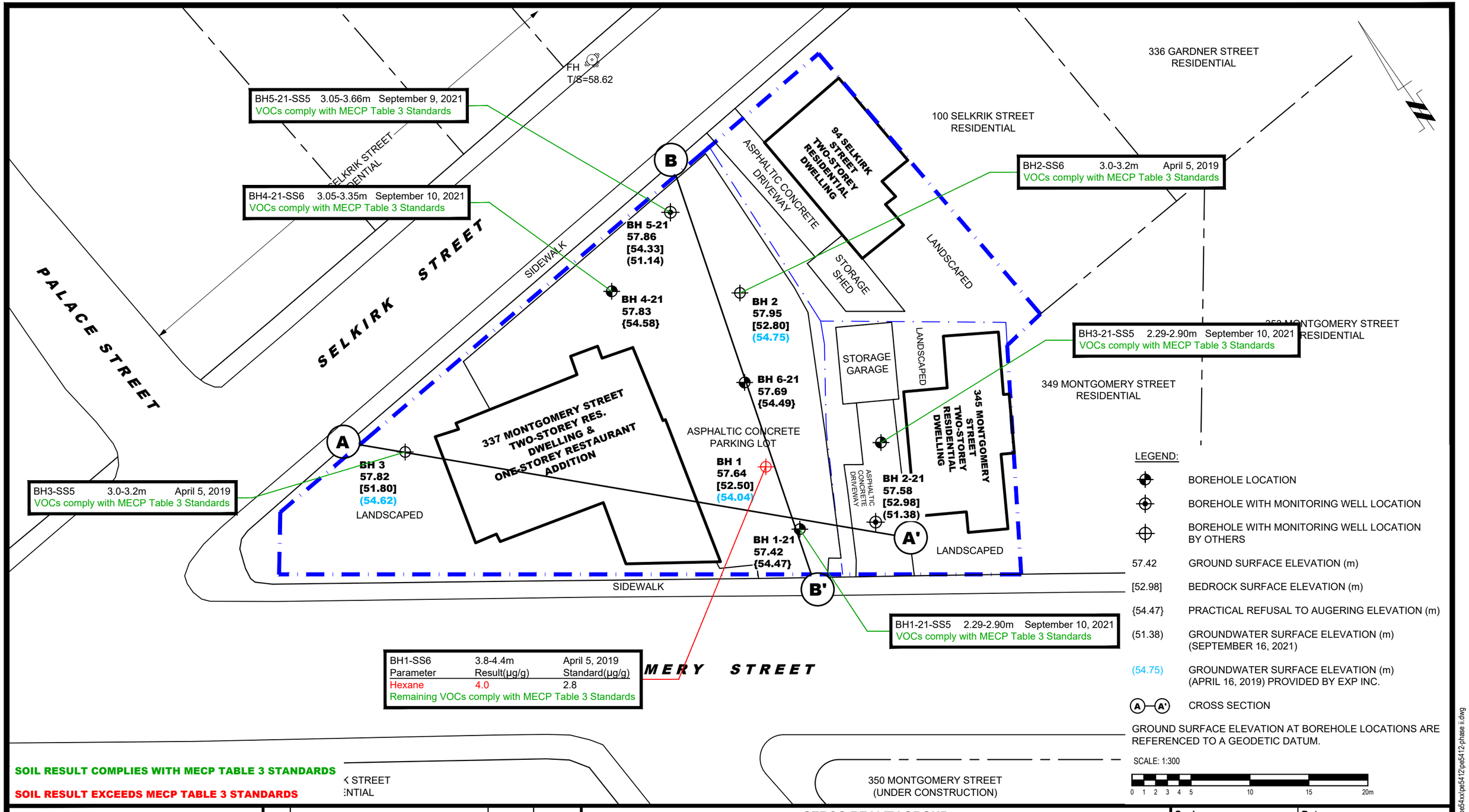
OTTAWA, ONTARIO

Title:

CROSS SECTION B-B' - SOIL (PHCs)

Scale: AS SHOWN	Date: 11/2021
Drawn by: YA	Report No.: PE5412-2
Checked by: NS	Dwg. No.: PE5412-4B
Approved by: MSD	Revision No.:

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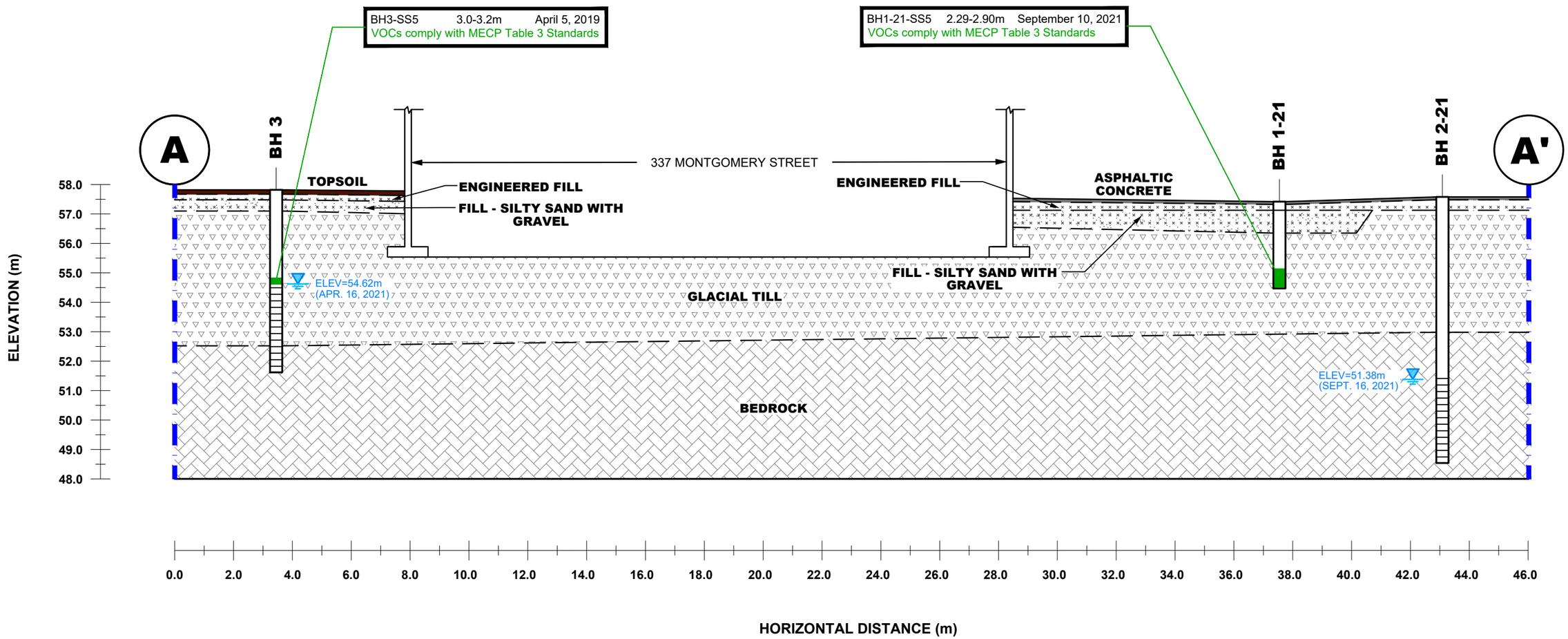
OTTAWA, ONTARIO

Title:

ANALYTICAL TESTING PLAN - SOIL (VOCs)

Scale: 1:300	Date: 11/2021
Drawn by: YA	Report No.: PE5412-2
Checked by: NS	Dwg. No.: PE5412-5
Approved by: MSD	Revision No.:

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SOIL RESULT EXCEEDS MECP TABLE 3 STANDARDS

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Title:

CROSS SECTION A-A' - SOIL (VOCs)

Scale: AS SHOWN	Date: 11/2021
Drawn by: YA	Report No.: PE5412-2
Checked by: NS	Dwg. No.: PE5412-5A
Approved by: MSD	Revision No.:

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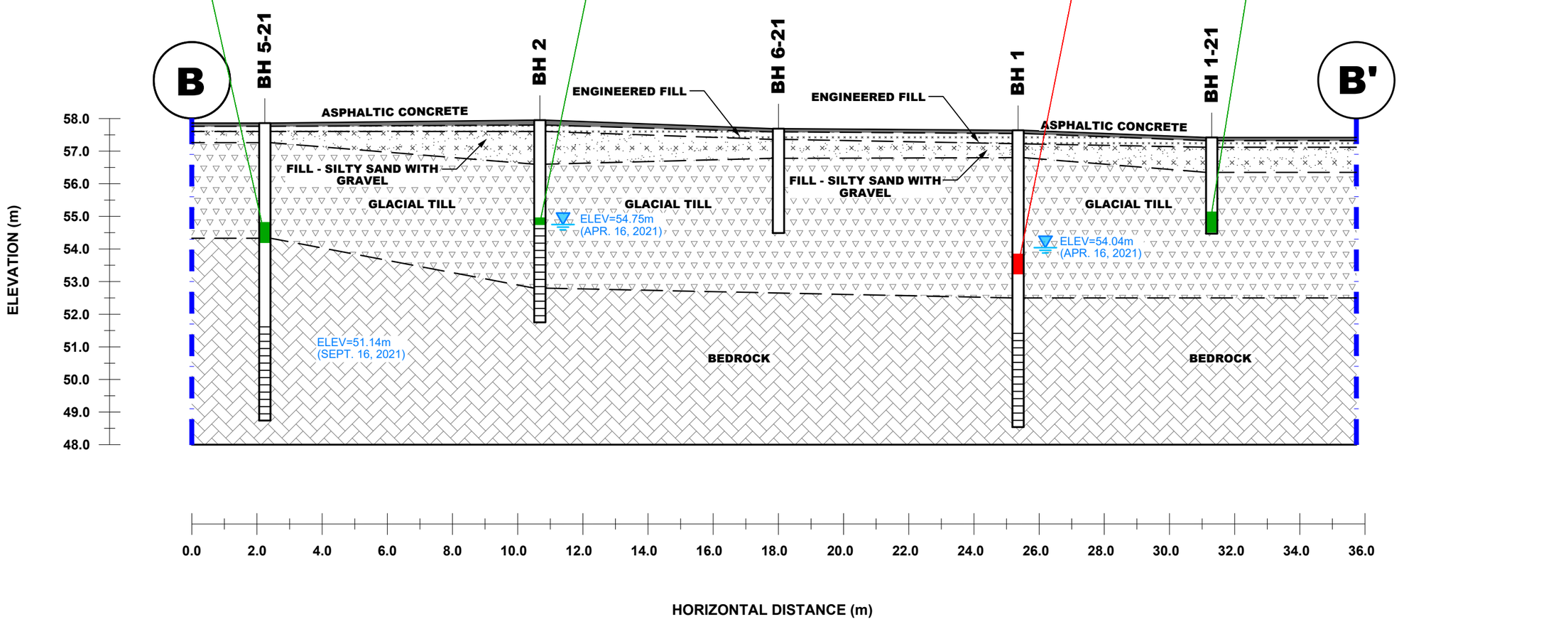
BH5-21-SS5 3.05-3.66m September 9, 2021
VOCs comply with MECP Table 3 Standards

BH2-SS6 3.0-3.2m April 5, 2019
VOCs comply with MECP Table 3 Standards

BH1-SS6	3.8-4.4m	April 5, 2019
Parameter	Result(µg/g)	Standard(µg/g)
Hexane	4.0	2.8

Remaining VOCs comply with MECP Table 3 Standards

BH1-21-SS5 2.29-2.90m September 10, 2021
VOCs comply with MECP Table 3 Standards



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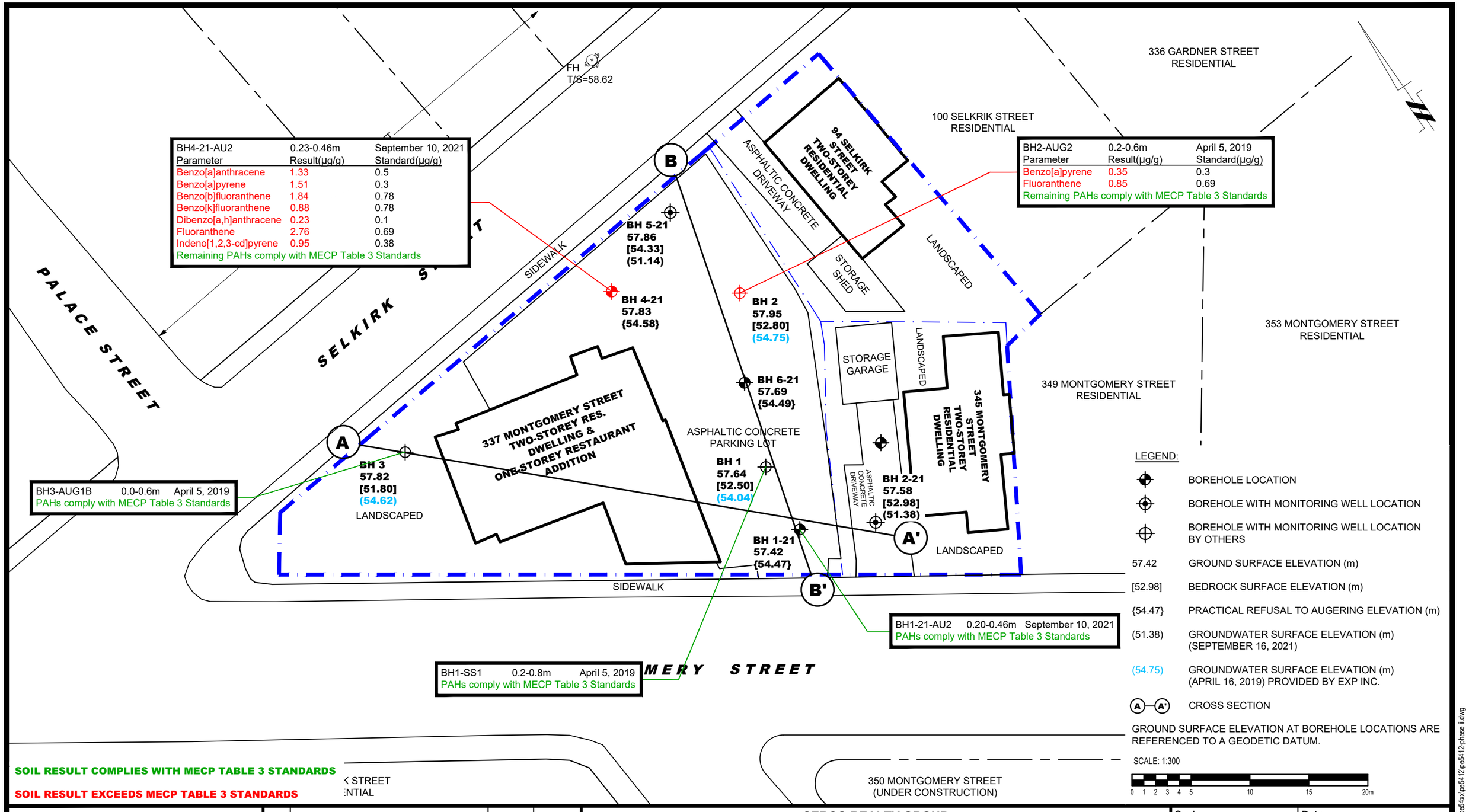
OTTAWA, ONTARIO

Title:

CROSS SECTION B-B' - SOIL (VOCs)

Scale: AS SHOWN	Date: 11/2021
Drawn by: YA	Report No.: PE5412-2
Checked by: NS	Dwg. No.: PE5412-5B
Approved by: MSD	Revision No.:

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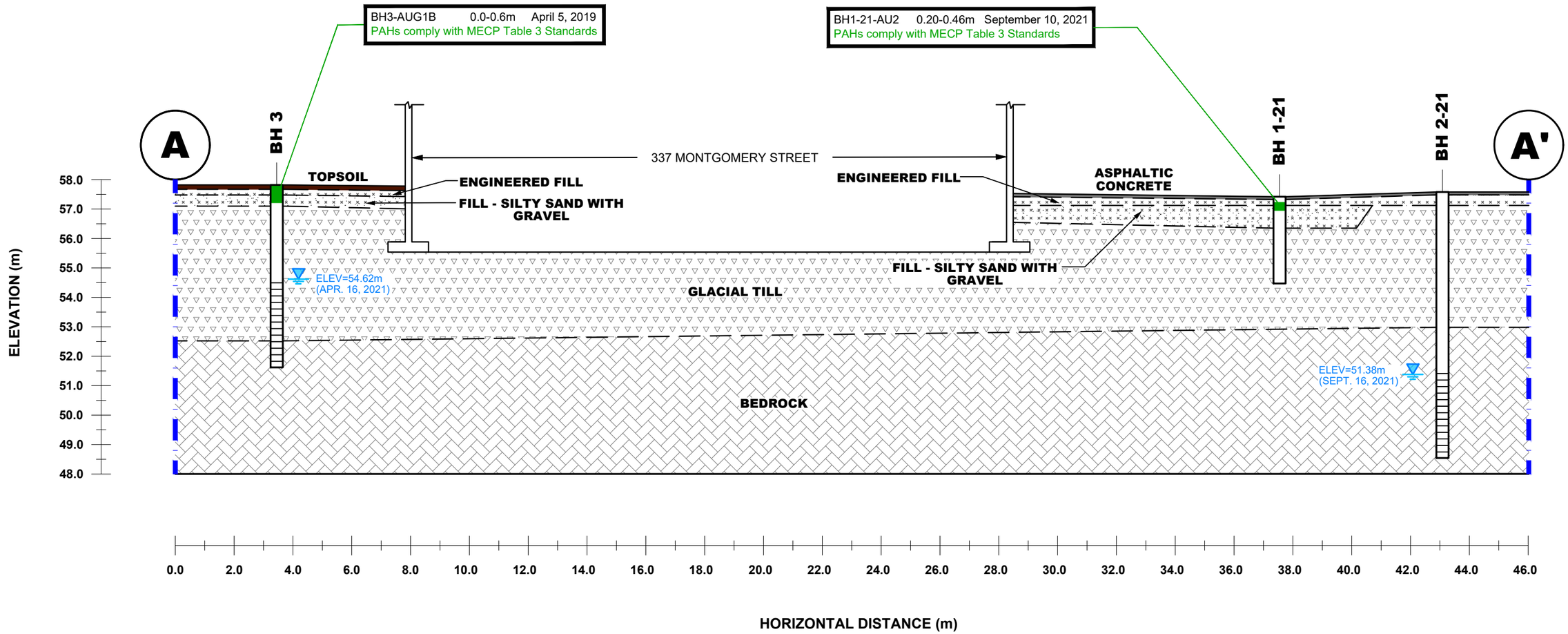
OTTAWA, ONTARIO

Title:

ANALYTICAL TESTING PLAN - SOIL (PAHs)

Scale: 1:300	Date: 11/2021
Drawn by: YA	Report No.: PE5412-2
Checked by: NS	Dwg. No.: PE5412-6
Approved by: MSD	Revision No.:

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SOIL RESULT COMPLIES WITH MECP TABLE 3 STANDARDS

SOIL RESULT EXCEEDS MECP TABLE 3 STANDARDS

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337 AND 345 MONTGOMERY STREET AND 94 SELKIRK STREET

OTTAWA, ONTARIO

Title:

CROSS SECTION A-A' - SOIL (PAHs)

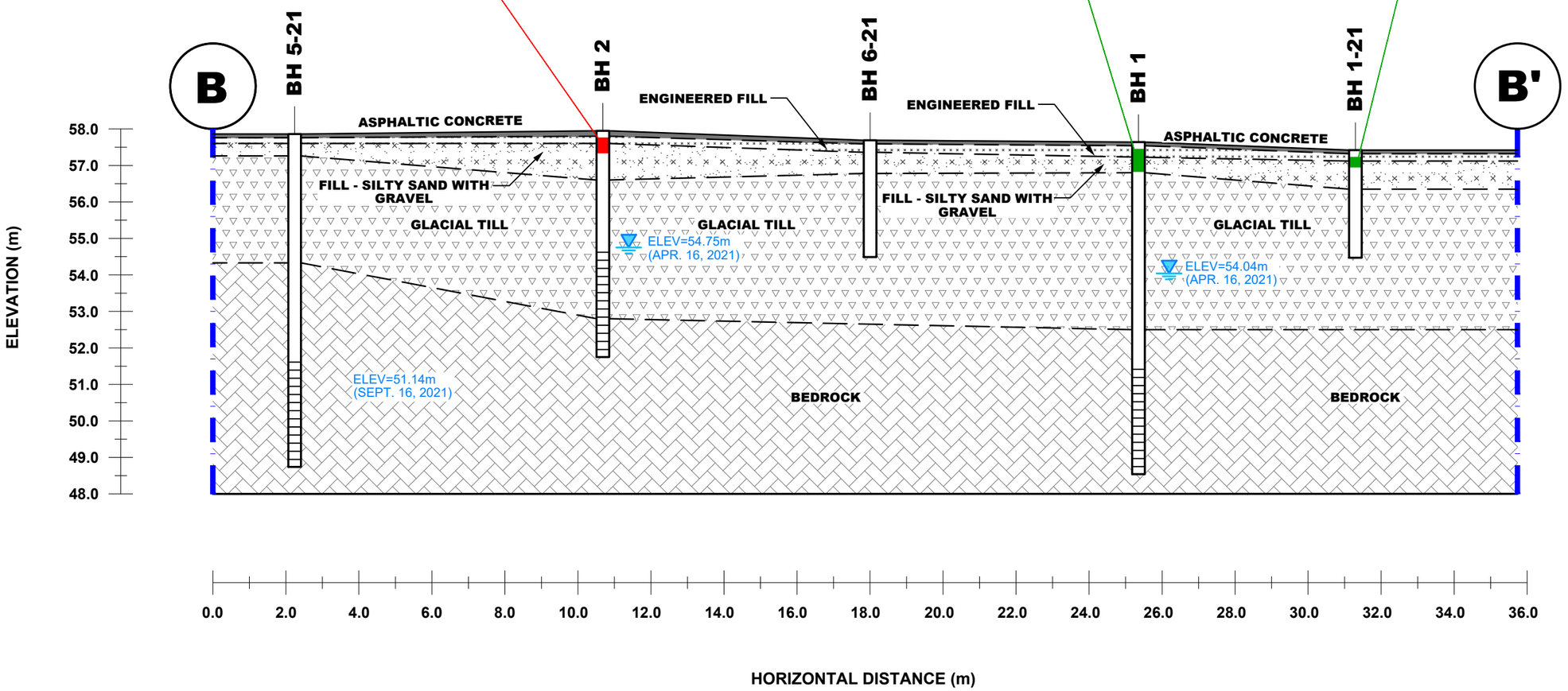
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Drawn by: YA	Report No.: PE5412-2
Checked by: NS	Dwg. No.: PE5412-6A
Approved by: MSD	Revision No.:

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BH2-AUG2	0.2-0.6m	April 5, 2019
Parameter	Result(µg/g)	Standard(µg/g)
Benzo[a]pyrene	0.35	0.3
Fluoranthene	0.85	0.69
Remaining PAHs comply with MECP Table 3 Standards		

BH1-SS1 0.2-0.8m April 5, 2019
PAHs comply with MECP Table 3 Standards

BH1-21-AU2 0.20-0.46m September 10, 2021
PAHs comply with MECP Table 3 Standards



SOIL RESULT COMPLIES WITH MECP TABLE 3 STANDARDS

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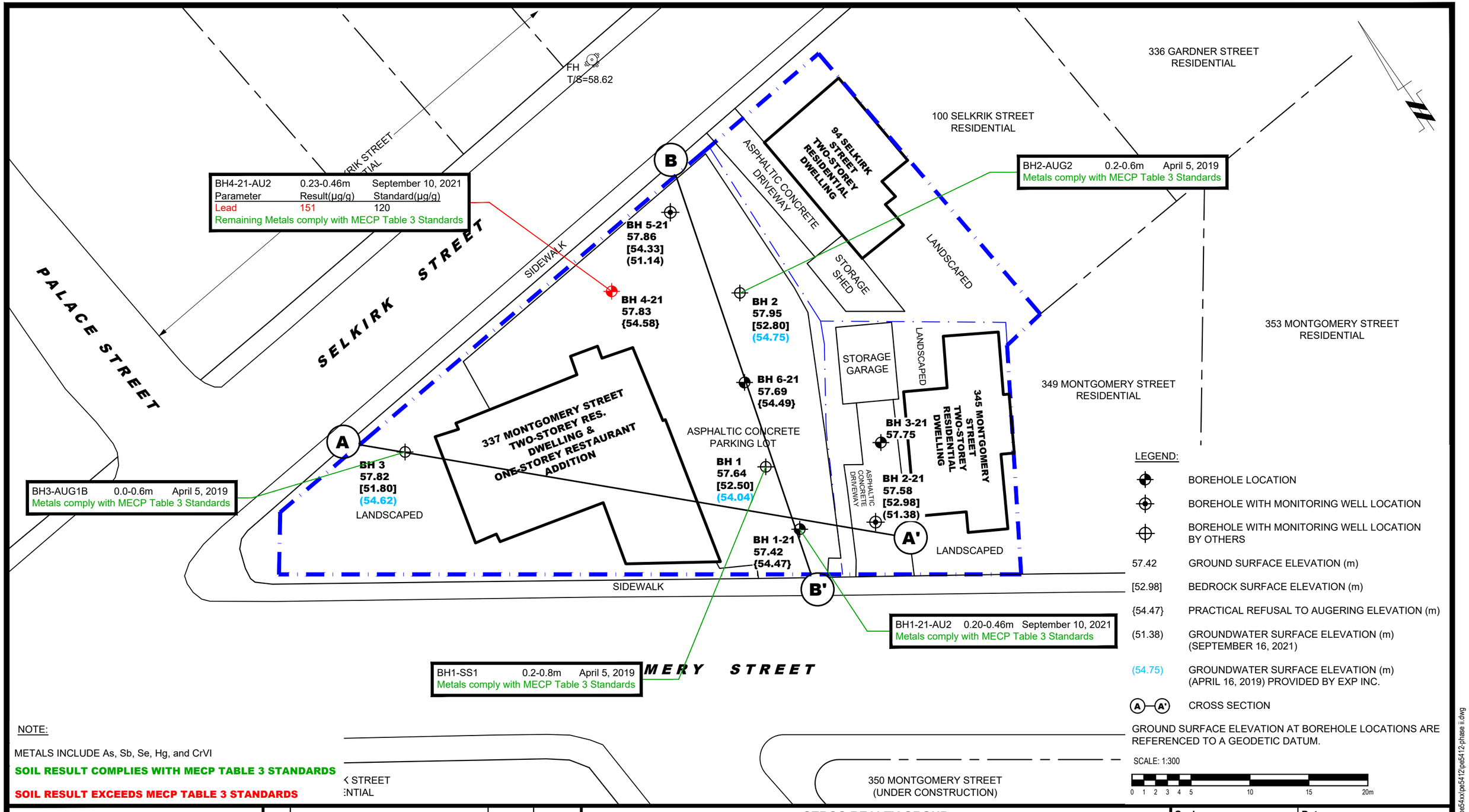
OTTAWA, ONTARIO

Title:

CROSS SECTION B-B' - SOIL (PAHs)

Scale: AS SHOWN	Date: 11/2021
Drawn by: YA	Report No.: PE5412-2
Checked by: NS	Dwg. No.: PE5412-6B
Approved by: MSD	Revision No.:

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NOTE:

METALS INCLUDE As, Sb, Se, Hg, and CrVI

SOIL RESULT COMPLIES WITH MECP TABLE 3 STANDARDS

SOIL RESULT EXCEEDS MECP TABLE 3 STANDARDS

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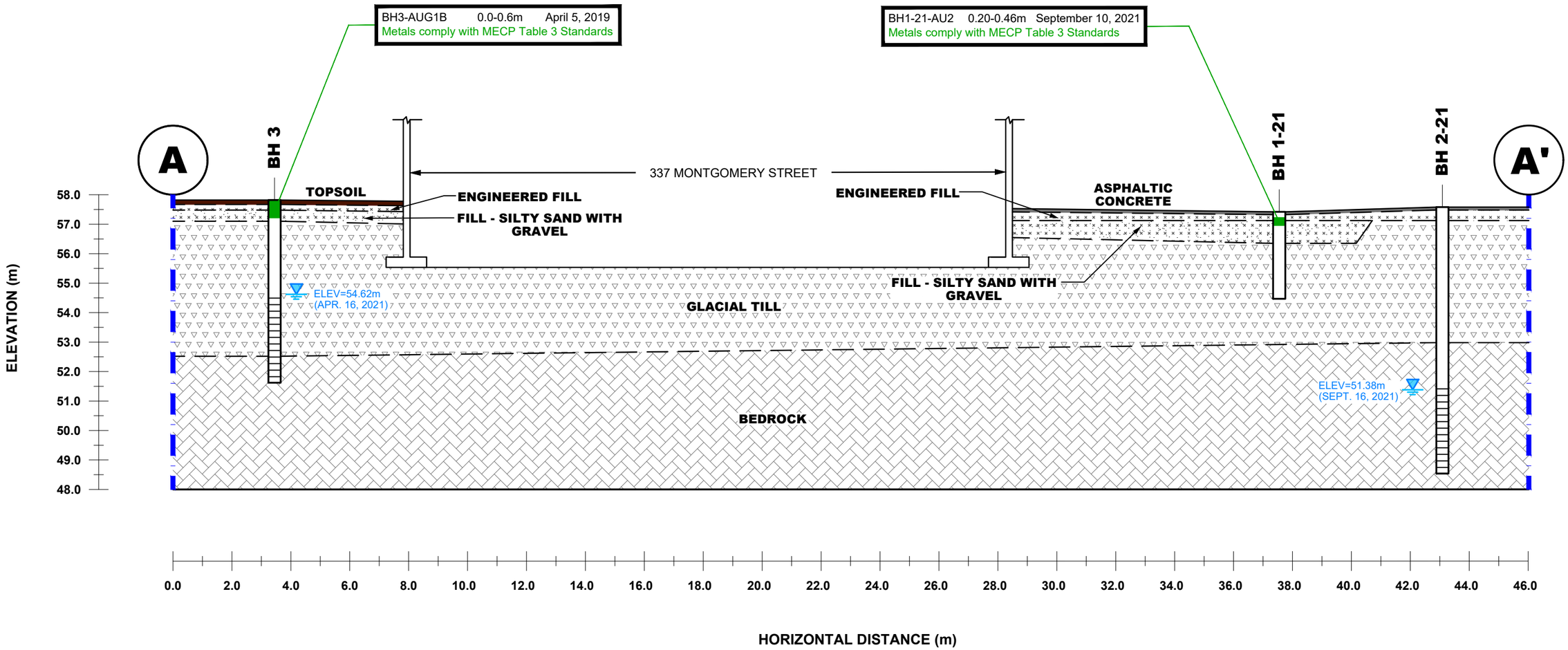
OTTAWA, ONTARIO

Title:

ANALYTICAL TESTING PLAN - SOIL (METALS)

Scale: 1:300	Date: 11/2021
Drawn by: YA	Report No.: PE5412-2
Checked by: NS	Dwg. No.: PE5412-7
Approved by: MSD	Revision No.:

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SOIL RESULT COMPLIES WITH MECP TABLE 3 STANDARDS

SOIL RESULT EXCEEDS MECP TABLE 3 STANDARDS

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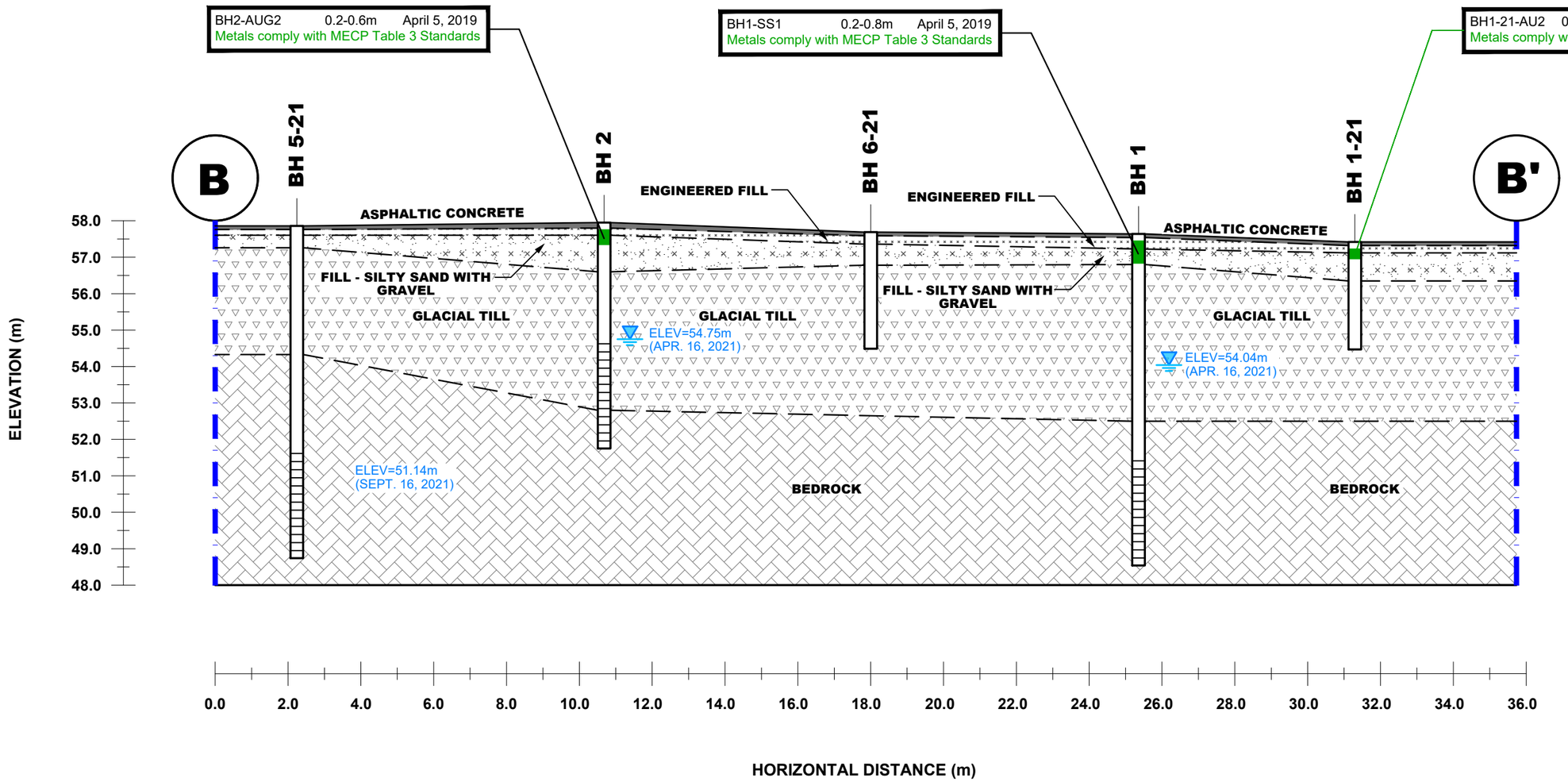
OTTAWA, ONTARIO

Title:

CROSS SECTION A-A' - SOIL (METALS)

Scale: AS SHOWN	Date: 11/2021
Drawn by: YA	Report No.: PE5412-2
Checked by: NS	Dwg. No.: PE5412-7A
Approved by: MSD	Revision No.:

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SOIL RESULT COMPLIES WITH MECP TABLE 3 STANDARDS

SOIL RESULT EXCEEDS MECP TABLE 3 STANDARDS

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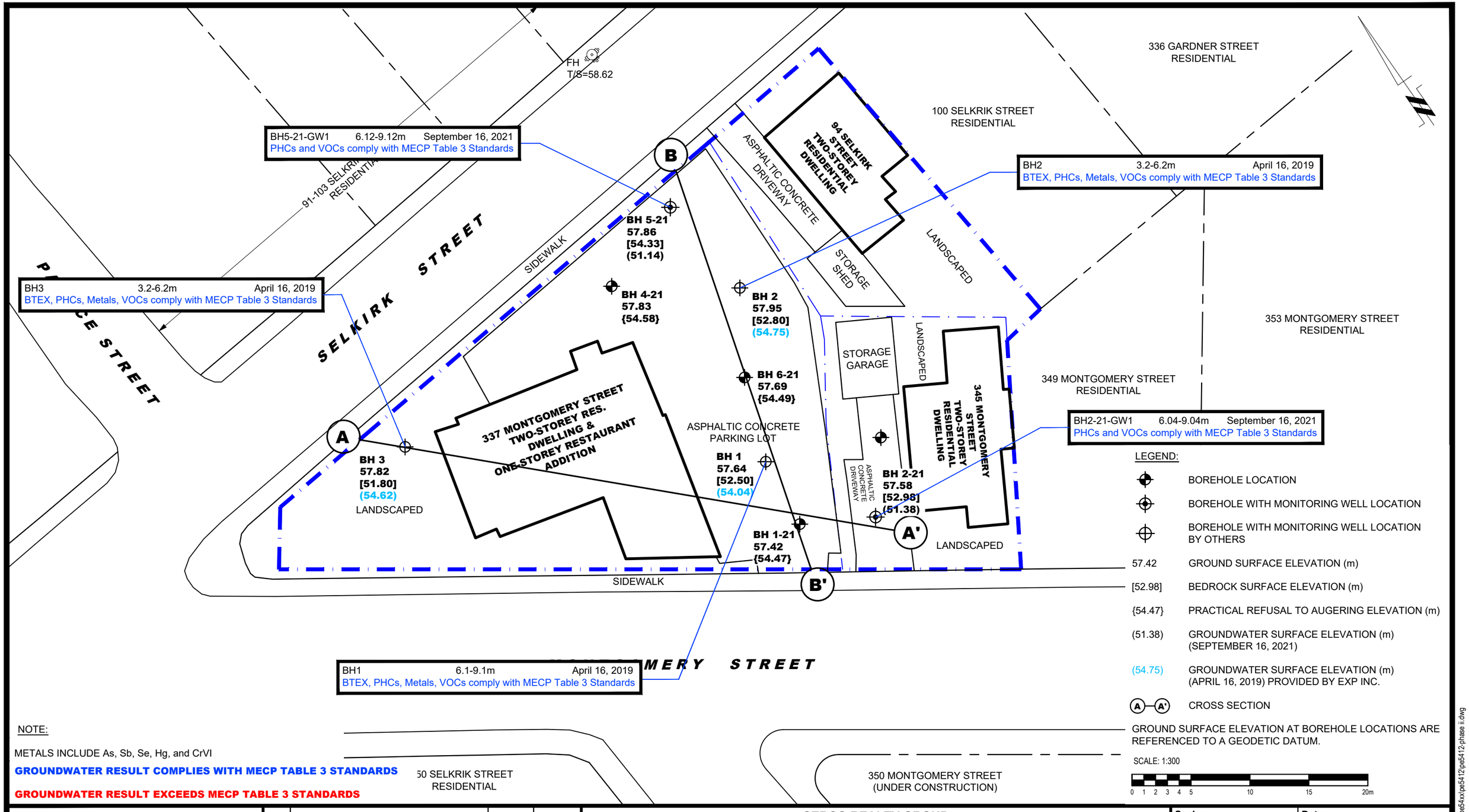
OTTAWA, ONTARIO

Title:

CROSS SECTION B-B' - SOIL (METALS)

Scale: AS SHOWN	Date: 11/2021
Drawn by: YA	Report No.: PE5412-2
Checked by: NS	Dwg. No.: PE5412-7B
Approved by: MSD	Revision No.:

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NOTE:

METALS INCLUDE As, Sb, Se, Hg, and CrVI

GROUNDWATER RESULT COMPLIES WITH MECP TABLE 3 STANDARDS

GROUNDWATER RESULT EXCEEDS MECP TABLE 3 STANDARDS

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337 AND 345 MONTGOMERY STREET AND 94 SELKIRK STREET

OTTAWA, ONTARIO

Title:

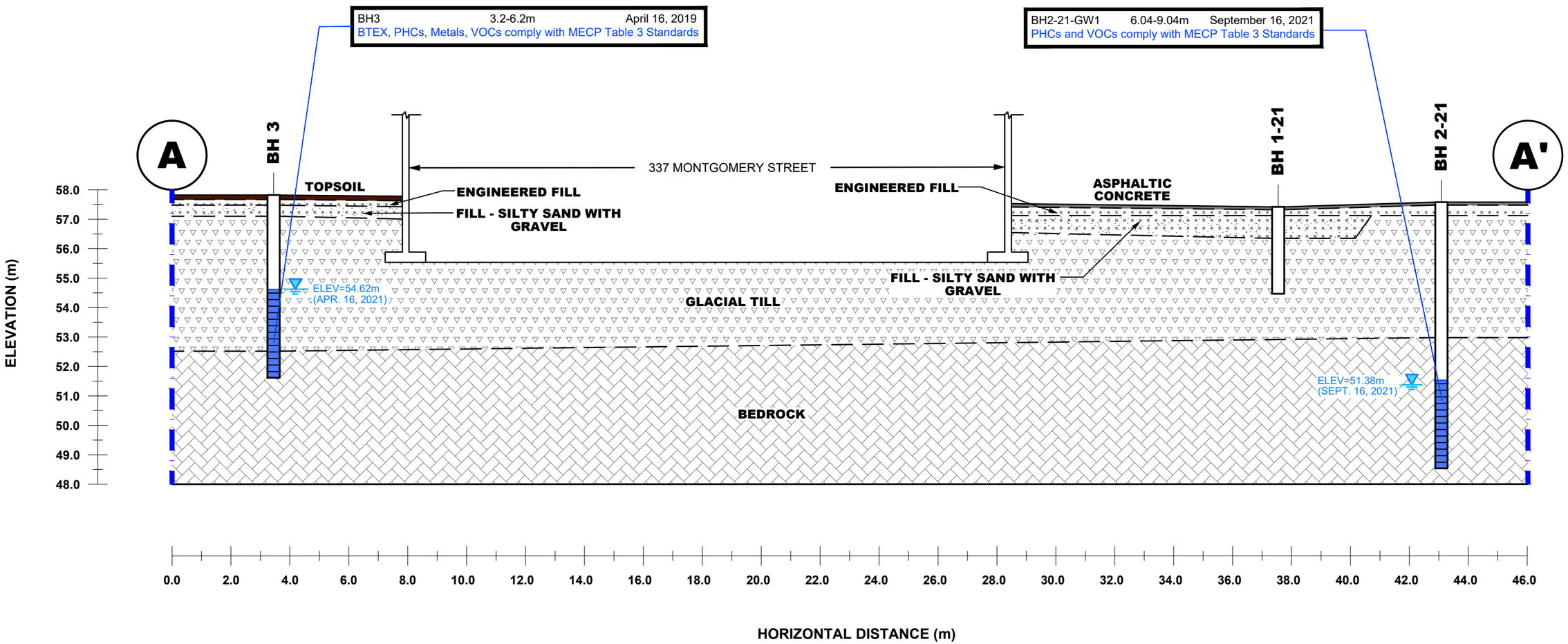
ANALYTICAL TESTING PLAN - GROUNDWATER (BTEX, PHCs, METALS, VOCs)

Scale: 1:300	**Date:** 11/2021
Drawn by: YA	**Report No.:** PE5412-2
Checked by: NS	**Dwg. No.:** PE5412-8
Approved by: MSD	**Revision No.:**

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BH3 3.2-6.2m April 16, 2019
BTEX, PHCs, Metals, VOCs comply with MECP Table 3 Standards

BH2-21-GW1 6.04-9.04m September 16, 2021
PHCs and VOCs comply with MECP Table 3 Standards



GROUNDWATER RESULT COMPLIES WITH MECP TABLE 3 STANDARDS

GROUNDWATER RESULT EXCEEDS MECP TABLE 3 STANDARDS

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337 AND 345 MONTGOMERY STREET AND 94 SELKIRK STREET

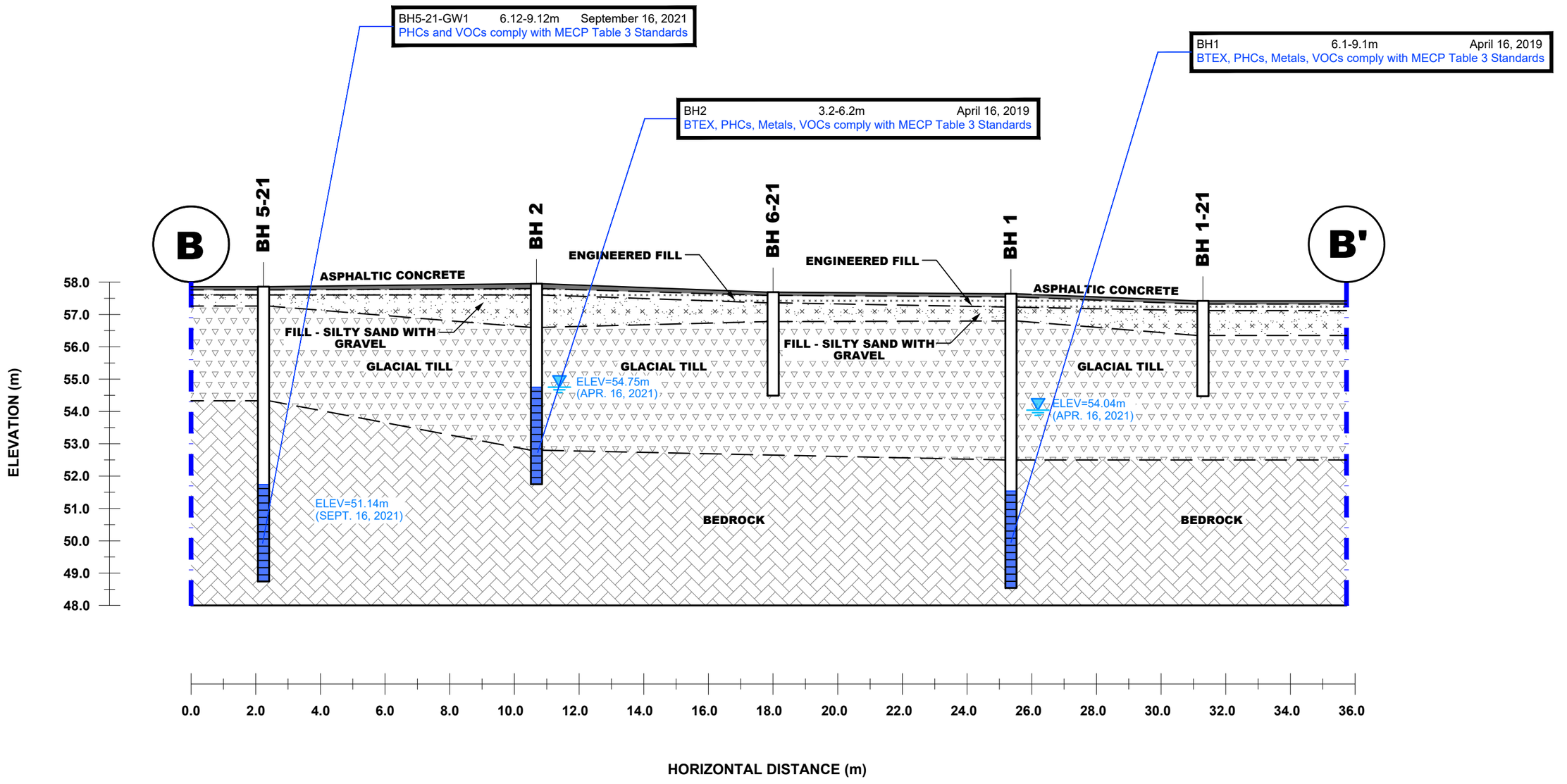
OTTAWA, ONTARIO

Title:

CROSS SECTION A-A' - GROUNDWATER (BTEX, PHCs, METALS, VOCs)

Scale: AS SHOWN	Date: 11/2021
Drawn by: YA	Report No.: PE5412-2
Checked by: NS	Dwg. No.: PE5412-8A
Approved by: MSD	Revision No.:

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GROUNDWATER RESULT COMPLIES WITH MECP TABLE 3 STANDARDS

GROUNDWATER RESULT EXCEEDS MECP TABLE 3 STANDARDS

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337 AND 345 MONTGOMERY STREET AND 94 SELKIRK STREET

OTTAWA, ONTARIO

Title:

CROSS SECTION B-B' - GROUNDWATER (BTEX, PHCs, METALS, VOCs)

Scale: AS SHOWN	Date: 11/2021
Drawn by: YA	Report No.: PE5412-2
Checked by: NS	Dwg. No.: **PE5412-8B**
Approved by: MSD	Revision No.:

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APPENDIX 1

SAMPLING AND ANALYSIS PLAN

SOIL PROFILE AND TEST DATA SHEETS

SYMBOLS AND TERMS

LABORATORY CERTIFICATES OF ANALYSIS

Geotechnical Engineering

Environmental Engineering

Hydrogeology

Geological Engineering

Materials Testing

Building Science

patersongroup

Sampling & Analysis Plan

Phase II – Environmental Site Assessment
337 & 345 Montgomery Street
and 94 Selkirk Street
Ottawa, Ontario

Prepared For

Serco Realty Group

September 1, 2021

Report: PE5412-SAP

Paterson Group Inc.

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2.0 ANALYTICAL TESTING PROGRAM 2
3.0 STANDARD OPERATING PROCEDURES 3
3.1 Environmental Drilling Procedure 3
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1.0 SAMPLING PROGRAM

Paterson Group Inc. (Paterson) was commissioned by Serco Realty Group, to conduct a Phase II – Environmental Site Assessment (Phase II ESA) for the properties addressed 337 & 345 Montgomery Street and 94 Selkirk Street, 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
BH1-21	Southern portion of Phase I Property; to assess for potential impacts resulting from the presence of fill material of unknown quality and to delineate previously identified soil contamination.	Drill to bedrock; for geotechnical and general coverage purposes.
BH2-21	Southern portion of Phase I Property; to assess for potential impacts resulting from a former off-site auto service garage.	Core into bedrock to approximate depth of 8 to 10 m below grade; to intercept the groundwater table for the purpose of installing a groundwater monitoring well.
BH3-21	Eastern portion of Phase I Property; to delineate previously identified soil impacts.	Drill to bedrock; for geotechnical and general coverage purposes.
BH4-21	Northern portion of Phase I Property; to assess for potential impacts resulting from the presence of fill material of unknown quality to delineate previously identified soil contamination.	Drill to bedrock; for geotechnical and general coverage purposes.
BH5-21	Northern portion of Phase I Property; to assess for potential impacts resulting from previously identified soil contamination.	Core into bedrock to approximate depth of 8 to 10 m below grade; to intercept the groundwater table for the purpose of installing a groundwater monitoring well.
BH6-21	Central portion of Phase I Property; to assess for potential impacts resulting from the presence of fill material of unknown quality and previously identified soil contamination.	Drill to bedrock; for geotechnical and general coverage purposes.

Borehole locations are shown on Drawing PE5412-3 – 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 BH2-21 and BH5-21 for the collection of groundwater samples.

2.0 ANALYTICAL TESTING PROGRAM

The analytical testing program for soil at the Phase I Property 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 soil at the Phase I Property 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

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.

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154 Colonnade Road South, Ottawa, Ontario K2E 7J5

SOIL PROFILE AND TEST DATA

Phase II - Environmental Site Assessment
337 & 345 Montgomery St. and 94 Selkirk Street
Ottawa, Ontario

DATUM Geodetic

FILE NO. PE5412

REMARKS

HOLE NO. BH 1-21

BORINGS BY CME-55 Low Clearance Drill **DATE** September 10, 2021

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Photo Ionization Detector: Volatile Organic Rdg. (ppm) / Lower Explosive Limit %	Monitoring Well Construction
GROUND SURFACE									
Asphaltic concrete 0.05		AU	1			0	57.42		
FILL: Dark brown silty sand with crushed stone and gravel, trace clay, concrete and brick		AU	2						
1.07		SS	3	71	19	1	56.42		
GLACIAL TILL: Compact to very dense, brown silty sand with gravel, cobbles and boulders		SS	4	78	50+				
		SS	5	40	50+	2	55.42		
2.95									
End of Borehole									
Practical refusal to augering at 2.95m depth									

Photo Ionization Detector: ● Volatile Organic Rdg. (ppm); ○ Lower Explosive Limit %

20 40 60 80

100 200 300 400 500

RKI Eagle Rdg. (ppm)

▲ Full Gas Resp. △ Methane Elim.

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SOIL PROFILE AND TEST DATA

Phase II - Environmental Site Assessment
337 & 345 Montgomery St. and 94 Selkirk Street
Ottawa, Ontario

DATUM Geodetic

FILE NO. PE5412

REMARKS

HOLE NO. BH 2-21

BORINGS BY CME-55 Low Clearance Drill **DATE** September 9, 2021

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE							
Asphaltic concrete 0.08		AU	1			0	57.58
		SS	2			1	56.58
GLACIAL TILL: Very dense, brown silty sand with gravel, cobbles and boulders		SS	3		76	2	55.58
		SS	4		50+	3	54.58
		RC	1	28		4	53.58
4.60						5	52.58
BEDROCK: Fair to excellent quality, grey interbedded limestone and shale		RC	2	50	50	6	51.58
		RC	3	98	82	7	50.58
		RC	4	100	90	8	49.58
9.04						9	48.58
End of Borehole							
(GWL @ 6.20m - Sept. 16, 2021)							

Photo Ionization Detector

● Volatile Organic Rdg. (ppm)

○ **Lower Explosive Limit %**

20 40 60 80

100 200 300 400 500

RKI Eagle Rdg. (ppm)

▲ Full Gas Resp. △ Methane Elim.

Monitoring Well Construction

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SOIL PROFILE AND TEST DATA

Phase II - Environmental Site Assessment
337 & 345 Montgomery St. and 94 Selkirk Street
Ottawa, Ontario

DATUM Geodetic

FILE NO. PE5412

REMARKS

HOLE NO. BH 3-21

BORINGS BY CME-55 Low Clearance Drill **DATE** September 10, 2021

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Photo Ionization Detector: Volatile Organic Rdg. (ppm) / Lower Explosive Limit %	Monitoring Well Construction
GROUND SURFACE									
Asphaltic concrete 0.02		AU	1			0	57.75		
FILL: Dark brown silty sand with crushed stone and gravel 0.20		AU	2						
		SS	3	8	14	1	56.75		
GLACIAL TILL: Compact to very dense, brown silty sand to sandy silt with gravel, cobbles and boulders		SS	4	82	50+	2	55.75		
		SS	5	67	50+				
3.05						3	54.75		
End of Borehole									

Photo Ionization Detector: ● Volatile Organic Rdg. (ppm); ○ Lower Explosive Limit %

20 40 60 80

100 200 300 400 500

RKI Eagle Rdg. (ppm)

▲ Full Gas Resp. △ Methane Elim.

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SOIL PROFILE AND TEST DATA

Phase II - Environmental Site Assessment
337 & 345 Montgomery St. and 94 Selkirk Street
Ottawa, Ontario

DATUM Geodetic

FILE NO. PE5412

REMARKS

HOLE NO. BH 4-21

BORINGS BY CME-55 Low Clearance Drill **DATE** September 10, 2021

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Photo Ionization Detector: Volatile Organic Rdg. (ppm) / Lower Explosive Limit %	Monitoring Well Construction
GROUND SURFACE									
Asphaltic concrete 0.02		AU	1			0	57.83		
		AU	2						
FILL: Dark brown silty sand with crushed stone and gravel, trace clay 1.07		SS	3	62	20	1	56.83		
		SS	4	0	50+				
GLACIAL TILL: Compact to very dense, brown silty sand to sandy silt with gravel, cobbles and boulders		SS	5	44	50+	2	55.83		
3.25		SS	6	40	50+	3	54.83		
End of Borehole									
Practical refusal to augering at 3.25m depth									

Photo Ionization Detector: ○ Lower Explosive Limit % — 20 40 60 80

100 200 300 400 500

RKI Eagle Rdg. (ppm)

▲ Full Gas Resp. △ Methane Elim.

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SOIL PROFILE AND TEST DATA

Phase II - Environmental Site Assessment
337 & 345 Montgomery St. and 94 Selkirk Street
Ottawa, Ontario

DATUM Geodetic

FILE NO. PE5412

REMARKS

HOLE NO. BH 5-21

BORINGS BY CME-55 Low Clearance Drill **DATE** September 9, 2021

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE							
Asphaltic concrete 0.08						0	57.86
FILL: Brown silty sand with crushed stone and gravel 0.60		AU	1				
		SS	2	33	45	1	56.86
GLACIAL TILL: Dense to very dense, brown silty sand with gravel, cobbles and boulders		SS	3	25	50+	2	55.86
		SS	4	42	66		
3.53		SS	5	43	50+	3	54.86
		RC	1	78	73	4	53.86
		RC	2	95	54	5	52.86
BEDROCK: Fair quality, grey interbedded limestone and shale						6	51.86
		RC	3	95	53	7	50.86
		RC	4	100	75	8	49.86
9.12						9	48.86
End of Borehole							
(GWL @ 6.72m - Sept. 16, 2021)							

Photo Ionization Detector
● Volatile Organic Rdg. (ppm)

○ **Lower Explosive Limit %**

20 40 60 80

100 200 300 400 500

RKI Eagle Rdg. (ppm)

▲ Full Gas Resp. △ Methane Elim.

Monitoring Well Construction

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SOIL PROFILE AND TEST DATA

Phase II - Environmental Site Assessment
337 & 345 Montgomery St. and 94 Selkirk Street
Ottawa, Ontario

DATUM Geodetic

FILE NO. PE5412

REMARKS

HOLE NO. BH 6-21

BORINGS BY CME-55 Low Clearance Drill **DATE** September 10, 2021

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Photo Ionization Detector: Volatile Organic Rdg. (ppm) / Lower Explosive Limit %	Monitoring Well Construction
GROUND SURFACE									
Asphaltic concrete 0.05		AU	1			0	57.69		
FILL: Brown silty sand with crushed stone and gravel 0.23		AU	2						
FILL: Brown silty sand with clay, crushed stone, gravel and glass fragments 0.91		SS	3	52	55	1	56.69		
GLACIAL TILL: Very dense, dark brown silty sand to sandy silt with gravel, cobbles and boulders, trace clay		SS	4	67	71	2	55.69		
		SS	5	62	50+				
3.20		SS	6	29	50+	3	54.69		
End of Borehole									
Practical refusal to augering at 3.20m depth									

Photo Ionization Detector: ○ Lower Explosive Limit % (20, 40, 60, 80)

RKI Eagle Rdg. (ppm): 100, 200, 300, 400, 500

▲ Full Gas Resp. △ Methane Elim.

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 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

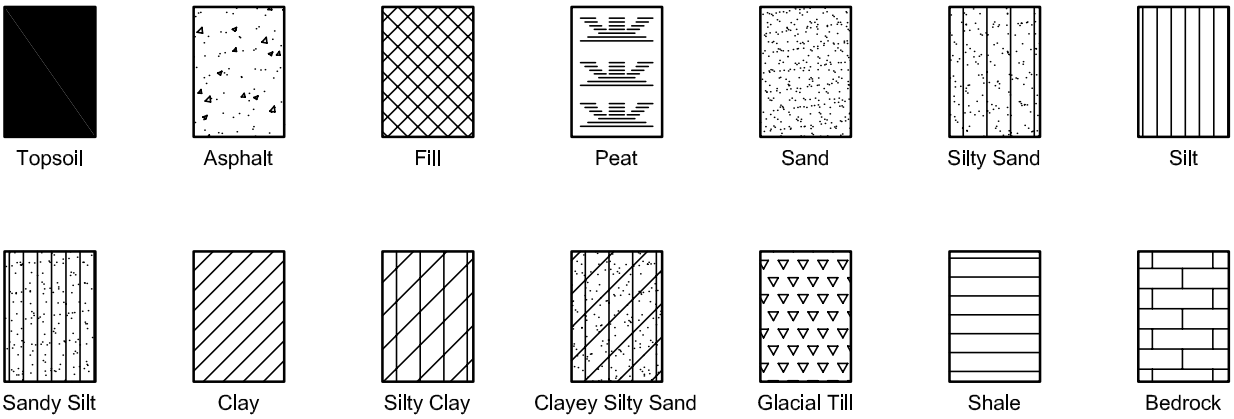
p'_o	-	Present effective overburden pressure at sample depth
p'_c	-	Preconsolidation pressure of (maximum past pressure on) sample
Ccr	-	Recompression index (in effect at pressures below p'_c)
Cc	-	Compression index (in effect at pressures above p'_c)
OC Ratio		Overconsolidaton ratio = p'_c / p'_o
Void 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.

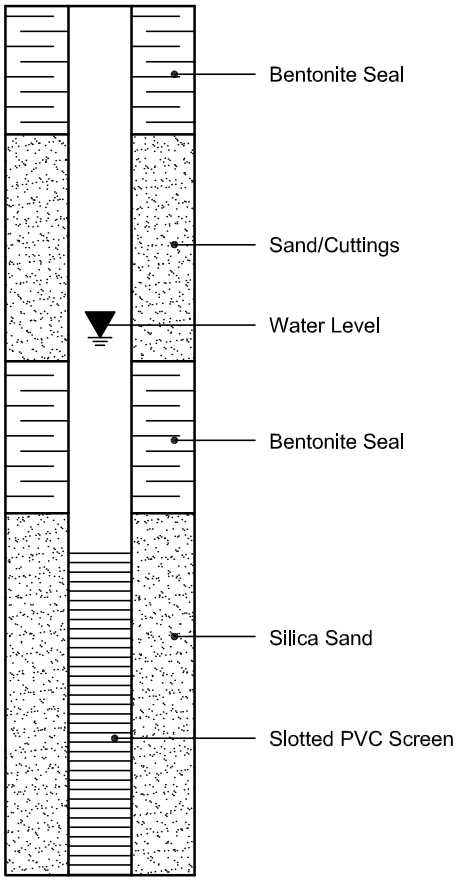
SYMBOLS AND TERMS (continued)

STRATA PLOT

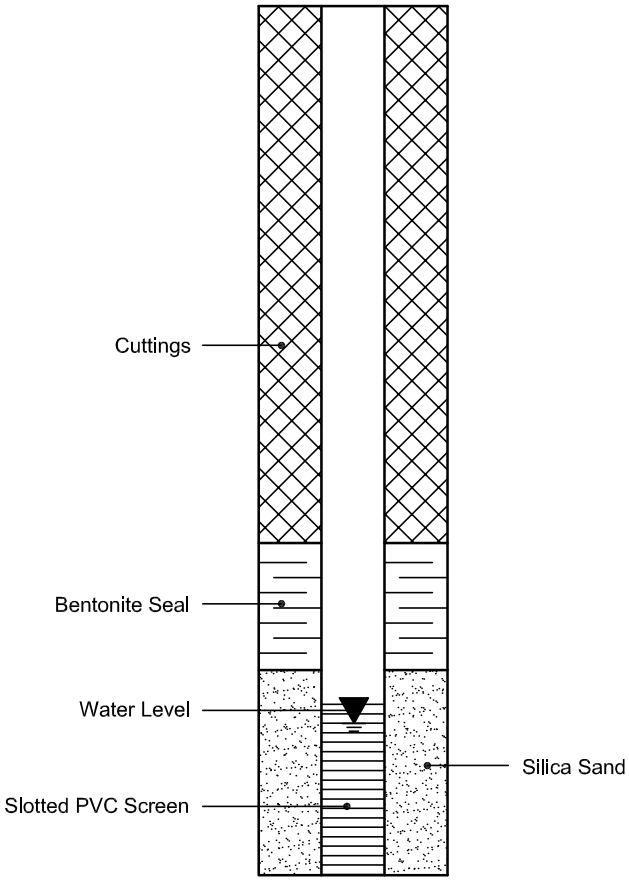


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Certificate of Analysis

Paterson Group Consulting Engineers

154 Colonnade Road South
Nepean, ON K2E 7J5
Attn: Nick Sullivan

Client PO: 33144
Project: PE5412
Custody: 133109

Report Date: 21-Sep-2021
Order Date: 15-Sep-2021

Order #: 2138415

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

Paracel ID	Client ID
2138415-01	BH1-21-AU2
2138415-02	BH1-21-SS5
2138415-03	BH3-21-SS5
2138415-04	BH4-21-AU2
2138415-05	BH4-21-SS6
2138415-06	BH5-21-SS5
2138415-07	DUP-1
2138415-08	DUP-2

Approved By:



Mark Foto, M.Sc.
Lab Supervisor

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

Certificate of Analysis

Report Date: 21-Sep-2021

Client: Paterson Group Consulting Engineers

Order Date: 15-Sep-2021

Client PO: 33144

Project Description: PE5412

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Chromium, hexavalent - soil	MOE E3056 - Extraction, colourimetric	16-Sep-21	17-Sep-21
Mercury by CVAA	EPA 7471B - CVAA, digestion	21-Sep-21	21-Sep-21
pH, soil	EPA 150.1 - pH probe @ 25 °C, CaCl buffered ext.	17-Sep-21	18-Sep-21
PHC F1	CWS Tier 1 - P&T GC-FID	16-Sep-21	16-Sep-21
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	16-Sep-21	17-Sep-21
REG 153: Metals by ICP/MS, soil	EPA 6020 - Digestion - ICP-MS	17-Sep-21	17-Sep-21
REG 153: PAHs by GC-MS	EPA 8270 - GC-MS, extraction	16-Sep-21	21-Sep-21
REG 153: VOCs by P&T GC/MS	EPA 8260 - P&T GC-MS	16-Sep-21	16-Sep-21
Solids, %	Gravimetric, calculation	16-Sep-21	16-Sep-21

Certificate of Analysis

Report Date: 21-Sep-2021

Client: Paterson Group Consulting Engineers

Order Date: 15-Sep-2021

Client PO: 33144

Project Description: PE5412

	Client ID:	BH1-21-AU2	BH1-21-SS5	BH3-21-SS5	BH4-21-AU2
	Sample Date:	10-Sep-21 09:00	10-Sep-21 09:00	10-Sep-21 09:00	10-Sep-21 09:00
	Sample ID:	2138415-01	2138415-02	2138415-03	2138415-04
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	83.9	93.0	90.5	92.7
General Inorganics					
pH	0.05 pH Units	-	-	-	7.75
Metals					
Antimony	1.0 ug/g dry	<1.0	-	-	<1.0
Arsenic	1.0 ug/g dry	5.5	-	-	5.3
Barium	1.0 ug/g dry	82.3	-	-	91.6
Beryllium	0.5 ug/g dry	<0.5	-	-	<0.5
Boron	5.0 ug/g dry	5.6	-	-	6.3
Cadmium	0.5 ug/g dry	<0.5	-	-	0.6
Chromium	5.0 ug/g dry	19.7	-	-	15.9
Chromium (VI)	0.2 ug/g dry	<0.2	-	-	<0.2
Cobalt	1.0 ug/g dry	5.8	-	-	5.4
Copper	5.0 ug/g dry	31.9	-	-	29.0
Lead	1.0 ug/g dry	94.9	-	-	151
Mercury	0.1 ug/g dry	<0.1	-	-	<0.1
Molybdenum	1.0 ug/g dry	1.0	-	-	1.2
Nickel	5.0 ug/g dry	17.2	-	-	22.4
Selenium	1.0 ug/g dry	<1.0	-	-	<1.0
Silver	0.3 ug/g dry	<0.3	-	-	<0.3
Thallium	1.0 ug/g dry	<1.0	-	-	<1.0
Uranium	1.0 ug/g dry	<1.0	-	-	<1.0
Vanadium	10.0 ug/g dry	26.1	-	-	27.6
Zinc	20.0 ug/g dry	169	-	-	119
Volatiles					
Acetone	0.50 ug/g dry	-	<0.50	<0.50	-
Benzene	0.02 ug/g dry	-	<0.02	<0.02	-
Bromodichloromethane	0.05 ug/g dry	-	<0.05	<0.05	-
Bromoform	0.05 ug/g dry	-	<0.05	<0.05	-
Bromomethane	0.05 ug/g dry	-	<0.05	<0.05	-
Carbon Tetrachloride	0.05 ug/g dry	-	<0.05	<0.05	-
Chlorobenzene	0.05 ug/g dry	-	<0.05	<0.05	-
Chloroform	0.05 ug/g dry	-	<0.05	<0.05	-
Dibromochloromethane	0.05 ug/g dry	-	<0.05	<0.05	-
Dichlorodifluoromethane	0.05 ug/g dry	-	<0.05	<0.05	-

Certificate of Analysis

Report Date: 21-Sep-2021

Client: Paterson Group Consulting Engineers

Order Date: 15-Sep-2021

Client PO: 33144

Project Description: PE5412

	Client ID:	BH1-21-AU2	BH1-21-SS5	BH3-21-SS5	BH4-21-AU2
	Sample Date:	10-Sep-21 09:00	10-Sep-21 09:00	10-Sep-21 09:00	10-Sep-21 09:00
	Sample ID:	2138415-01	2138415-02	2138415-03	2138415-04
	MDL/Units	Soil	Soil	Soil	Soil
1,2-Dichlorobenzene	0.05 ug/g dry	-	<0.05	<0.05	-
1,3-Dichlorobenzene	0.05 ug/g dry	-	<0.05	<0.05	-
1,4-Dichlorobenzene	0.05 ug/g dry	-	<0.05	<0.05	-
1,1-Dichloroethane	0.05 ug/g dry	-	<0.05	<0.05	-
1,2-Dichloroethane	0.05 ug/g dry	-	<0.05	<0.05	-
1,1-Dichloroethylene	0.05 ug/g dry	-	<0.05	<0.05	-
cis-1,2-Dichloroethylene	0.05 ug/g dry	-	<0.05	<0.05	-
trans-1,2-Dichloroethylene	0.05 ug/g dry	-	<0.05	<0.05	-
1,2-Dichloropropane	0.05 ug/g dry	-	<0.05	<0.05	-
cis-1,3-Dichloropropylene	0.05 ug/g dry	-	<0.05	<0.05	-
trans-1,3-Dichloropropylene	0.05 ug/g dry	-	<0.05	<0.05	-
1,3-Dichloropropene, total	0.05 ug/g dry	-	<0.05	<0.05	-
Ethylbenzene	0.05 ug/g dry	-	<0.05	<0.05	-
Ethylene dibromide (dibromoethane, 1,2-)	0.05 ug/g dry	-	<0.05	<0.05	-
Hexane	0.05 ug/g dry	-	<0.05	<0.05	-
Methyl Ethyl Ketone (2-Butanone)	0.50 ug/g dry	-	<0.50	<0.50	-
Methyl Isobutyl Ketone	0.50 ug/g dry	-	<0.50	<0.50	-
Methyl tert-butyl ether	0.05 ug/g dry	-	<0.05	<0.05	-
Methylene Chloride	0.05 ug/g dry	-	<0.05	<0.05	-
Styrene	0.05 ug/g dry	-	<0.05	<0.05	-
1,1,1,2-Tetrachloroethane	0.05 ug/g dry	-	<0.05	<0.05	-
1,1,2,2-Tetrachloroethane	0.05 ug/g dry	-	<0.05	<0.05	-
Tetrachloroethylene	0.05 ug/g dry	-	<0.05	<0.05	-
Toluene	0.05 ug/g dry	-	<0.05	<0.05	-
1,1,1-Trichloroethane	0.05 ug/g dry	-	<0.05	<0.05	-
1,1,2-Trichloroethane	0.05 ug/g dry	-	<0.05	<0.05	-
Trichloroethylene	0.05 ug/g dry	-	<0.05	<0.05	-
Trichlorofluoromethane	0.05 ug/g dry	-	<0.05	<0.05	-
Vinyl chloride	0.02 ug/g dry	-	<0.02	<0.02	-
m,p-Xylenes	0.05 ug/g dry	-	<0.05	<0.05	-
o-Xylene	0.05 ug/g dry	-	<0.05	<0.05	-
Xylenes, total	0.05 ug/g dry	-	<0.05	<0.05	-
4-Bromofluorobenzene	Surrogate	-	68.0%	72.1%	-
Dibromofluoromethane	Surrogate	-	90.0%	85.2%	-
Toluene-d8	Surrogate	-	96.5%	104%	-
Hydrocarbons					

Certificate of Analysis

Report Date: 21-Sep-2021

Client: Paterson Group Consulting Engineers

Order Date: 15-Sep-2021

Client PO: 33144

Project Description: PE5412

	Client ID:	BH1-21-AU2	BH1-21-SS5	BH3-21-SS5	BH4-21-AU2
	Sample Date:	10-Sep-21 09:00	10-Sep-21 09:00	10-Sep-21 09:00	10-Sep-21 09:00
	Sample ID:	2138415-01	2138415-02	2138415-03	2138415-04
	MDL/Units	Soil	Soil	Soil	Soil
F1 PHCs (C6-C10)	7 ug/g dry	-	<7	<7	-
F2 PHCs (C10-C16)	4 ug/g dry	-	44	10	-
F3 PHCs (C16-C34)	8 ug/g dry	-	63	27	-
F4 PHCs (C34-C50)	6 ug/g dry	-	37	31	-
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	<0.02	-	-	0.08
Acenaphthylene	0.02 ug/g dry	0.03	-	-	0.12
Anthracene	0.02 ug/g dry	0.05	-	-	0.33
Benzo [a] anthracene	0.02 ug/g dry	0.13	-	-	1.33
Benzo [a] pyrene	0.02 ug/g dry	0.16	-	-	1.51
Benzo [b] fluoranthene	0.02 ug/g dry	0.24	-	-	1.84
Benzo [g,h,i] perylene	0.02 ug/g dry	0.13	-	-	0.99
Benzo [k] fluoranthene	0.02 ug/g dry	0.13	-	-	0.88
Chrysene	0.02 ug/g dry	0.15	-	-	1.29
Dibenzo [a,h] anthracene	0.02 ug/g dry	<0.02	-	-	0.23
Fluoranthene	0.02 ug/g dry	0.28	-	-	2.76
Fluorene	0.02 ug/g dry	<0.02	-	-	0.08
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	0.11	-	-	0.95
1-Methylnaphthalene	0.02 ug/g dry	<0.02	-	-	0.04
2-Methylnaphthalene	0.02 ug/g dry	<0.02	-	-	0.05
Methylnaphthalene (1&2)	0.04 ug/g dry	<0.04	-	-	0.10
Naphthalene	0.01 ug/g dry	0.02	-	-	0.06
Phenanthrene	0.02 ug/g dry	0.15	-	-	1.16
Pyrene	0.02 ug/g dry	0.23	-	-	2.36
2-Fluorobiphenyl	Surrogate	88.9%	-	-	99.0%
Terphenyl-d14	Surrogate	99.2%	-	-	120%

Certificate of Analysis

Report Date: 21-Sep-2021

Client: Paterson Group Consulting Engineers

Order Date: 15-Sep-2021

Client PO: 33144

Project Description: PE5412

	Client ID:	BH4-21-SS6	BH5-21-SS5	DUP-1	DUP-2
	Sample Date:	10-Sep-21 09:00	09-Sep-21 09:00	10-Sep-21 09:00	10-Sep-21 09:00
	Sample ID:	2138415-05	2138415-06	2138415-07	2138415-08
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	90.9	91.7	82.6	89.0
General Inorganics					
pH	0.05 pH Units	7.83	-	-	-
Metals					
Antimony	1.0 ug/g dry	-	-	<1.0	-
Arsenic	1.0 ug/g dry	-	-	5.9	-
Barium	1.0 ug/g dry	-	-	88.3	-
Beryllium	0.5 ug/g dry	-	-	<0.5	-
Boron	5.0 ug/g dry	-	-	6.0	-
Cadmium	0.5 ug/g dry	-	-	<0.5	-
Chromium	5.0 ug/g dry	-	-	20.8	-
Chromium (VI)	0.2 ug/g dry	-	-	<0.2	-
Cobalt	1.0 ug/g dry	-	-	6.0	-
Copper	5.0 ug/g dry	-	-	36.8	-
Lead	1.0 ug/g dry	-	-	110	-
Mercury	0.1 ug/g dry	-	-	<0.1	-
Molybdenum	1.0 ug/g dry	-	-	<1.0	-
Nickel	5.0 ug/g dry	-	-	16.8	-
Selenium	1.0 ug/g dry	-	-	<1.0	-
Silver	0.3 ug/g dry	-	-	<0.3	-
Thallium	1.0 ug/g dry	-	-	<1.0	-
Uranium	1.0 ug/g dry	-	-	<1.0	-
Vanadium	10.0 ug/g dry	-	-	27.5	-
Zinc	20.0 ug/g dry	-	-	190	-
Volatiles					
Acetone	0.50 ug/g dry	<0.50	<0.50	-	<0.50
Benzene	0.02 ug/g dry	<0.02	<0.02	-	<0.02
Bromodichloromethane	0.05 ug/g dry	<0.05	<0.05	-	<0.05
Bromoform	0.05 ug/g dry	<0.05	<0.05	-	<0.05
Bromomethane	0.05 ug/g dry	<0.05	<0.05	-	<0.05
Carbon Tetrachloride	0.05 ug/g dry	<0.05	<0.05	-	<0.05
Chlorobenzene	0.05 ug/g dry	<0.05	<0.05	-	<0.05
Chloroform	0.05 ug/g dry	<0.05	<0.05	-	<0.05
Dibromochloromethane	0.05 ug/g dry	<0.05	<0.05	-	<0.05
Dichlorodifluoromethane	0.05 ug/g dry	<0.05	<0.05	-	<0.05

Certificate of Analysis

Report Date: 21-Sep-2021

Client: **Paterson Group Consulting Engineers**

Order Date: 15-Sep-2021

Client PO: **33144**

Project Description: PE5412

	Client ID:	BH4-21-SS6	BH5-21-SS5	DUP-1	DUP-2
	Sample Date:	10-Sep-21 09:00	09-Sep-21 09:00	10-Sep-21 09:00	10-Sep-21 09:00
	Sample ID:	2138415-05	2138415-06	2138415-07	2138415-08
	MDL/Units	Soil	Soil	Soil	Soil
1,2-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	-	<0.05
1,3-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	-	<0.05
1,4-Dichlorobenzene	0.05 ug/g dry	<0.05	<0.05	-	<0.05
1,1-Dichloroethane	0.05 ug/g dry	<0.05	<0.05	-	<0.05
1,2-Dichloroethane	0.05 ug/g dry	<0.05	<0.05	-	<0.05
1,1-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	-	<0.05
cis-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	-	<0.05
trans-1,2-Dichloroethylene	0.05 ug/g dry	<0.05	<0.05	-	<0.05
1,2-Dichloropropane	0.05 ug/g dry	<0.05	<0.05	-	<0.05
cis-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	<0.05	-	<0.05
trans-1,3-Dichloropropylene	0.05 ug/g dry	<0.05	<0.05	-	<0.05
1,3-Dichloropropene, total	0.05 ug/g dry	<0.05	<0.05	-	<0.05
Ethylbenzene	0.05 ug/g dry	<0.05	<0.05	-	<0.05
Ethylene dibromide (dibromoethane, 1	0.05 ug/g dry	<0.05	<0.05	-	<0.05
Hexane	0.05 ug/g dry	<0.05	<0.05	-	<0.05
Methyl Ethyl Ketone (2-Butanone)	0.50 ug/g dry	<0.50	<0.50	-	<0.50
Methyl Isobutyl Ketone	0.50 ug/g dry	<0.50	<0.50	-	<0.50
Methyl tert-butyl ether	0.05 ug/g dry	<0.05	<0.05	-	<0.05
Methylene Chloride	0.05 ug/g dry	<0.05	<0.05	-	<0.05
Styrene	0.05 ug/g dry	<0.05	<0.05	-	<0.05
1,1,1,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	-	<0.05
1,1,2,2-Tetrachloroethane	0.05 ug/g dry	<0.05	<0.05	-	<0.05
Tetrachloroethylene	0.05 ug/g dry	<0.05	<0.05	-	<0.05
Toluene	0.05 ug/g dry	<0.05	<0.05	-	<0.05
1,1,1-Trichloroethane	0.05 ug/g dry	<0.05	<0.05	-	<0.05
1,1,2-Trichloroethane	0.05 ug/g dry	<0.05	<0.05	-	<0.05
Trichloroethylene	0.05 ug/g dry	<0.05	<0.05	-	<0.05
Trichlorofluoromethane	0.05 ug/g dry	<0.05	<0.05	-	<0.05
Vinyl chloride	0.02 ug/g dry	<0.02	<0.02	-	<0.02
m,p-Xylenes	0.05 ug/g dry	<0.05	<0.05	-	<0.05
o-Xylene	0.05 ug/g dry	<0.05	<0.05	-	<0.05
Xylenes, total	0.05 ug/g dry	<0.05	<0.05	-	<0.05
4-Bromofluorobenzene	Surrogate	81.7%	68.3%	-	74.7%
Dibromofluoromethane	Surrogate	83.3%	61.6%	-	61.5%
Toluene-d8	Surrogate	91.3%	94.5%	-	103%

Certificate of Analysis

Report Date: 21-Sep-2021

Client: Paterson Group Consulting Engineers

Order Date: 15-Sep-2021

Client PO: 33144

Project Description: PE5412

	Client ID:	BH4-21-SS6	BH5-21-SS5	DUP-1	DUP-2
	Sample Date:	10-Sep-21 09:00	09-Sep-21 09:00	10-Sep-21 09:00	10-Sep-21 09:00
	Sample ID:	2138415-05	2138415-06	2138415-07	2138415-08
	MDL/Units	Soil	Soil	Soil	Soil
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	8	<7	-	<7
F2 PHCs (C10-C16)	4 ug/g dry	40	35	-	8
F3 PHCs (C16-C34)	8 ug/g dry	96	53	-	47
F4 PHCs (C34-C50)	6 ug/g dry	83	31	-	65
Semi-Volatiles					
Acenaphthene	0.02 ug/g dry	-	-	<0.02	-
Acenaphthylene	0.02 ug/g dry	-	-	0.03	-
Anthracene	0.02 ug/g dry	-	-	0.03	-
Benzo [a] anthracene	0.02 ug/g dry	-	-	0.10	-
Benzo [a] pyrene	0.02 ug/g dry	-	-	0.12	-
Benzo [b] fluoranthene	0.02 ug/g dry	-	-	0.16	-
Benzo [g,h,i] perylene	0.02 ug/g dry	-	-	0.10	-
Benzo [k] fluoranthene	0.02 ug/g dry	-	-	0.08	-
Chrysene	0.02 ug/g dry	-	-	0.11	-
Dibenzo [a,h] anthracene	0.02 ug/g dry	-	-	0.02	-
Fluoranthene	0.02 ug/g dry	-	-	0.18	-
Fluorene	0.02 ug/g dry	-	-	<0.02	-
Indeno [1,2,3-cd] pyrene	0.02 ug/g dry	-	-	0.09	-
1-Methylnaphthalene	0.02 ug/g dry	-	-	<0.02	-
2-Methylnaphthalene	0.02 ug/g dry	-	-	<0.02	-
Methylnaphthalene (1&2)	0.04 ug/g dry	-	-	<0.04	-
Naphthalene	0.01 ug/g dry	-	-	0.02	-
Phenanthrene	0.02 ug/g dry	-	-	0.08	-
Pyrene	0.02 ug/g dry	-	-	0.16	-
2-Fluorobiphenyl	Surrogate	-	-	68.2%	-
Terphenyl-d14	Surrogate	-	-	77.1%	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%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						
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 (VI)	ND	0.2	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						
Mercury	ND	0.1	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						
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	*1.03*		*ug/g*		*76.9*	*50-140*			
Surrogate: Terphenyl-d14	*1.26*		*ug/g*		*94.9*	*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						

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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						
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	*2.47*		*ug/g*		*77.1*	*50-140*			
Surrogate: Dibromofluoromethane	*3.48*		*ug/g*		*109*	*50-140*			
Surrogate: Toluene-d8	*3.42*		*ug/g*		*107*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics									
pH	7.57	0.05	pH Units	7.60			0.4	2.3	
Hydrocarbons									
F1 PHCs (C6-C10)	ND	7	ug/g dry	ND			NC	40	
F2 PHCs (C10-C16)	ND	4	ug/g dry	ND			NC	30	
F3 PHCs (C16-C34)	199	8	ug/g dry	214			7.5	30	
F4 PHCs (C34-C50)	142	6	ug/g dry	175			20.8	30	
Metals									
Antimony	1.0	1.0	ug/g dry	ND			NC	30	
Arsenic	5.7	1.0	ug/g dry	5.5			2.5	30	
Barium	78.1	1.0	ug/g dry	82.3			5.2	30	
Beryllium	ND	0.5	ug/g dry	ND			NC	30	
Boron	6.0	5.0	ug/g dry	5.6			7.2	30	
Cadmium	ND	0.5	ug/g dry	ND			NC	30	
Chromium (VI)	ND	0.2	ug/g dry	ND			NC	35	
Chromium	18.9	5.0	ug/g dry	19.7			4.1	30	
Cobalt	5.6	1.0	ug/g dry	5.8			3.0	30	
Copper	28.0	5.0	ug/g dry	31.9			13.1	30	
Lead	115	1.0	ug/g dry	94.9			19.3	30	
Mercury	ND	0.1	ug/g dry	ND			NC	30	
Molybdenum	1.1	1.0	ug/g dry	1.0			5.1	30	
Nickel	15.5	5.0	ug/g dry	17.2			10.4	30	
Selenium	ND	1.0	ug/g dry	ND			NC	30	
Silver	ND	0.3	ug/g dry	ND			NC	30	
Thallium	ND	1.0	ug/g dry	ND			NC	30	
Uranium	ND	1.0	ug/g dry	ND			NC	30	
Vanadium	25.3	10.0	ug/g dry	26.1			3.5	30	
Zinc	160	20.0	ug/g dry	169			5.8	30	
Physical Characteristics									
% Solids	90.4	0.1	% by Wt.	92.4			2.2	25	
Semi-Volatiles									
Acenaphthene	0.026	0.02	ug/g dry	ND			NC	40	
Acenaphthylene	ND	0.02	ug/g dry	ND			NC	40	
Anthracene	0.086	0.02	ug/g dry	ND			NC	40	
Benzo [a] anthracene	0.172	0.02	ug/g dry	0.029			NC	40	
Benzo [a] pyrene	0.175	0.02	ug/g dry	0.034			NC	40	
Benzo [b] fluoranthene	0.224	0.02	ug/g dry	0.045			NC	40	
Benzo [g,h,i] perylene	0.116	0.02	ug/g dry	0.028			NC	40	
Benzo [k] fluoranthene	0.133	0.02	ug/g dry	0.020			NC	40	
Chrysene	0.187	0.02	ug/g dry	0.035			NC	40	
Dibenzo [a,h] anthracene	0.023	0.02	ug/g dry	ND			NC	40	
Fluoranthene	0.461	0.02	ug/g dry	0.068			NC	40	
Fluorene	0.036	0.02	ug/g dry	ND			NC	40	
Indeno [1,2,3-cd] pyrene	0.096	0.02	ug/g dry	0.022			125.0	40	
1-Methylnaphthalene	0.084	0.02	ug/g dry	ND			NC	40	
2-Methylnaphthalene	0.098	0.02	ug/g dry	0.024			NC	40	
Naphthalene	0.068	0.01	ug/g dry	0.017			NC	40	
Phenanthrene	0.376	0.02	ug/g dry	0.056			NC	40	
Pyrene	0.370	0.02	ug/g dry	0.060			NC	40	
Surrogate: 2-Fluorobiphenyl	*1.06*		*ug/g dry*		*67.6*	*50-140*			
Surrogate: Terphenyl-d14	*1.31*		*ug/g dry*		*83.4*	*50-140*			
Volatiles									
Acetone	ND	0.50	ug/g dry	ND			NC	50	
Benzene	ND	0.02	ug/g dry	ND			NC	50	
Bromodichloromethane	ND	0.05	ug/g dry	ND			NC	50	
Bromoform	ND	0.05	ug/g dry	ND			NC	50	

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Bromomethane	ND	0.05	ug/g dry	ND			NC	50	
Carbon Tetrachloride	ND	0.05	ug/g dry	ND			NC	50	
Chlorobenzene	ND	0.05	ug/g dry	ND			NC	50	
Chloroform	ND	0.05	ug/g dry	ND			NC	50	
Dibromochloromethane	ND	0.05	ug/g dry	ND			NC	50	
Dichlorodifluoromethane	ND	0.05	ug/g dry	ND			NC	50	
1,2-Dichlorobenzene	ND	0.05	ug/g dry	ND			NC	50	
1,3-Dichlorobenzene	ND	0.05	ug/g dry	ND			NC	50	
1,4-Dichlorobenzene	ND	0.05	ug/g dry	ND			NC	50	
1,1-Dichloroethane	ND	0.05	ug/g dry	ND			NC	50	
1,2-Dichloroethane	ND	0.05	ug/g dry	ND			NC	50	
1,1-Dichloroethylene	ND	0.05	ug/g dry	ND			NC	50	
cis-1,2-Dichloroethylene	ND	0.05	ug/g dry	ND			NC	50	
trans-1,2-Dichloroethylene	ND	0.05	ug/g dry	ND			NC	50	
1,2-Dichloropropane	ND	0.05	ug/g dry	ND			NC	50	
cis-1,3-Dichloropropylene	ND	0.05	ug/g dry	ND			NC	50	
trans-1,3-Dichloropropylene	ND	0.05	ug/g dry	ND			NC	50	
Ethylbenzene	ND	0.05	ug/g dry	ND			NC	50	
Ethylene dibromide (dibromoethane, 1,2	ND	0.05	ug/g dry	ND			NC	50	
Hexane	ND	0.05	ug/g dry	ND			NC	50	
Methyl Ethyl Ketone (2-Butanone)	ND	0.50	ug/g dry	ND			NC	50	
Methyl Isobutyl Ketone	ND	0.50	ug/g dry	ND			NC	50	
Methyl tert-butyl ether	ND	0.05	ug/g dry	ND			NC	50	
Methylene Chloride	ND	0.05	ug/g dry	ND			NC	50	
Styrene	ND	0.05	ug/g dry	ND			NC	50	
1,1,1,2-Tetrachloroethane	ND	0.05	ug/g dry	ND			NC	50	
1,1,2,2-Tetrachloroethane	ND	0.05	ug/g dry	ND			NC	50	
Tetrachloroethylene	ND	0.05	ug/g dry	ND			NC	50	
Toluene	ND	0.05	ug/g dry	ND			NC	50	
1,1,1-Trichloroethane	ND	0.05	ug/g dry	ND			NC	50	
1,1,2-Trichloroethane	ND	0.05	ug/g dry	ND			NC	50	
Trichloroethylene	ND	0.05	ug/g dry	ND			NC	50	
Trichlorofluoromethane	ND	0.05	ug/g dry	ND			NC	50	
Vinyl chloride	ND	0.02	ug/g dry	ND			NC	50	
m,p-Xylenes	ND	0.05	ug/g dry	ND			NC	50	
o-Xylene	ND	0.05	ug/g dry	ND			NC	50	
Surrogate: 4-Bromofluorobenzene	*2.60*		*ug/g dry*		*77.6*	*50-140*			
Surrogate: Dibromofluoromethane	*3.15*		*ug/g dry*		*94.1*	*50-140*			
Surrogate: Toluene-d8	*3.54*		*ug/g dry*		*106*	*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)	226	7	ug/g	ND	113	80-120			
F2 PHCs (C10-C16)	97	4	ug/g	ND	89.1	60-140			
F3 PHCs (C16-C34)	425	8	ug/g	214	79.4	60-140			
F4 PHCs (C34-C50)	314	6	ug/g	175	83.1	60-140			
Metals									
Antimony	52.4	1.0	ug/g	ND	104	70-130			
Arsenic	56.6	1.0	ug/g	2.2	109	70-130			
Barium	81.6	1.0	ug/g	32.9	97.4	70-130			
Beryllium	53.5	0.5	ug/g	ND	107	70-130			
Boron	53.3	5.0	ug/g	ND	102	70-130			
Cadmium	50.2	0.5	ug/g	ND	100	70-130			
Chromium (VI)	0.1	0.2	ug/g	ND	53.5	70-130			QM-05
Chromium	61.1	5.0	ug/g	7.9	106	70-130			
Cobalt	55.2	1.0	ug/g	2.3	106	70-130			
Copper	62.7	5.0	ug/g	12.8	99.9	70-130			
Lead	99.1	1.0	ug/g	37.9	122	70-130			
Mercury	1.49	0.1	ug/g	ND	99.3	70-130			
Molybdenum	54.5	1.0	ug/g	ND	108	70-130			
Nickel	58.9	5.0	ug/g	6.9	104	70-130			
Selenium	51.8	1.0	ug/g	ND	103	70-130			
Silver	46.3	0.3	ug/g	ND	92.6	70-130			
Thallium	52.1	1.0	ug/g	ND	104	70-130			
Uranium	55.4	1.0	ug/g	ND	110	70-130			
Vanadium	64.5	10.0	ug/g	10.5	108	70-130			
Zinc	112	20.0	ug/g	67.6	88.6	70-130			
Semi-Volatiles									
Acenaphthene	0.136	0.02	ug/g	ND	81.6	50-140			
Acenaphthylene	0.125	0.02	ug/g	ND	74.7	50-140			
Anthracene	0.157	0.02	ug/g	ND	93.9	50-140			
Benzo [a] anthracene	0.140	0.02	ug/g	ND	84.0	50-140			
Benzo [a] pyrene	0.150	0.02	ug/g	ND	90.0	50-140			
Benzo [b] fluoranthene	0.175	0.02	ug/g	ND	105	50-140			
Benzo [g,h,i] perylene	0.173	0.02	ug/g	ND	104	50-140			
Benzo [k] fluoranthene	0.181	0.02	ug/g	ND	109	50-140			
Chrysene	0.177	0.02	ug/g	ND	106	50-140			
Dibenzo [a,h] anthracene	0.165	0.02	ug/g	ND	99.0	50-140			
Fluoranthene	0.144	0.02	ug/g	ND	86.6	50-140			
Fluorene	0.141	0.02	ug/g	ND	84.6	50-140			
Indeno [1,2,3-cd] pyrene	0.140	0.02	ug/g	ND	83.7	50-140			
1-Methylnaphthalene	0.126	0.02	ug/g	ND	75.4	50-140			
2-Methylnaphthalene	0.142	0.02	ug/g	ND	85.0	50-140			
Naphthalene	0.119	0.01	ug/g	ND	71.3	50-140			
Phenanthrene	0.143	0.02	ug/g	ND	85.6	50-140			
Pyrene	0.146	0.02	ug/g	ND	87.3	50-140			
Surrogate: 2-Fluorobiphenyl	*1.12*		*ug/g*		*84.0*	*50-140*			
Surrogate: Terphenyl-d14	*1.55*		*ug/g*		*116*	*50-140*			
Volatiles									
Acetone	12.5	0.50	ug/g	ND	125	50-140			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Benzene	2.92	0.02	ug/g	ND	73.0	60-130			
Bromodichloromethane	2.66	0.05	ug/g	ND	66.4	60-130			
Bromoform	4.21	0.05	ug/g	ND	105	60-130			
Bromomethane	3.43	0.05	ug/g	ND	85.8	50-140			
Carbon Tetrachloride	2.89	0.05	ug/g	ND	72.3	60-130			
Chlorobenzene	3.65	0.05	ug/g	ND	91.4	60-130			
Chloroform	2.66	0.05	ug/g	ND	66.4	60-130			
Dibromochloromethane	3.69	0.05	ug/g	ND	92.4	60-130			
Dichlorodifluoromethane	4.80	0.05	ug/g	ND	120	50-140			
1,2-Dichlorobenzene	3.71	0.05	ug/g	ND	92.7	60-130			
1,3-Dichlorobenzene	3.54	0.05	ug/g	ND	88.6	60-130			
1,4-Dichlorobenzene	3.60	0.05	ug/g	ND	90.1	60-130			
1,1-Dichloroethane	2.92	0.05	ug/g	ND	73.1	60-130			
1,2-Dichloroethane	2.76	0.05	ug/g	ND	69.1	60-130			
1,1-Dichloroethylene	2.72	0.05	ug/g	ND	67.9	60-130			
cis-1,2-Dichloroethylene	2.65	0.05	ug/g	ND	66.3	60-130			
trans-1,2-Dichloroethylene	3.13	0.05	ug/g	ND	78.2	60-130			
1,2-Dichloropropane	4.00	0.05	ug/g	ND	99.9	60-130			
cis-1,3-Dichloropropylene	3.01	0.05	ug/g	ND	75.3	60-130			
trans-1,3-Dichloropropylene	3.12	0.05	ug/g	ND	78.0	60-130			
Ethylbenzene	3.38	0.05	ug/g	ND	84.5	60-130			
Ethylene dibromide (dibromoethane, 1,2-	3.84	0.05	ug/g	ND	96.0	60-130			
Hexane	3.80	0.05	ug/g	ND	94.9	60-130			
Methyl Ethyl Ketone (2-Butanone)	8.99	0.50	ug/g	ND	89.9	50-140			
Methyl Isobutyl Ketone	10.9	0.50	ug/g	ND	109	50-140			
Methyl tert-butyl ether	10.3	0.05	ug/g	ND	103	50-140			
Methylene Chloride	2.68	0.05	ug/g	ND	66.9	60-130			
Styrene	3.22	0.05	ug/g	ND	80.4	60-130			
1,1,1,2-Tetrachloroethane	3.89	0.05	ug/g	ND	97.2	60-130			
1,1,2,2-Tetrachloroethane	4.33	0.05	ug/g	ND	108	60-130			
Tetrachloroethylene	3.60	0.05	ug/g	ND	90.1	60-130			
Toluene	3.79	0.05	ug/g	ND	94.7	60-130			
1,1,1-Trichloroethane	2.62	0.05	ug/g	ND	65.4	60-130			
1,1,2-Trichloroethane	3.33	0.05	ug/g	ND	83.3	60-130			
Trichloroethylene	4.01	0.05	ug/g	ND	100	60-130			
Trichlorofluoromethane	2.90	0.05	ug/g	ND	72.4	50-140			
Vinyl chloride	4.30	0.02	ug/g	ND	108	50-140			
m,p-Xylenes	7.05	0.05	ug/g	ND	88.1	60-130			
o-Xylene	3.69	0.05	ug/g	ND	92.3	60-130			
Surrogate: 4-Bromofluorobenzene	*2.79*		*ug/g*		*87.3*	*50-140*			
Surrogate: Dibromofluoromethane	*2.30*		*ug/g*		*72.0*	*50-140*			
Surrogate: Toluene-d8	*2.97*		*ug/g*		*92.7*	*50-140*			

Qualifier Notes:

QC Qualifiers :

QM-05 : The spike recovery was outside acceptance limits for the matrix spike due to matrix interference.

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

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

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

CCME PHC additional information:

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

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Chain Of Custody
(Lab Use Only)
№ 133109

Client Name: Paterson Group	Project Ref: PE5412	Page 1 of 1
Contact Name: Nick Sullivan	Quote #:	Turnaround Time
Address: 154 Colonnade Rd. S.	PO #: 33144	☐ 1 day ☐ 3 day ☒ Regular ☐ 2 day
Telephone: 613-226-7381	E-mail: nsullivan@patersongroup.ca	Date Required:

☒ REG 153/04 ☐ REG 406/19	Other Regulation	Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)
☐ Table 1 ☒ Res/Park ☐ Med/Fine	☐ REG 558 ☐ PWQO	Required Analysis
☐ Table 2 ☐ Ind/Comm ☒ Coarse	☐ CCME ☐ MISA	
☒ Table 3 ☐ Agri/Other	☐ SU - Sani ☐ SU - Storm	
☐ Table	Mun:	
For RSC: ☐ Yes ☐ No	☐ Other:	

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHCs F1-F4	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)					
1	BH1-21-AU2	S		1	Sept 10/21				X	X	X	X						
2	BH1-21-SS5	S		2	↓		X	X										
3	BH3-21-SS5	S		2			X	X										
4	BH4-21-AU2	S		1					X	X	X	X						
5	~~BH4~~ BH4-21-SS6	S		2	↓		X	X										
6	BH5-21-SS5	S		2	Sept 9/21		X	X										
7	DUP-1	S		#1	Sept 10/21				X	X	X	X						
8	DUP-2	S		2	↓		X	X										
9																		
10																		

Comments:

Method of Delivery: PARACEL COURIER

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Relinquished By (Print): Nick Sullivan	Date/Time: 15/09/21 3:00 PM	Date/Time: Sept 15, 2021 04:45	Date/Time: sept 15 2021 5:40
Date/Time: September 15/2021	Temperature: °C	Temperature: 14.6 °C	pH Verified: ☐ By:

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Certificate of Analysis

Paterson Group Consulting Engineers

154 Colonnade Road South
Nepean, ON K2E 7J5
Attn: Nick Sullivan

Client PO: 33198
Project: PE5412
Custody: 133119

Report Date: 23-Sep-2021
Order Date: 20-Sep-2021

Order #: 2139153

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

Paracel ID	Client ID
2139153-01	BH2-21-GW1
2139153-02	BH5-21-GW1
2139153-03	DUP-1
2139153-04	Trip Blank

Approved By:

Mark Foto

Mark Foto, M.Sc.
Lab Supervisor

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

Certificate of Analysis

Report Date: 23-Sep-2021

Client: Paterson Group Consulting Engineers

Order Date: 20-Sep-2021

Client PO: 33198

Project Description: PE5412

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
PHC F1	CWS Tier 1 - P&T GC-FID	21-Sep-21	21-Sep-21
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	21-Sep-21	22-Sep-21
REG 153: VOCs by P&T GC/MS	EPA 624 - P&T GC-MS	21-Sep-21	21-Sep-21

Certificate of Analysis

Report Date: 23-Sep-2021

Client: **Paterson Group Consulting Engineers**

Order Date: 20-Sep-2021

Client PO: **33198**

Project Description: **PE5412**

	Client ID:	BH2-21-GW1	BH5-21-GW1	DUP-1	Trip Blank
	Sample Date:	16-Sep-21 12:25	16-Sep-21 11:40	16-Sep-21 00:00	14-Sep-21 00:00
	Sample ID:	2139153-01	2139153-02	2139153-03	2139153-04
	MDL/Units	Water	Water	Water	Water
Volatiles					
Acetone	5.0 ug/L	<5.0	<5.0	<5.0	<5.0
Benzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Bromoform	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Bromomethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Carbon Tetrachloride	0.2 ug/L	<0.2	<0.2	<0.2	<0.2
Chlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Chloroform	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Dibromochloromethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Dichlorodifluoromethane	1.0 ug/L	<1.0	<1.0	<1.0	<1.0
1,2-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,3-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,1-Dichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,2-Dichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,1-Dichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
cis-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
trans-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,2-Dichloropropane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
cis-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
trans-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,3-Dichloropropene, total	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
Ethylene dibromide (dibromoethane, 1,2-)	0.2 ug/L	<0.2	<0.2	<0.2	<0.2
Hexane	1.0 ug/L	<1.0	<1.0	<1.0	<1.0
Methyl Ethyl Ketone (2-Butanone)	5.0 ug/L	<5.0	<5.0	<5.0	<5.0
Methyl Isobutyl Ketone	5.0 ug/L	<5.0	<5.0	<5.0	<5.0
Methyl tert-butyl ether	2.0 ug/L	<2.0	<2.0	<2.0	<2.0
Methylene Chloride	5.0 ug/L	<5.0	<5.0	<5.0	<5.0
Styrene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,1,1,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
1,1,2,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Tetrachloroethylene	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
1,1,1-Trichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5

Certificate of Analysis

Report Date: 23-Sep-2021

Client: Paterson Group Consulting Engineers

Order Date: 20-Sep-2021

Client PO: 33198

Project Description: PE5412

	Client ID:	BH2-21-GW1	BH5-21-GW1	DUP-1	Trip Blank
	Sample Date:	16-Sep-21 12:25	16-Sep-21 11:40	16-Sep-21 00:00	14-Sep-21 00:00
	Sample ID:	2139153-01	2139153-02	2139153-03	2139153-04
	MDL/Units	Water	Water	Water	Water
1,1,2-Trichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Trichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5
Trichlorofluoromethane	1.0 ug/L	<1.0	<1.0	<1.0	<1.0
Vinyl chloride	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
4-Bromofluorobenzene	Surrogate	98.4%	100%	97.6%	98.8%
Dibromofluoromethane	Surrogate	119%	114%	111%	113%
Toluene-d8	Surrogate	82.9%	82.9%	82.1%	84.6%
Hydrocarbons					
F1 PHCs (C6-C10)	25 ug/L	<25	<25	-	-
F2 PHCs (C10-C16)	100 ug/L	<100	<100	-	-
F3 PHCs (C16-C34)	100 ug/L	<100	<100	-	-
F4 PHCs (C34-C50)	100 ug/L	<100	<100	-	-

Certificate of Analysis

Report Date: 23-Sep-2021

Client: Paterson Group Consulting Engineers

Order Date: 20-Sep-2021

Client PO: 33198

Project Description: PE5412

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%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									
Acetone	ND	5.0	ug/L						
Benzene	ND	0.5	ug/L						
Bromodichloromethane	ND	0.5	ug/L						
Bromoform	ND	0.5	ug/L						
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						
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	*75.8*		*ug/L*		*94.7*	*50-140*			
Surrogate: Dibromofluoromethane	*86.0*		*ug/L*		*108*	*50-140*			
Surrogate: Toluene-d8	*65.3*		*ug/L*		*81.6*	*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	
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	*82.5*		*ug/L*		*103*	*50-140*			
Surrogate: Dibromofluoromethane	*92.3*		*ug/L*		*115*	*50-140*			
Surrogate: Toluene-d8	*66.8*		*ug/L*		*83.6*	*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)	1880	25	ug/L	ND	93.9	68-117			
F2 PHCs (C10-C16)	1440	100	ug/L	ND	90.0	60-140			
F3 PHCs (C16-C34)	3880	100	ug/L	ND	99.0	60-140			
F4 PHCs (C34-C50)	3080	100	ug/L	ND	124	60-140			
Volatiles									
Acetone	117	5.0	ug/L	ND	117	50-140			
Benzene	37.5	0.5	ug/L	ND	93.8	60-130			
Bromodichloromethane	36.2	0.5	ug/L	ND	90.4	60-130			
Bromoform	37.3	0.5	ug/L	ND	93.3	60-130			
Bromomethane	38.4	0.5	ug/L	ND	95.9	50-140			
Carbon Tetrachloride	35.4	0.2	ug/L	ND	88.5	60-130			
Chlorobenzene	42.2	0.5	ug/L	ND	105	60-130			
Chloroform	39.6	0.5	ug/L	ND	98.9	60-130			
Dibromochloromethane	41.1	0.5	ug/L	ND	103	60-130			
Dichlorodifluoromethane	42.1	1.0	ug/L	ND	105	50-140			
1,2-Dichlorobenzene	29.9	0.5	ug/L	ND	74.7	60-130			
1,3-Dichlorobenzene	30.0	0.5	ug/L	ND	75.0	60-130			
1,4-Dichlorobenzene	29.4	0.5	ug/L	ND	73.5	60-130			
1,1-Dichloroethane	38.6	0.5	ug/L	ND	96.5	60-130			
1,2-Dichloroethane	39.9	0.5	ug/L	ND	99.8	60-130			
1,1-Dichloroethylene	37.8	0.5	ug/L	ND	94.4	60-130			
cis-1,2-Dichloroethylene	35.3	0.5	ug/L	ND	88.2	60-130			
trans-1,2-Dichloroethylene	36.5	0.5	ug/L	ND	91.2	60-130			
1,2-Dichloropropane	36.1	0.5	ug/L	ND	90.4	60-130			
cis-1,3-Dichloropropylene	31.0	0.5	ug/L	ND	77.5	60-130			
trans-1,3-Dichloropropylene	30.1	0.5	ug/L	ND	75.2	60-130			
Ethylbenzene	36.9	0.5	ug/L	ND	92.3	60-130			
Ethylene dibromide (dibromoethane, 1,2-	43.4	0.2	ug/L	ND	109	60-130			
Hexane	43.3	1.0	ug/L	ND	108	60-130			
Methyl Ethyl Ketone (2-Butanone)	87.3	5.0	ug/L	ND	87.3	50-140			
Methyl Isobutyl Ketone	102	5.0	ug/L	ND	102	50-140			
Methyl tert-butyl ether	100	2.0	ug/L	ND	100	50-140			
Methylene Chloride	40.2	5.0	ug/L	ND	100	60-130			
Styrene	39.9	0.5	ug/L	ND	99.8	60-130			
1,1,1,2-Tetrachloroethane	40.5	0.5	ug/L	ND	101	60-130			
1,1,2,2-Tetrachloroethane	41.1	0.5	ug/L	ND	103	60-130			
Tetrachloroethylene	42.8	0.5	ug/L	ND	107	60-130			
Toluene	42.3	0.5	ug/L	ND	106	60-130			
1,1,1-Trichloroethane	38.5	0.5	ug/L	ND	96.2	60-130			
1,1,2-Trichloroethane	37.8	0.5	ug/L	ND	94.4	60-130			
Trichloroethylene	38.3	0.5	ug/L	ND	95.7	60-130			
Trichlorofluoromethane	41.5	1.0	ug/L	ND	104	60-130			
Vinyl chloride	38.3	0.5	ug/L	ND	95.7	50-140			
m,p-Xylenes	64.8	0.5	ug/L	ND	81.0	60-130			
o-Xylene	42.0	0.5	ug/L	ND	105	60-130			
Surrogate: 4-Bromofluorobenzene	*55.8*		*ug/L*		*69.7*	*50-140*			
Surrogate: Dibromofluoromethane	*84.5*		*ug/L*		*106*	*50-140*			
Surrogate: Toluene-d8	*56.8*		*ug/L*		*71.0*	*50-140*			

Qualifier Notes:

None

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.

PARACE LABORATORIES L

Paracel ID: 2139153

Blvd.
4J8
bs.com
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Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2139453	Nº 133119

Client Name: Paterson Group
Project Ref: PE5412
Page 1 of 1

Contact Name: Nick Sullivan
Quote #:

Address: 154 Colonnade Rd. S.
PO #: 33198

E-mail: nsullivan@patersongroup.ca

Telephone: 613-226-7381

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)

Required Analysis

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken: Date	Sample Taken: Time	PHCs F1-F4	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)					
1	BH2-21-GW1	GW		3	Sept 16/21	12:25 PM	X	X										
2	BH5-21-GW1	↓		3	↓	11:40 AM	X	X										
3	DUP-1	↓		2	↓			X										
4	Trip Blank	↓		1	Sept. 14/21			X										
5																		
6																		
7																		
8																		
9																		
10																		

Comments:

Method of Delivery: Drop box

Relinquished By (Sign):	Received By Driver/Depot:	Received at Lab:	Verified By:
Relinquished By (Print): Nick Sullivan	Date/Time:	Date/Time: Sept 20 2021 18:50	Date/Time: Sept 21 2021 10:13
Date/Time: Sept. 20/21	Temperature: °C	Temperature: 18.0 °C	pH Verified: ☐ By: NA

APPENDIX 2

SOIL PROFILE AND TEST DATA SHEETS (EXP, 2019)

LABORATORY CERTIFICATES OF ANALYSIS (EXP, 2019)

Log of Borehole BH1

Project No: OTT-00241758-B0

Project: PIIESA and Geotechnical Investigation

Location: 337 Montgomery Street, Ottawa, Ontario

Figure No. 3

Page. 1 of 1

Date Drilled: April 4th, 2019

Drill Type: CME 45 (track)

Datum: Assumed

Logged by: MAD Checked by: MGM/IT

Split Spoon Sample ☒ | Auger Sample ◧ | SPT (N) Value ○ | Dynamic Cone Test ——— | Shelby Tube ■ | Shear Strength by Vane Test +S

Combustible Vapour Reading □ | Natural Moisture Content × | Atterberg Limits —○— | Undrained Triaxial at % Strain at Failure ⊕ | Shear Strength by Penetrometer Test ▲

GWL	SOIL DESCRIPTION	Assumed m	Depth
		100.47	
	ASPHALT ~ 12 mm	100.4	0
	SAND AND GRAVEL FILL Sand and gravel with trace silt, brown with some orange mottling, moist, no odour, (compact).	99.8	
	SANDY SILTY TILL WITH SOME GRAVEL Occasional boulder and cobble, dark brown/grey, moist, no odour (dense).		1
			2
		97.4	3
▽	**BOULDERY COBBLY TILL** Dark brown/grey, moist, organic gassy shale odour, (dense to very dense).	96.9	
			4
		95.4	5
	SHALE BEDROCK Black shale, some horizontal and vertical fractures above, (very poor to good quality). - Silt seam from 7.42m to 7.51m - Silt seam from 7.50m to 7.70m		6
			7
			8
		91.3	9
	Borehole Terminated at 9.15 m Depth		

Standard Penetration Test N Value (20 40 60 80) / Shear Strength (50 100 150 200 kPa)

Combustible Vapour Reading (ppm) (250 500 750) / Natural Moisture Content % Atterberg Limits (% Dry Weight) (20 40 60)

Depth	SPT N	Shear Strength (kPa)	Combustible Vapour Reading (ppm)	Natural Moisture Content %	SAMPLES	Natural Unit Wt. kN/m³
0	13		5		SS1	
1	40		5		SS2	
2	42		5		SS3	
2.5	42		5		SS4	
3	44		5		SS5	
4	49		20		SS6	
4.5	87		5		SS7	
5					Run 1	
6						
7					Run 2	
8						
9					Run 3	

NOTES:

1. Borehole data requires interpretation by EXP before use by others
2. A flushmount monitoring well with a 51 mm slotted standpipe was installed in the borehole upon completion.
3. Field work was supervised by an exp representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report OTT-00241758-B0

WATER LEVEL RECORDS

Elapsed Time	Water Level (m)	Hole Open To (m)
completion	4.5	-
1 day	4.2	-
12 days	3.6	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %
1	5.05 - 6.12	94	16
2	6.12 - 7.57	100	79
3	7.57 - 9.14	100	74

LOG OF BOREHOLE LOGS OF BOREHOLES MONTGOMERY - APRIL 2019.GPJ TROW OTTAWA.GDT 4/22/19

Log of Borehole BH2

Project No: OTT-00241758-B0

Project: PIIESA and Geotechnical Investigation

Location: 337 Montgomery Street, Ottawa, Ontario

Figure No. 4

Page. 1 of 1

Date Drilled: April 4th, 2019

Drill Type: CME 45 (track)

Datum: Assumed

Logged by: MAD Checked by: MGM/IT

Split Spoon Sample
Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Shear Strength by Vane Test (S)
Combustible Vapour Reading
Natural Moisture Content
Atterberg Limits
Undrained Triaxial at % Strain at Failure
Shear Strength by Penetrometer Test

GWL	SYMBOL	SOIL DESCRIPTION	Assumed m	Depth	Standard Penetration Test N Value / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	SAMPLES	Natural Unit Wt. kN/m³
		ASPHALT ~ 20 mm	100.69	0				
		SAND AND GRAVEL FILL Crushed stone, grey, moist, no odour, (compact).	100.6 / 100.5		17	10	AUG1/SS2	
		SAND SILT FILL WITH GRAVEL Some roots present, dark brown with some orange, moist, no odour, (compact).	99.2	1	12	5	SS3	
		SANDY SILTY TILL WITH SOME GRAVEL Occasional boudler and cobble, dark brown/grey, moist, no odour (dense).	98.4	2	50	25	SS4	
		BOULDERY COBBLY TILL Dark brown/grey, moist, organic gassy shale odour, (dense to very dense).			50/130mm	15	SS5	
			97.52	3	70/200mm	10	SS6	
				4			RUN1	
			95.5	5			RUN2	
		WEATHERED BEDROCK (Very poor quality).	94.9					
		SHALE BEDROCK (Very poor quality).	94.5	6				
		Borehole Terminated at 6.18 m Depth						

LOG OF BOREHOLE LOGS OF BOREHOLES MONTGOMERY - APRIL 2019.GPJ TROW OTTAWA.GDT 4/22/19

NOTES:

1. Borehole data requires interpretation by EXP before use by others
2. A flushmount monitoring well with a 51 mm slotted standpipe was installed in the borehole upon completion.
3. Field work was supervised by an exp representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report OTT-00241758-B0

WATER LEVEL RECORDS

Elapsed Time	Water Level (m)	Hole Open To (m)
completion	3.6	-
12 days	3.2	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %
1	3.58 - 3.93	93	0
2	3.94 - 6.15	34	5

Log of Borehole BH3

Project No: OTT-00241758-B0

Project: PIIESA and Geotechnical Investigation

Location: 337 Montgomery Street, Ottawa, Ontario

Figure No. 5

Page. 1 of 1

Date Drilled: April 5th, 2019

Drill Type: CME 45 (track)

Datum: Assumed

Logged by: MAD Checked by: MGM/IT

Split Spoon Sample
Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Shear Strength by Vane Test (S)

Combustible Vapour Reading
Natural Moisture Content
Atterberg Limits
Undrained Triaxial at % Strain at Failure
Shear Strength by Penetrometer Test

GWL	SYMBOL	SOIL DESCRIPTION	Assumed m	Depth	Standard Penetration Test N Value / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	SAMPLES	Natural Unit Wt. kN/m³
		TOPSOIL Sand with some gravel and trace organics, dark brown, moist, no odour, (loose).	100.69	0		10	SS1/AUG1B	
			100.1					
		SANDY SILTY TILL WITH SOME GRAVEL Occasional boudler and cobble, dark brown/grey, moist, no odour (dense).		1		15	SS2	
						15	SS3	
			98.3	2	59/280mm	10	SS4	
		BOULDERY COBBLE TILL Some gravel, dark brown, moist, no odour.						
			97.47	3	139/210mm		SS5	
							Run 1	
				4			Run 2	
							Run 3	
				5				
			94.7	6			Run 4	
		WEATHERED BEDROCK (Very poor quality).	94.4					
		Borehole Terminated at 6.25 m Depth						

LOG OF BOREHOLE LOGS OF BOREHOLES MONTGOMERY - APRIL 2019.GPJ TROW OTTAWA.GDT 4/22/19

NOTES:

1. Borehole data requires interpretation by EXP before use by others
2. A flushmount monitoring well with a 51 mm slotted standpipe was installed in the borehole upon completion.
3. Field work was supervised by an exp representative.
4. See Notes on Sample Descriptions
5. Log to be read with EXP Report OTT-00241758-B0

WATER LEVEL RECORDS

Elapsed Time	Water Level (m)	Hole Open To (m)
completion	3.3	-
12 days	3.2	

CORE DRILLING RECORD

Run No.	Depth (m)	% Rec.	RQD %
1	3.05 - 3.76	39	0
2	3.76 - 4.6	36	0
3	4.6 - 5.36	27	0
4	5.36 - 6.25	66	0

Maxxam
A Bureau Veritas Group Company

Your Project #: OTT-00241785-B
Site Location: MONTGOMERY
Your C.O.C. #: 710467-02-01

Attention: Mark Devlin

exp Services Inc
Ottawa Branch
100-2650 Queensview Drive
Ottawa, ON
CANADA K2B 8H6

Report Date: 2019/04/12
Report #: R5668423
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B990299
Received: 2019/04/05, 15:50

Sample Matrix: Soil
Samples Received: 9

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Methylnaphthalene Sum (1)	3	N/A	2019/04/11	CAM SOP-00301	EPA 8270D m
Methylnaphthalene Sum (1)	1	N/A	2019/04/12	CAM SOP-00301	EPA 8270D m
1,3-Dichloropropene Sum (1)	4	N/A	2019/04/11		EPA 8260C m
Petroleum Hydrocarbons F2-F4 in Soil (1, 2)	4	2019/04/08	2019/04/09	CAM SOP-00316	CCME CWS m
Strong Acid Leachable Metals by ICPMS (1)	3	2019/04/09	2019/04/10	CAM SOP-00447	EPA 6020B m
Strong Acid Leachable Metals by ICPMS (1)	1	2019/04/11	2019/04/11	CAM SOP-00447	EPA 6020B m
Moisture (1)	7	N/A	2019/04/08	CAM SOP-00445	Carter 2nd ed 51.2 m
Moisture (1)	1	N/A	2019/04/11	CAM SOP-00445	Carter 2nd ed 51.2 m
PAH Compounds in Soil by GC/MS (SIM) (1)	3	2019/04/10	2019/04/10	CAM SOP-00318	EPA 8270D m
PAH Compounds in Soil by GC/MS (SIM) (1)	1	2019/04/11	2019/04/12	CAM SOP-00318	EPA 8270D m
pH CaCl2 EXTRACT (1)	4	2019/04/10	2019/04/10	CAM SOP-00413	EPA 9045 D m
Volatile Organic Compounds and F1 PHCs (1)	5	N/A	2019/04/10	CAM SOP-00230	EPA 8260C m

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing. Maxxam is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Maxxam, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Your Project #: OTT-00241785-B
Site Location: MONTGOMERY
Your C.O.C. #: 710467-02-01

Attention: Mark Devlin

exp Services Inc
Ottawa Branch
100-2650 Queensview Drive
Ottawa, ON
CANADA K2B 8H6

Report Date: 2019/04/12
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Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B990299

Received: 2019/04/05, 15:50

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) This test was performed by Maxxam Analytics Mississauga

(2) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Alisha Williamson, Project Manager
Email: AWilliamson@maxxam.ca
Phone# (613) 274-0573

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B990299
Report Date: 2019/04/12

exp Services Inc
Client Project #: OTT-00241785-B
Site Location: MONTGOMERY
Sampler Initials: MAD

O.REG 153 ICPMS METALS (SOIL)

Maxxam ID		JJQ530	JJQ532	JJQ534		JJQ539		
Sampling Date		2019/04/04 10:00	2019/04/04 13:00	2019/04/05 10:00				
COC Number		710467-02-01	710467-02-01	710467-02-01		710467-02-01		
	UNITS	**BH1-SS1**	**BH2-AUG1**	**BH3-AUG1B**	**QC Batch**	**BH10-SS2**	**RDL**	**QC Batch**
Metals								
Acid Extractable Antimony (Sb)	ug/g	0.92	0.31	0.39	6060690	0.64	0.20	6065343
Acid Extractable Arsenic (As)	ug/g	6.3	4.6	6.8	6060690	7.4	1.0	6065343
Acid Extractable Barium (Ba)	ug/g	93	72	120	6060690	110	0.50	6065343
Acid Extractable Beryllium (Be)	ug/g	0.72	0.39	0.80	6060690	0.70	0.20	6065343
Acid Extractable Boron (B)	ug/g	5.5	<5.0	9.2	6060690	<5.0	5.0	6065343
Acid Extractable Cadmium (Cd)	ug/g	0.35	0.38	0.38	6060690	0.46	0.10	6065343
Acid Extractable Chromium (Cr)	ug/g	22	15	26	6060690	22	1.0	6065343
Acid Extractable Cobalt (Co)	ug/g	12	6.1	11	6060690	12	0.10	6065343
Acid Extractable Copper (Cu)	ug/g	28	39	30	6060690	32	0.50	6065343
Acid Extractable Lead (Pb)	ug/g	34	52	42	6060690	60	1.0	6065343
Acid Extractable Molybdenum (Mo)	ug/g	2.9	1.1	2.1	6060690	2.9	0.50	6065343
Acid Extractable Nickel (Ni)	ug/g	35	18	39	6060690	36	0.50	6065343
Acid Extractable Selenium (Se)	ug/g	<0.50	<0.50	<0.50	6060690	<0.50	0.50	6065343
Acid Extractable Silver (Ag)	ug/g	<0.20	<0.20	<0.20	6060690	0.26	0.20	6065343
Acid Extractable Thallium (Tl)	ug/g	0.44	0.19	0.43	6060690	0.41	0.050	6065343
Acid Extractable Uranium (U)	ug/g	1.2	0.61	1.6	6060690	1.1	0.050	6065343
Acid Extractable Vanadium (V)	ug/g	40	22	35	6060690	36	5.0	6065343
Acid Extractable Zinc (Zn)	ug/g	69	81	99	6060690	91	5.0	6065343

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B990299
Report Date: 2019/04/12

exp Services Inc
Client Project #: OTT-00241785-B
Site Location: MONTGOMERY
Sampler Initials: MAD

O.REG 153 PAHS (SOIL)

Maxxam ID		JJQ530		JJQ532		JJQ534		JJQ539		
Sampling Date		2019/04/04 10:00		2019/04/04 13:00		2019/04/05 10:00				
COC Number		710467-02-01		710467-02-01		710467-02-01		710467-02-01		
	UNITS	**BH1-SS1**	**RDL**	**BH2-AUG1**	**RDL**	**BH3-AUG1B**	**QC Batch**	**BH10-SS2**	**RDL**	**QC Batch**
Inorganics										
Moisture	%	16	1.0	13	1.0	22	6059726	17	1.0	6064740
Calculated Parameters										
Methylnaphthalene, 2-(1-)	ug/g	<0.0071	0.0071	<0.071	0.071	<0.0071	6058367	0.012	0.0071	6063447
Polyaromatic Hydrocarbons										
Acenaphthene	ug/g	0.016	0.0050	<0.050	0.050	<0.0050	6062873	0.024	0.0050	6065637
Acenaphthylene	ug/g	0.015	0.0050	0.057	0.050	<0.0050	6062873	0.035	0.0050	6065637
Anthracene	ug/g	0.031	0.0050	0.069	0.050	0.012	6062873	0.063	0.0050	6065637
Benzo(a)anthracene	ug/g	0.098	0.0050	0.36	0.050	0.073	6062873	0.27	0.0050	6065637
Benzo(a)pyrene	ug/g	0.095	0.0050	0.35	0.050	0.074	6062873	0.29	0.0050	6065637
Benzo(b/j)fluoranthene	ug/g	0.14	0.0050	0.49	0.050	0.11	6062873	0.44	0.0050	6065637
Benzo(g,h,i)perylene	ug/g	0.065	0.0050	0.21	0.050	0.061	6062873	0.20	0.0050	6065637
Benzo(k)fluoranthene	ug/g	0.050	0.0050	0.19	0.050	0.037	6062873	0.16	0.0050	6065637
Chrysene	ug/g	0.084	0.0050	0.34	0.050	0.073	6062873	0.25	0.0050	6065637
Dibenz(a,h)anthracene	ug/g	0.018	0.0050	0.067	0.050	0.015	6062873	0.053	0.0050	6065637
Fluoranthene	ug/g	0.23	0.0050	0.85	0.050	0.20	6062873	0.56	0.0050	6065637
Fluorene	ug/g	0.015	0.0050	<0.050	0.050	<0.0050	6062873	0.024	0.0050	6065637
Indeno(1,2,3-cd)pyrene	ug/g	0.069	0.0050	0.25	0.050	0.066	6062873	0.23	0.0050	6065637
1-Methylnaphthalene	ug/g	<0.0050	0.0050	<0.050	0.050	<0.0050	6062873	0.0055	0.0050	6065637
2-Methylnaphthalene	ug/g	<0.0050	0.0050	<0.050	0.050	<0.0050	6062873	0.0064	0.0050	6065637
Naphthalene	ug/g	<0.0050	0.0050	<0.050	0.050	<0.0050	6062873	0.0062	0.0050	6065637
Phenanthrene	ug/g	0.12	0.0050	0.36	0.050	0.066	6062873	0.23	0.0050	6065637
Pyrene	ug/g	0.18	0.0050	0.68	0.050	0.15	6062873	0.45	0.0050	6065637
Surrogate Recovery (%)										
D10-Anthracene	%	93		115		96	6062873	100		6065637
D14-Terphenyl (FS)	%	106		102		96	6062873	98		6065637
D8-Acenaphthylene	%	95		97		100	6062873	92		6065637

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B990299
Report Date: 2019/04/12

exp Services Inc
Client Project #: OTT-00241785-B
Site Location: MONTGOMERY
Sampler Initials: MAD

O.REG 153 VOCS BY HS & F1-F4 (SOIL)

Maxxam ID		JJQ531		JJQ533	JJQ535	JJQ536		
Sampling Date		2019/04/04 11:00		2019/04/04 15:00	2019/04/05 12:00	2019/04/05 13:00		
COC Number		710467-02-01		710467-02-01	710467-02-01	710467-02-01		
	UNITS	**BH1-SS6**	**RDL**	**BH2-SS6**	**BH3-SS5**	**BH10-SS3**	**RDL**	**QC Batch**
Inorganics								
Moisture	%	3.3	1.0	6.0	7.0	5.2	1.0	6059726
Calculated Parameters								
1,3-Dichloropropene (cis+trans)	ug/g	<0.050	0.050	<0.050	<0.050	<0.050	0.050	6058355
Volatile Organics								
Acetone (2-Propanone)	ug/g	<0.50	0.50	<0.50	<0.50	<0.50	0.50	6060206
Benzene	ug/g	<0.020	0.020	<0.020	<0.020	<0.020	0.020	6060206
Bromodichloromethane	ug/g	<0.050	0.050	<0.050	<0.050	<0.050	0.050	6060206
Bromoform	ug/g	<0.050	0.050	<0.050	<0.050	<0.050	0.050	6060206
Bromomethane	ug/g	<0.050	0.050	<0.050	<0.050	<0.050	0.050	6060206
Carbon Tetrachloride	ug/g	<0.050	0.050	<0.050	<0.050	<0.050	0.050	6060206
Chlorobenzene	ug/g	<0.050	0.050	<0.050	<0.050	<0.050	0.050	6060206
Chloroform	ug/g	<0.050	0.050	<0.050	<0.050	<0.050	0.050	6060206
Dibromochloromethane	ug/g	<0.050	0.050	<0.050	<0.050	<0.050	0.050	6060206
1,2-Dichlorobenzene	ug/g	<0.050	0.050	<0.050	<0.050	<0.050	0.050	6060206
1,3-Dichlorobenzene	ug/g	<0.050	0.050	<0.050	<0.050	<0.050	0.050	6060206
1,4-Dichlorobenzene	ug/g	<0.050	0.050	<0.050	<0.050	<0.050	0.050	6060206
Dichlorodifluoromethane (FREON 12)	ug/g	<0.050	0.050	<0.050	<0.050	<0.050	0.050	6060206
1,1-Dichloroethane	ug/g	<0.050	0.050	<0.050	<0.050	<0.050	0.050	6060206
1,2-Dichloroethane	ug/g	<0.050	0.050	<0.050	<0.050	<0.050	0.050	6060206
1,1-Dichloroethylene	ug/g	<0.050	0.050	<0.050	<0.050	<0.050	0.050	6060206
cis-1,2-Dichloroethylene	ug/g	<0.050	0.050	<0.050	<0.050	<0.050	0.050	6060206
trans-1,2-Dichloroethylene	ug/g	<0.050	0.050	<0.050	<0.050	<0.050	0.050	6060206
1,2-Dichloropropane	ug/g	<0.050	0.050	<0.050	<0.050	<0.050	0.050	6060206
cis-1,3-Dichloropropene	ug/g	<0.030	0.030	<0.030	<0.030	<0.030	0.030	6060206
trans-1,3-Dichloropropene	ug/g	<0.040	0.040	<0.040	<0.040	<0.040	0.040	6060206
Ethylbenzene	ug/g	<0.020	0.020	<0.020	<0.020	<0.020	0.020	6060206
Ethylene Dibromide	ug/g	<0.050	0.050	<0.050	<0.050	<0.050	0.050	6060206
Hexane	ug/g	4.0	0.050	0.16	0.39	0.47	0.050	6060206
Methylene Chloride(Dichloromethane)	ug/g	<0.050	0.050	<0.050	<0.050	<0.050	0.050	6060206
Methyl Ethyl Ketone (2-Butanone)	ug/g	<0.50	0.50	<0.50	<0.50	<0.50	0.50	6060206
Methyl Isobutyl Ketone	ug/g	<0.50	0.50	<0.50	<0.50	<0.50	0.50	6060206
Methyl t-butyl ether (MTBE)	ug/g	<0.050	0.050	<0.050	<0.050	<0.050	0.050	6060206
Styrene	ug/g	<0.050	0.050	<0.050	<0.050	<0.050	0.050	6060206

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B990299
Report Date: 2019/04/12

exp Services Inc
Client Project #: OTT-00241785-B
Site Location: MONTGOMERY
Sampler Initials: MAD

O.REG 153 VOCS BY HS & F1-F4 (SOIL)

Maxxam ID		JJQ531		JJQ533	JJQ535	JJQ536		
Sampling Date		2019/04/04 11:00		2019/04/04 15:00	2019/04/05 12:00	2019/04/05 13:00		
COC Number		710467-02-01		710467-02-01	710467-02-01	710467-02-01		
	UNITS	**BH1-SS6**	**RDL**	**BH2-SS6**	**BH3-SS5**	**BH10-SS3**	**RDL**	**QC Batch**
1,1,1,2-Tetrachloroethane	ug/g	<0.050	0.050	<0.050	<0.050	<0.050	0.050	6060206
1,1,2,2-Tetrachloroethane	ug/g	<0.050	0.050	<0.050	<0.050	<0.050	0.050	6060206
Tetrachloroethylene	ug/g	<0.050	0.050	<0.050	<0.050	<0.050	0.050	6060206
Toluene	ug/g	0.025	0.020	<0.020	0.024	0.026	0.020	6060206
1,1,1-Trichloroethane	ug/g	<0.050	0.050	<0.050	<0.050	<0.050	0.050	6060206
1,1,2-Trichloroethane	ug/g	<0.050	0.050	<0.050	<0.050	<0.050	0.050	6060206
Trichloroethylene	ug/g	<0.050	0.050	<0.050	<0.050	<0.050	0.050	6060206
Trichlorofluoromethane (FREON 11)	ug/g	<0.050	0.050	<0.050	<0.050	<0.050	0.050	6060206
Vinyl Chloride	ug/g	<0.020	0.020	<0.020	<0.020	<0.020	0.020	6060206
p+m-Xylene	ug/g	0.43	0.020	0.024	0.053	0.067	0.020	6060206
o-Xylene	ug/g	0.13	0.020	<0.020	<0.020	<0.020	0.020	6060206
Total Xylenes	ug/g	0.56	0.020	0.024	0.053	0.067	0.020	6060206
F1 (C6-C10)	ug/g	220	50	18	17	24	10	6060206
F1 (C6-C10) - BTEX	ug/g	220	50	18	16	24	10	6060206
F2-F4 Hydrocarbons								
F2 (C10-C16 Hydrocarbons)	ug/g	170	10	120	29	28	10	6059788
F3 (C16-C34 Hydrocarbons)	ug/g	180	50	150	<50	<50	50	6059788
F4 (C34-C50 Hydrocarbons)	ug/g	<50	50	<50	<50	<50	50	6059788
Reached Baseline at C50	ug/g	Yes		Yes	Yes	Yes		6059788
Surrogate Recovery (%)								
o-Terphenyl	%	96		94	94	95		6059788
4-Bromofluorobenzene	%	98		97	96	96		6060206
D10-o-Xylene	%	109		120	105	104		6060206
D4-1,2-Dichloroethane	%	101		107	106	102		6060206
D8-Toluene	%	100		98	100	100		6060206

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B990299
Report Date: 2019/04/12

exp Services Inc
Client Project #: OTT-00241785-B
Site Location: MONTGOMERY
Sampler Initials: MAD

RESULTS OF ANALYSES OF SOIL

Maxxam ID		JJQ530	JJQ531	JJQ532	JJQ533	
Sampling Date		2019/04/04 10:00	2019/04/04 11:00	2019/04/04 13:00	2019/04/04 15:00	
COC Number		710467-02-01	710467-02-01	710467-02-01	710467-02-01	
	UNITS	**BH1-SS1**	**BH1-SS6**	**BH2-AUG1**	**BH2-SS6**	**QC Batch**
Inorganics						
Available (CaCl2) pH	pH	7.55	7.99	7.68	7.77	6062631
QC Batch = Quality Control Batch						

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Maxxam Job #: B990299
Report Date: 2019/04/12

exp Services Inc
Client Project #: OTT-00241785-B
Site Location: MONTGOMERY
Sampler Initials: MAD

VOLATILE ORGANICS BY GC/MS (SOIL)

Maxxam ID		JJQ538		
Sampling Date		2019/04/05		
COC Number		710467-02-01		
	UNITS	**TRIP BLANK**	**RDL**	**QC Batch**
Volatile Organics				
Acetone (2-Propanone)	ug/g	<0.50	0.50	6060206
Benzene	ug/g	<0.020	0.020	6060206
Bromodichloromethane	ug/g	<0.050	0.050	6060206
Bromoform	ug/g	<0.050	0.050	6060206
Bromomethane	ug/g	<0.050	0.050	6060206
Carbon Tetrachloride	ug/g	<0.050	0.050	6060206
Chlorobenzene	ug/g	<0.050	0.050	6060206
Chloroform	ug/g	<0.050	0.050	6060206
Dibromochloromethane	ug/g	<0.050	0.050	6060206
1,2-Dichlorobenzene	ug/g	<0.050	0.050	6060206
1,3-Dichlorobenzene	ug/g	<0.050	0.050	6060206
1,4-Dichlorobenzene	ug/g	<0.050	0.050	6060206
Dichlorodifluoromethane (FREON 12)	ug/g	<0.050	0.050	6060206
1,1-Dichloroethane	ug/g	<0.050	0.050	6060206
1,2-Dichloroethane	ug/g	<0.050	0.050	6060206
1,1-Dichloroethylene	ug/g	<0.050	0.050	6060206
cis-1,2-Dichloroethylene	ug/g	<0.050	0.050	6060206
trans-1,2-Dichloroethylene	ug/g	<0.050	0.050	6060206
1,2-Dichloropropane	ug/g	<0.050	0.050	6060206
cis-1,3-Dichloropropene	ug/g	<0.030	0.030	6060206
trans-1,3-Dichloropropene	ug/g	<0.040	0.040	6060206
Ethylbenzene	ug/g	<0.020	0.020	6060206
Ethylene Dibromide	ug/g	<0.050	0.050	6060206
Hexane	ug/g	<0.050	0.050	6060206
Methylene Chloride(Dichloromethane)	ug/g	<0.050	0.050	6060206
Methyl Ethyl Ketone (2-Butanone)	ug/g	<0.50	0.50	6060206
Methyl Isobutyl Ketone	ug/g	<0.50	0.50	6060206
Methyl t-butyl ether (MTBE)	ug/g	<0.050	0.050	6060206
Styrene	ug/g	<0.050	0.050	6060206
1,1,1,2-Tetrachloroethane	ug/g	<0.050	0.050	6060206
1,1,2,2-Tetrachloroethane	ug/g	<0.050	0.050	6060206
Tetrachloroethylene	ug/g	<0.050	0.050	6060206
Toluene	ug/g	<0.020	0.020	6060206
1,1,1-Trichloroethane	ug/g	<0.050	0.050	6060206

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B990299
Report Date: 2019/04/12

exp Services Inc
Client Project #: OTT-00241785-B
Site Location: MONTGOMERY
Sampler Initials: MAD

VOLATILE ORGANICS BY GC/MS (SOIL)

Maxxam ID		JJQ538		
Sampling Date		2019/04/05		
COC Number		710467-02-01		
	UNITS	**TRIP BLANK**	**RDL**	**QC Batch**
1,1,2-Trichloroethane	ug/g	<0.050	0.050	6060206
Trichloroethylene	ug/g	<0.050	0.050	6060206
Trichlorofluoromethane (FREON 11)	ug/g	<0.050	0.050	6060206
Vinyl Chloride	ug/g	<0.020	0.020	6060206
p+m-Xylene	ug/g	<0.020	0.020	6060206
o-Xylene	ug/g	<0.020	0.020	6060206
Total Xylenes	ug/g	<0.020	0.020	6060206
F1 (C6-C10)	ug/g	<10	10	6060206
F1 (C6-C10) - BTEX	ug/g	<10	10	6060206
Surrogate Recovery (%)				
4-Bromofluorobenzene	%	94		6060206
D10-o-Xylene	%	103		6060206
D4-1,2-Dichloroethane	%	105		6060206
D8-Toluene	%	99		6060206

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B990299
Report Date: 2019/04/12

exp Services Inc
Client Project #: OTT-00241785-B
Site Location: MONTGOMERY
Sampler Initials: MAD

TEST SUMMARY

Maxxam ID: JJQ530
Sample ID: BH1-SS1
Matrix: Soil

Collected: 2019/04/04
Shipped:
Received: 2019/04/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	6058367	N/A	2019/04/11	Automated Statchk
Strong Acid Leachable Metals by ICPMS	ICP/MS	6060690	2019/04/09	2019/04/10	Daniel Teclu
Moisture	BAL	6059726	N/A	2019/04/08	Min Yang
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	6062873	2019/04/10	2019/04/10	Mitesh Raj
pH CaCl2 EXTRACT	AT	6062631	2019/04/10	2019/04/10	Surinder Rai

Maxxam ID: JJQ531
Sample ID: BH1-SS6
Matrix: Soil

Collected: 2019/04/04
Shipped:
Received: 2019/04/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6058355	N/A	2019/04/11	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6059788	2019/04/08	2019/04/09	(Kent) Maolin Li
Moisture	BAL	6059726	N/A	2019/04/08	Min Yang
pH CaCl2 EXTRACT	AT	6062631	2019/04/10	2019/04/10	Surinder Rai
Volatile Organic Compounds and F1 PHCs	GC/MSFD	6060206	N/A	2019/04/10	Xueming Jiang

Maxxam ID: JJQ532
Sample ID: BH2-AUG1
Matrix: Soil

Collected: 2019/04/04
Shipped:
Received: 2019/04/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	6058367	N/A	2019/04/11	Automated Statchk
Strong Acid Leachable Metals by ICPMS	ICP/MS	6060690	2019/04/09	2019/04/10	Daniel Teclu
Moisture	BAL	6059726	N/A	2019/04/08	Min Yang
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	6062873	2019/04/10	2019/04/10	Mitesh Raj
pH CaCl2 EXTRACT	AT	6062631	2019/04/10	2019/04/10	Surinder Rai

Maxxam ID: JJQ533
Sample ID: BH2-SS6
Matrix: Soil

Collected: 2019/04/04
Shipped:
Received: 2019/04/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6058355	N/A	2019/04/11	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6059788	2019/04/08	2019/04/09	(Kent) Maolin Li
Moisture	BAL	6059726	N/A	2019/04/08	Min Yang
pH CaCl2 EXTRACT	AT	6062631	2019/04/10	2019/04/10	Surinder Rai
Volatile Organic Compounds and F1 PHCs	GC/MSFD	6060206	N/A	2019/04/10	Xueming Jiang

Maxxam ID: JJQ534
Sample ID: BH3-AUG1B
Matrix: Soil

Collected: 2019/04/05
Shipped:
Received: 2019/04/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	6058367	N/A	2019/04/11	Automated Statchk
Strong Acid Leachable Metals by ICPMS	ICP/MS	6060690	2019/04/09	2019/04/10	Daniel Teclu

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Maxxam Job #: B990299
Report Date: 2019/04/12

exp Services Inc
Client Project #: OTT-00241785-B
Site Location: MONTGOMERY
Sampler Initials: MAD

TEST SUMMARY

Maxxam ID: JJQ534
Sample ID: BH3-AUG1B
Matrix: Soil

Collected: 2019/04/05
Shipped:
Received: 2019/04/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Moisture	BAL	6059726	N/A	2019/04/08	Min Yang
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	6062873	2019/04/10	2019/04/10	Mitesh Raj

Maxxam ID: JJQ535
Sample ID: BH3-SS5
Matrix: Soil

Collected: 2019/04/05
Shipped:
Received: 2019/04/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6058355	N/A	2019/04/11	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6059788	2019/04/08	2019/04/09	(Kent) Maolin Li
Moisture	BAL	6059726	N/A	2019/04/08	Min Yang
Volatile Organic Compounds and F1 PHCs	GC/MSFD	6060206	N/A	2019/04/10	Xueming Jiang

Maxxam ID: JJQ536
Sample ID: BH10-SS3
Matrix: Soil

Collected: 2019/04/05
Shipped:
Received: 2019/04/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6058355	N/A	2019/04/11	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6059788	2019/04/08	2019/04/09	(Kent) Maolin Li
Moisture	BAL	6059726	N/A	2019/04/08	Min Yang
Volatile Organic Compounds and F1 PHCs	GC/MSFD	6060206	N/A	2019/04/10	Xueming Jiang

Maxxam ID: JJQ538
Sample ID: TRIP BLANK
Matrix: Soil

Collected: 2019/04/05
Shipped:
Received: 2019/04/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Volatile Organic Compounds and F1 PHCs	GC/MSFD	6060206	N/A	2019/04/10	Xueming Jiang

Maxxam ID: JJQ539
Sample ID: BH10-SS2
Matrix: Soil

Collected:
Shipped:
Received: 2019/04/05

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	6063447	N/A	2019/04/12	Automated Statchk
Strong Acid Leachable Metals by ICPMS	ICP/MS	6065343	2019/04/11	2019/04/11	Daniel Teclu
Moisture	BAL	6064740	N/A	2019/04/11	Min Yang
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	6065637	2019/04/11	2019/04/12	Mitesh Raj

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Report Date: 2019/04/12

exp Services Inc
Client Project #: OTT-00241785-B
Site Location: MONTGOMERY
Sampler Initials: MAD

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	6.3°C

Sample JJQ531 [BH1-SS6] : VOCF1 Analysis: Due to high concentrations of hydrocarbon compounds, sample required dilution. Detection limits were adjusted accordingly. In order to meet required regulatory criteria, results for selected compounds (obtained by a separate analysis using an appropriate low dilution) are included in the report.

Sample JJQ532 [BH2-AUG1] : PAH Analysis: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

exp Services Inc
Client Project #: OTT-00241785-B
Site Location: MONTGOMERY
Sampler Initials: MAD

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6059788	o-Terphenyl	2019/04/09	108	60 - 130	95	60 - 130	95	%		
6060206	4-Bromofluorobenzene	2019/04/09	98	60 - 140	99	60 - 140	92	%		
6060206	D10-o-Xylene	2019/04/09	112	60 - 130	88	60 - 130	93	%		
6060206	D4-1,2-Dichloroethane	2019/04/09	112	60 - 140	107	60 - 140	109	%		
6060206	D8-Toluene	2019/04/09	104	60 - 140	101	60 - 140	98	%		
6062873	D10-Anthracene	2019/04/10	87	50 - 130	90	50 - 130	87	%		
6062873	D14-Terphenyl (FS)	2019/04/10	106	50 - 130	103	50 - 130	87	%		
6062873	D8-Acenaphthylene	2019/04/10	86	50 - 130	89	50 - 130	82	%		
6065637	D10-Anthracene	2019/04/11	88	50 - 130	93	50 - 130	89	%		
6065637	D14-Terphenyl (FS)	2019/04/11	74	50 - 130	77	50 - 130	81	%		
6065637	D8-Acenaphthylene	2019/04/11	85	50 - 130	88	50 - 130	88	%		
6059726	Moisture	2019/04/08							0.68	20
6059788	F2 (C10-C16 Hydrocarbons)	2019/04/09	106	50 - 130	94	80 - 120	<10	ug/g	NC	30
6059788	F3 (C16-C34 Hydrocarbons)	2019/04/09	110	50 - 130	97	80 - 120	<50	ug/g	NC	30
6059788	F4 (C34-C50 Hydrocarbons)	2019/04/09	109	50 - 130	97	80 - 120	<50	ug/g	NC	30
6060206	1,1,1,2-Tetrachloroethane	2019/04/10	106	60 - 140	101	60 - 130	<0.050	ug/g	NC	50
6060206	1,1,1-Trichloroethane	2019/04/10	100	60 - 140	101	60 - 130	<0.050	ug/g	NC	50
6060206	1,1,2,2-Tetrachloroethane	2019/04/10	111	60 - 140	102	60 - 130	<0.050	ug/g	NC	50
6060206	1,1,2-Trichloroethane	2019/04/10	111	60 - 140	102	60 - 130	<0.050	ug/g	NC	50
6060206	1,1-Dichloroethane	2019/04/10	106	60 - 140	103	60 - 130	<0.050	ug/g	NC	50
6060206	1,1-Dichloroethylene	2019/04/10	105	60 - 140	106	60 - 130	<0.050	ug/g	NC	50
6060206	1,2-Dichlorobenzene	2019/04/10	106	60 - 140	98	60 - 130	<0.050	ug/g	NC	50
6060206	1,2-Dichloroethane	2019/04/10	111	60 - 140	106	60 - 130	<0.050	ug/g	NC	50
6060206	1,2-Dichloropropane	2019/04/10	97	60 - 140	94	60 - 130	<0.050	ug/g	NC	50
6060206	1,3-Dichlorobenzene	2019/04/10	105	60 - 140	98	60 - 130	<0.050	ug/g	NC	50
6060206	1,4-Dichlorobenzene	2019/04/10	107	60 - 140	98	60 - 130	<0.050	ug/g	NC	50
6060206	Acetone (2-Propanone)	2019/04/10	105	60 - 140	99	60 - 140	<0.50	ug/g	NC	50
6060206	Benzene	2019/04/10	101	60 - 140	99	60 - 130	<0.020	ug/g	NC	50
6060206	Bromodichloromethane	2019/04/10	104	60 - 140	101	60 - 130	<0.050	ug/g	NC	50
6060206	Bromoform	2019/04/10	101	60 - 140	94	60 - 130	<0.050	ug/g	NC	50
6060206	Bromomethane	2019/04/10	112	60 - 140	110	60 - 140	<0.050	ug/g	NC	50
6060206	Carbon Tetrachloride	2019/04/10	101	60 - 140	102	60 - 130	<0.050	ug/g	NC	50

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QUALITY ASSURANCE REPORT(CONT'D)

exp Services Inc
Client Project #: OTT-00241785-B
Site Location: MONTGOMERY
Sampler Initials: MAD

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6060206	Chlorobenzene	2019/04/10	102	60 - 140	96	60 - 130	<0.050	ug/g	NC	50
6060206	Chloroform	2019/04/10	105	60 - 140	103	60 - 130	<0.050	ug/g	NC	50
6060206	cis-1,2-Dichloroethylene	2019/04/10	105	60 - 140	103	60 - 130	<0.050	ug/g	NC	50
6060206	cis-1,3-Dichloropropene	2019/04/10	78	60 - 140	74	60 - 130	<0.030	ug/g	NC	50
6060206	Dibromochloromethane	2019/04/10	105	60 - 140	98	60 - 130	<0.050	ug/g	NC	50
6060206	Dichlorodifluoromethane (FREON 12)	2019/04/10	145 (1)	60 - 140	149 (1)	60 - 140	<0.050	ug/g	NC	50
6060206	Ethylbenzene	2019/04/10	96	60 - 140	91	60 - 130	<0.020	ug/g	NC	50
6060206	Ethylene Dibromide	2019/04/10	108	60 - 140	99	60 - 130	<0.050	ug/g	NC	50
6060206	F1 (C6-C10) - BTEX	2019/04/10					<10	ug/g	NC	30
6060206	F1 (C6-C10)	2019/04/10	111	60 - 140	100	80 - 120	<10	ug/g	NC	30
6060206	Hexane	2019/04/10	96	60 - 140	97	60 - 130	<0.050	ug/g	NC	50
6060206	Methyl Ethyl Ketone (2-Butanone)	2019/04/10	108	60 - 140	100	60 - 140	<0.50	ug/g	NC	50
6060206	Methyl Isobutyl Ketone	2019/04/10	98	60 - 140	91	60 - 130	<0.50	ug/g	NC	50
6060206	Methyl t-butyl ether (MTBE)	2019/04/10	99	60 - 140	96	60 - 130	<0.050	ug/g	NC	50
6060206	Methylene Chloride(Dichloromethane)	2019/04/10	113	60 - 140	110	60 - 130	<0.050	ug/g	NC	50
6060206	o-Xylene	2019/04/10	94	60 - 140	90	60 - 130	<0.020	ug/g	NC	50
6060206	p+m-Xylene	2019/04/10	89	60 - 140	84	60 - 130	<0.020	ug/g	NC	50
6060206	Styrene	2019/04/10	93	60 - 140	87	60 - 130	<0.050	ug/g	NC	50
6060206	Tetrachloroethylene	2019/04/10	105	60 - 140	102	60 - 130	<0.050	ug/g	NC	50
6060206	Toluene	2019/04/10	105	60 - 140	100	60 - 130	<0.020	ug/g	NC	50
6060206	Total Xylenes	2019/04/10					<0.020	ug/g	NC	50
6060206	trans-1,2-Dichloroethylene	2019/04/10	106	60 - 140	105	60 - 130	<0.050	ug/g	NC	50
6060206	trans-1,3-Dichloropropene	2019/04/10	83	60 - 140	75	60 - 130	<0.040	ug/g	NC	50
6060206	Trichloroethylene	2019/04/10	103	60 - 140	102	60 - 130	<0.050	ug/g	NC	50
6060206	Trichlorofluoromethane (FREON 11)	2019/04/10	116	60 - 140	118	60 - 130	<0.050	ug/g	NC	50
6060206	Vinyl Chloride	2019/04/10	119	60 - 140	119	60 - 130	<0.020	ug/g	NC	50
6060690	Acid Extractable Antimony (Sb)	2019/04/10	97	75 - 125	99	80 - 120	<0.20	ug/g	NC	30
6060690	Acid Extractable Arsenic (As)	2019/04/10	106	75 - 125	103	80 - 120	<1.0	ug/g	0.84	30
6060690	Acid Extractable Barium (Ba)	2019/04/10	NC	75 - 125	97	80 - 120	<0.50	ug/g	7.4	30
6060690	Acid Extractable Beryllium (Be)	2019/04/10	104	75 - 125	96	80 - 120	<0.20	ug/g	NC	30
6060690	Acid Extractable Boron (B)	2019/04/10	99	75 - 125	95	80 - 120	<5.0	ug/g	NC	30
6060690	Acid Extractable Cadmium (Cd)	2019/04/10	105	75 - 125	97	80 - 120	<0.10	ug/g	NC	30

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6060690	Acid Extractable Chromium (Cr)	2019/04/10	NC	75 - 125	96	80 - 120	<1.0	ug/g	2.8	30
6060690	Acid Extractable Cobalt (Co)	2019/04/10	105	75 - 125	99	80 - 120	<0.10	ug/g	5.4	30
6060690	Acid Extractable Copper (Cu)	2019/04/10	NC	75 - 125	100	80 - 120	<0.50	ug/g	2.3	30
6060690	Acid Extractable Lead (Pb)	2019/04/10	110	75 - 125	103	80 - 120	<1.0	ug/g	5.3	30
6060690	Acid Extractable Molybdenum (Mo)	2019/04/10	106	75 - 125	99	80 - 120	<0.50	ug/g	NC	30
6060690	Acid Extractable Nickel (Ni)	2019/04/10	116	75 - 125	101	80 - 120	<0.50	ug/g	0.54	30
6060690	Acid Extractable Selenium (Se)	2019/04/10	106	75 - 125	98	80 - 120	<0.50	ug/g	NC	30
6060690	Acid Extractable Silver (Ag)	2019/04/10	105	75 - 125	99	80 - 120	<0.20	ug/g	NC	30
6060690	Acid Extractable Thallium (Tl)	2019/04/10	108	75 - 125	102	80 - 120	<0.050	ug/g	3.8	30
6060690	Acid Extractable Uranium (U)	2019/04/10	109	75 - 125	102	80 - 120	<0.050	ug/g	8.3	30
6060690	Acid Extractable Vanadium (V)	2019/04/10	NC	75 - 125	98	80 - 120	<5.0	ug/g	4.2	30
6060690	Acid Extractable Zinc (Zn)	2019/04/10	NC	75 - 125	102	80 - 120	<5.0	ug/g	1.7	30
6062631	Available (CaCl2) pH	2019/04/10			100	97 - 103			0.81	N/A
6062873	1-Methylnaphthalene	2019/04/10	98	50 - 130	100	50 - 130	<0.0050	ug/g	NC	40
6062873	2-Methylnaphthalene	2019/04/10	87	50 - 130	90	50 - 130	<0.0050	ug/g	NC	40
6062873	Acenaphthene	2019/04/10	83	50 - 130	85	50 - 130	<0.0050	ug/g	NC	40
6062873	Acenaphthylene	2019/04/10	83	50 - 130	86	50 - 130	<0.0050	ug/g	NC	40
6062873	Anthracene	2019/04/10	79	50 - 130	82	50 - 130	<0.0050	ug/g	NC	40
6062873	Benzo(a)anthracene	2019/04/10	85	50 - 130	86	50 - 130	<0.0050	ug/g	NC	40
6062873	Benzo(a)pyrene	2019/04/10	81	50 - 130	83	50 - 130	<0.0050	ug/g	NC	40
6062873	Benzo(b/j)fluoranthene	2019/04/10	83	50 - 130	86	50 - 130	<0.0050	ug/g	NC	40
6062873	Benzo(g,h,i)perylene	2019/04/10	80	50 - 130	81	50 - 130	<0.0050	ug/g	NC	40
6062873	Benzo(k)fluoranthene	2019/04/10	76	50 - 130	77	50 - 130	<0.0050	ug/g	NC	40
6062873	Chrysene	2019/04/10	82	50 - 130	85	50 - 130	<0.0050	ug/g	NC	40
6062873	Dibenz(a,h)anthracene	2019/04/10	78	50 - 130	80	50 - 130	<0.0050	ug/g	NC	40
6062873	Fluoranthene	2019/04/10	99	50 - 130	99	50 - 130	<0.0050	ug/g	NC	40
6062873	Fluorene	2019/04/10	83	50 - 130	85	50 - 130	<0.0050	ug/g	NC	40
6062873	Indeno(1,2,3-cd)pyrene	2019/04/10	78	50 - 130	83	50 - 130	<0.0050	ug/g	NC	40
6062873	Naphthalene	2019/04/10	79	50 - 130	82	50 - 130	<0.0050	ug/g	NC	40
6062873	Phenanthrene	2019/04/10	80	50 - 130	83	50 - 130	<0.0050	ug/g	NC	40
6062873	Pyrene	2019/04/10	101	50 - 130	94	50 - 130	<0.0050	ug/g	NC	40
6064740	Moisture	2019/04/11							2.3	20

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6065343	Acid Extractable Antimony (Sb)	2019/04/11	91	75 - 125	98	80 - 120	<0.20	ug/g	17	30
6065343	Acid Extractable Arsenic (As)	2019/04/11	97	75 - 125	103	80 - 120	<1.0	ug/g	6.0	30
6065343	Acid Extractable Barium (Ba)	2019/04/11	NC	75 - 125	101	80 - 120	<0.50	ug/g	3.0	30
6065343	Acid Extractable Beryllium (Be)	2019/04/11	97	75 - 125	97	80 - 120	<0.20	ug/g	9.1	30
6065343	Acid Extractable Boron (B)	2019/04/11	95	75 - 125	97	80 - 120	<5.0	ug/g	10	30
6065343	Acid Extractable Cadmium (Cd)	2019/04/11	96	75 - 125	98	80 - 120	<0.10	ug/g	3.4	30
6065343	Acid Extractable Chromium (Cr)	2019/04/11	95	75 - 125	101	80 - 120	<1.0	ug/g	10	30
6065343	Acid Extractable Cobalt (Co)	2019/04/11	92	75 - 125	99	80 - 120	<0.10	ug/g	6.3	30
6065343	Acid Extractable Copper (Cu)	2019/04/11	99	75 - 125	102	80 - 120	<0.50	ug/g	3.4	30
6065343	Acid Extractable Lead (Pb)	2019/04/11	NC	75 - 125	99	80 - 120	<1.0	ug/g	11	30
6065343	Acid Extractable Molybdenum (Mo)	2019/04/11	98	75 - 125	98	80 - 120	<0.50	ug/g	1.7	30
6065343	Acid Extractable Nickel (Ni)	2019/04/11	91	75 - 125	99	80 - 120	<0.50	ug/g	3.9	30
6065343	Acid Extractable Selenium (Se)	2019/04/11	100	75 - 125	104	80 - 120	<0.50	ug/g	NC	30
6065343	Acid Extractable Silver (Ag)	2019/04/11	98	75 - 125	99	80 - 120	<0.20	ug/g	NC	30
6065343	Acid Extractable Thallium (Tl)	2019/04/11	90	75 - 125	97	80 - 120	<0.050	ug/g	4.8	30
6065343	Acid Extractable Uranium (U)	2019/04/11	97	75 - 125	100	80 - 120	<0.050	ug/g	0.70	30
6065343	Acid Extractable Vanadium (V)	2019/04/11	NC	75 - 125	100	80 - 120	<5.0	ug/g	11	30
6065343	Acid Extractable Zinc (Zn)	2019/04/11	NC	75 - 125	101	80 - 120	<5.0	ug/g	14	30
6065637	1-Methylnaphthalene	2019/04/11	91	50 - 130	102	50 - 130	<0.0050	ug/g	NC	40
6065637	2-Methylnaphthalene	2019/04/11	81	50 - 130	93	50 - 130	<0.0050	ug/g	NC	40
6065637	Acenaphthene	2019/04/11	89	50 - 130	89	50 - 130	<0.0050	ug/g	NC	40
6065637	Acenaphthylene	2019/04/11	88	50 - 130	89	50 - 130	<0.0050	ug/g	NC	40
6065637	Anthracene	2019/04/11	84	50 - 130	86	50 - 130	<0.0050	ug/g	NC	40
6065637	Benzo(a)anthracene	2019/04/11	88	50 - 130	91	50 - 130	<0.0050	ug/g	NC	40
6065637	Benzo(a)pyrene	2019/04/11	73	50 - 130	78	50 - 130	<0.0050	ug/g	NC	40
6065637	Benzo(b/j)fluoranthene	2019/04/11	74	50 - 130	78	50 - 130	<0.0050	ug/g	NC	40
6065637	Benzo(g,h,i)perylene	2019/04/11	97	50 - 130	106	50 - 130	<0.0050	ug/g	NC	40
6065637	Benzo(k)fluoranthene	2019/04/11	70	50 - 130	74	50 - 130	<0.0050	ug/g	NC	40
6065637	Chrysene	2019/04/11	90	50 - 130	94	50 - 130	<0.0050	ug/g	NC	40
6065637	Dibenz(a,h)anthracene	2019/04/11	95	50 - 130	83	50 - 130	<0.0050	ug/g	NC	40
6065637	Fluoranthene	2019/04/11	84	50 - 130	82	50 - 130	<0.0050	ug/g	NC	40
6065637	Fluorene	2019/04/11	97	50 - 130	86	50 - 130	<0.0050	ug/g	NC	40

Maxxam Job #: B990299
Report Date: 2019/04/12

QUALITY ASSURANCE REPORT(CONT'D)

exp Services Inc
Client Project #: OTT-00241785-B
Site Location: MONTGOMERY
Sampler Initials: MAD

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6065637	Indeno(1,2,3-cd)pyrene	2019/04/11	103	50 - 130	96	50 - 130	<0.0050	ug/g	NC	40
6065637	Naphthalene	2019/04/11	80	50 - 130	88	50 - 130	<0.0050	ug/g	NC	40
6065637	Phenanthrene	2019/04/11	86	50 - 130	86	50 - 130	<0.0050	ug/g	NC	40
6065637	Pyrene	2019/04/11	89	50 - 130	77	50 - 130	<0.0050	ug/g	NC	40

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) The recovery was above the upper control limit. This may represent a high bias in some results for this specific analyte. For results that were not detected (ND), this potential bias has no impact.

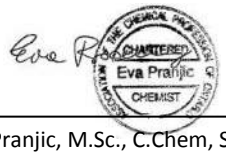
Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B990299
Report Date: 2019/04/12

exp Services Inc
Client Project #: OTT-00241785-B
Site Location: MONTGOMERY
Sampler Initials: MAD

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

MMEDIATE

Maxxam Analytics International Corporation o/a Maxxam Analytics
A Member of the ALS Group
6740 Campobello Road, Mississauga, Ontario Canada L5N 2L8 Tel:(905) 817-5700 Toll-free:800-563-6266 Fax:(905) 817-5777 www.maxxam.ca

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#17497 exp Services Inc	Company Name:		Quotation #:	B46066	Maxxam Job #:	Bottle Order #:
Attention:	Accounts Payable	Attention:	Mark Devlin / Mark McCalla	P.O. #:			710467
Address:	100-2650 Queensview Drive Ottawa ON K2B 8H6	Address:		Project:	Montgomery OTT-00241785-B	COC #:	Project Manager:
Tel:	(613) 688-1899 Fax: (613) 225-7337	Tel:	Fax:	Project Name:		C#710467-02-01	Alisha Williamson
Email:	accounting.ottawa@exp.com; Karen.Burke@exp.com;	Email:	mark.devlin@exp.com / Mark McCalla	Site #:			
				Sampled By:	MAD		

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011)	Other Regulations	Special Instructions
☐ Table 1 ☒ Res/Park ☐ Medium/Fine	☐ CCME ☐ Sanitary Sewer Bylaw	
☐ Table 2 ☐ Ind/Comm ☒ Coarse	☐ Reg 558 ☐ Storm Sewer Bylaw	
☒ Table 3 ☐ Agri/Other ☐ For RSC	☐ MISA Municipality _____	
☐ Table ___	☐ PWQO	
	☐ Other _____	

Include Criteria on Certificate of Analysis (Y/N)? _____

Field Filtered (please circle): Metals / Hg / Cr VI

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	O.Reg 153 VOCs by HS & F1-F4 (Soil)	O.Reg 153 PAHs (Soil)	O.Reg 153 Metals (ICP/MS)	PHC F2	(Hold)	VOC					# of Bottles	Comments
1		BH1 - SS1	April 4 2019	10:00 am	Soil		X	X	X							2	
2		BH1 - SS6	April 4 2019	11:00 am	Soil	X			X							3	
3		BH2 - Aug1	April 4 2019	1:00 pm	Soil		X	X	X							2	
4		BH2 - SS6	April 4 2019	3:00 pm	Soil	X			X							3	
5		BH3 - Aug1B	April 5 2019	10:00	Soil		X	X								2	
6		BH3 - SS5	April 5 2019	12:00	Soil	X										3	
7		BH10 - SS3	April 5 2019	1:00	Soil	X										3	
8		BH1 - SS5	April 4 2019	10:30 am	Soil					X						3	Please hold
9		Trip Blank	April 5 2019	~~xxxx~~	Soil						X					1	
10																	

05-Apr-19 15:50
Alisha Williamson
B990299
URE ENV-755

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects

Regular (Standard) TAT: ☒
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests..
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: _____ Time Required: _____ ☐
Rush Confirmation Number: _____ *(call lab for #)*

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
Mark Devlin	19/04/05	3:47pm	Sarge Kegor	19/04/05	15:50	

Laboratory Use Only

Time Sensitive	Temperature (°C) on Recei	Custody Seal	Yes	No
	8.3.8	Present	X	
		Intact	X	

RECEIVED IN OTTAWA
On ice

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO MAXXAM'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.MAXXAM.CA/TERMS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

** SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT HTTP://MAXXAM.CA/WP-CONTENT/UPLOADS/ONTARIO-COC.PDF.

SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

White: Maxxa Yellow: Client

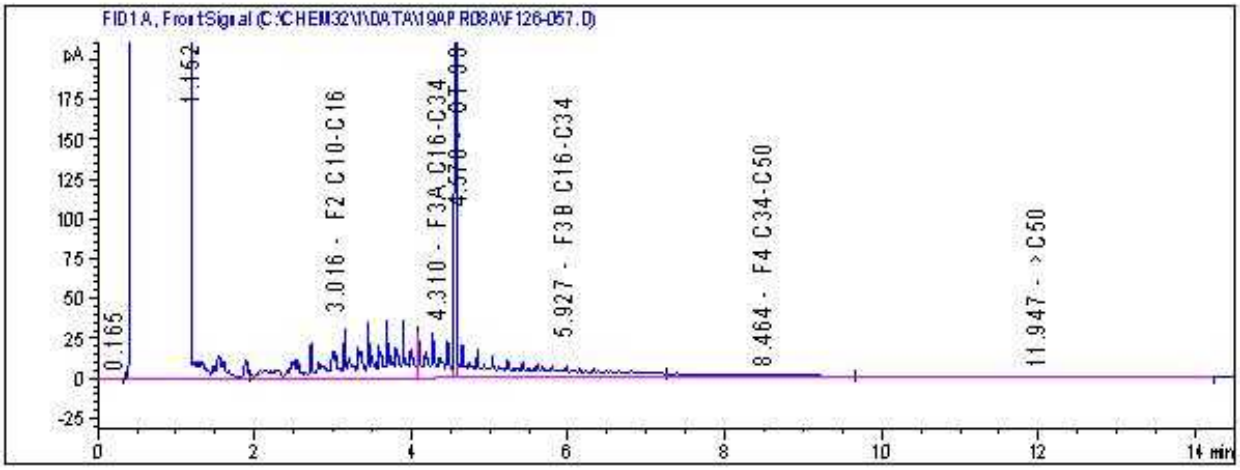
7/2/1

Maxxam Analytics International Corporation o/a Maxxam Analytics

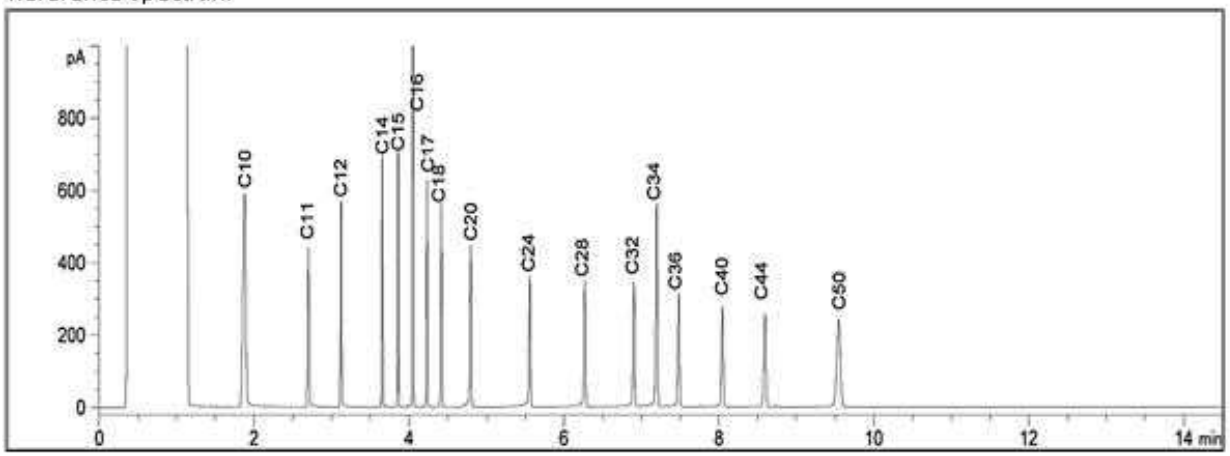
Maxxam Job #: B990299
Report Date: 2019/04/12
Maxxam Sample: JJQ531

exp Services Inc
Client Project #: OTT-00241785-B
Project name: MONTGOMERY
Client ID: BH1-SS6

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum



TYPICAL PRODUCT CARBON NUMBER RANGES

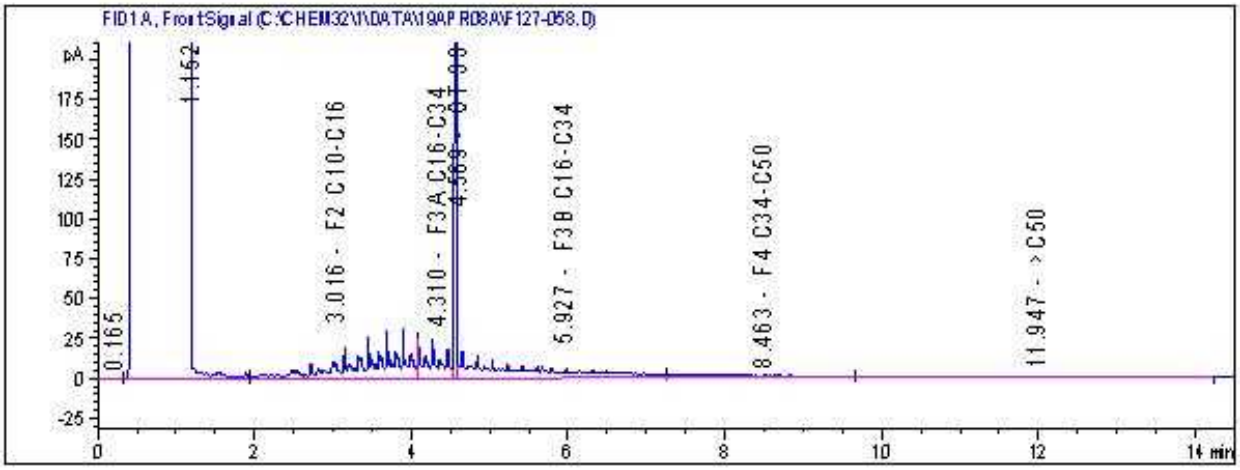
Gasoline: **C6 - C12**	Diesel: **C10 - C24**	Jet Fuels: **C6 - C16**
Varsol: **C8 - C12**	Fuel Oils: **C6 - C32**	Creosote: **C10 - C26**
Kerosene: **C8 - C16**	Motor Oils: **C16 - C50**	Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

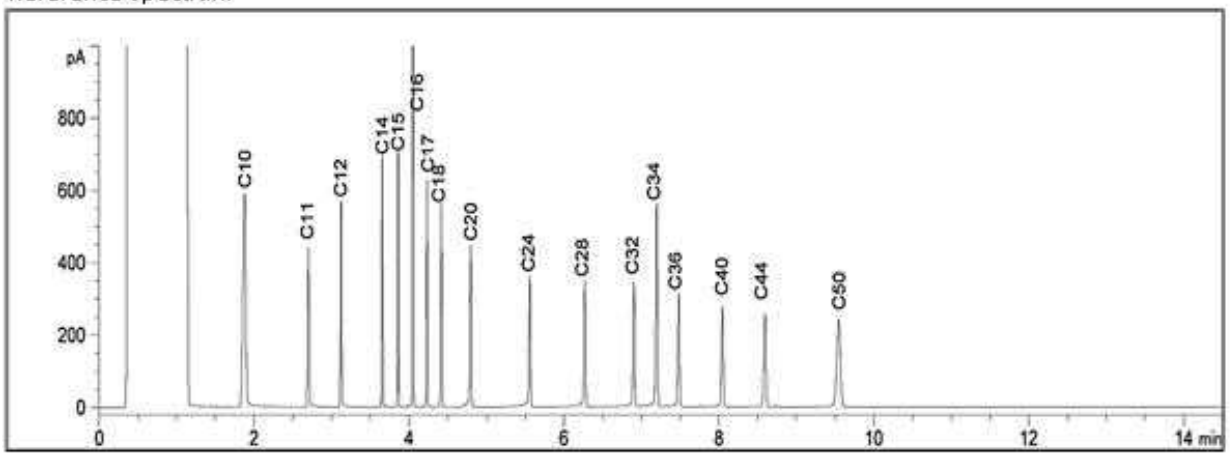
Maxxam Job #: B990299
Report Date: 2019/04/12
Maxxam Sample: JJQ533

exp Services Inc
Client Project #: OTT-00241785-B
Project name: MONTGOMERY
Client ID: BH2-SS6

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum



TYPICAL PRODUCT CARBON NUMBER RANGES

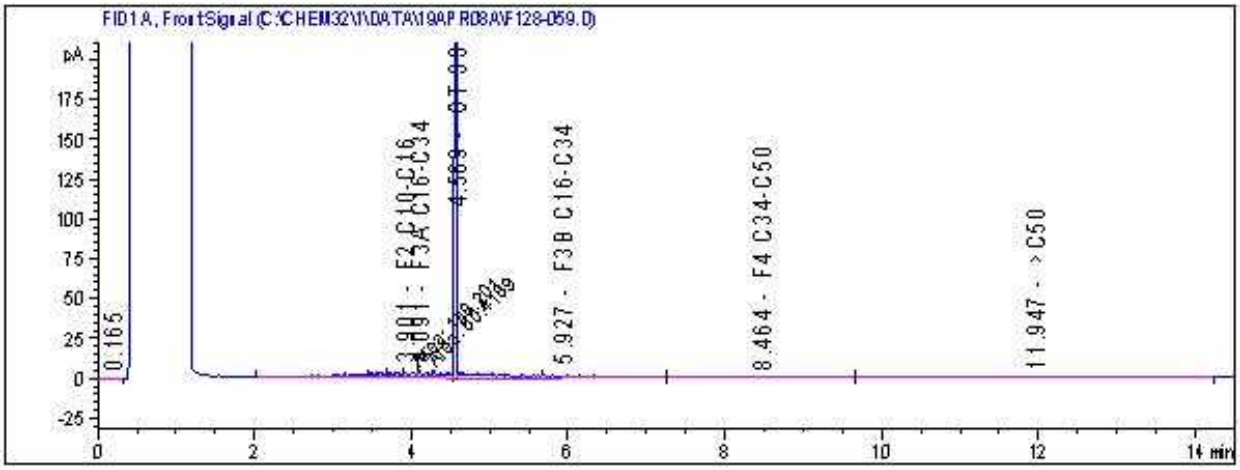
Gasoline: **C6 - C12**	Diesel: **C10 - C24**	Jet Fuels: **C6 - C16**
Varsol: **C8 - C12**	Fuel Oils: **C6 - C32**	Creosote: **C10 - C26**
Kerosene: **C8 - C16**	Motor Oils: **C16 - C50**	Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

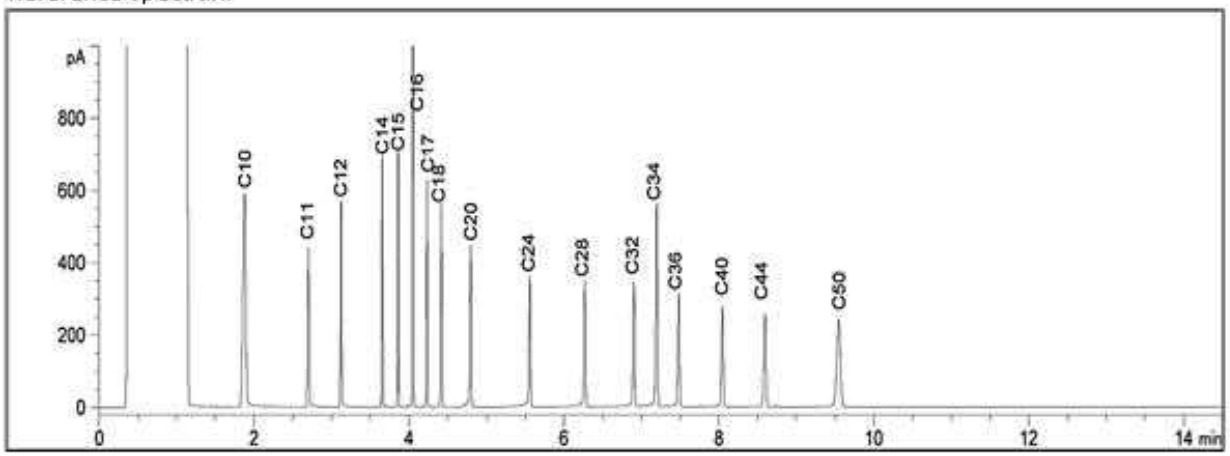
Maxxam Job #: B990299
Report Date: 2019/04/12
Maxxam Sample: JJQ535

exp Services Inc
Client Project #: OTT-00241785-B
Project name: MONTGOMERY
Client ID: BH3-SS5

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum



TYPICAL PRODUCT CARBON NUMBER RANGES

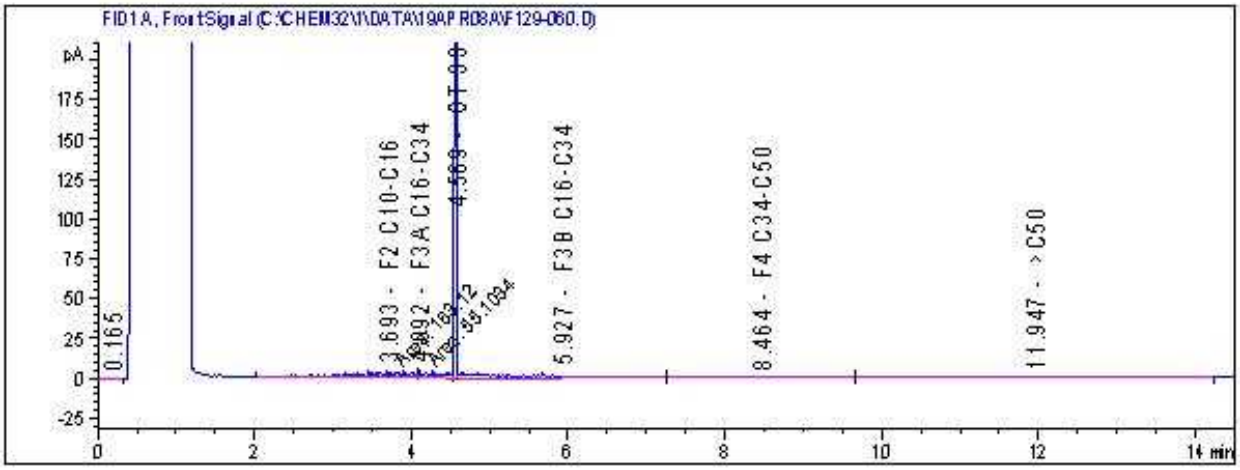
Gasoline: **C6 - C12**	Diesel: **C10 - C24**	Jet Fuels: **C6 - C16**
Varsol: **C8 - C12**	Fuel Oils: **C6 - C32**	Creosote: **C10 - C26**
Kerosene: **C8 - C16**	Motor Oils: **C16 - C50**	Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

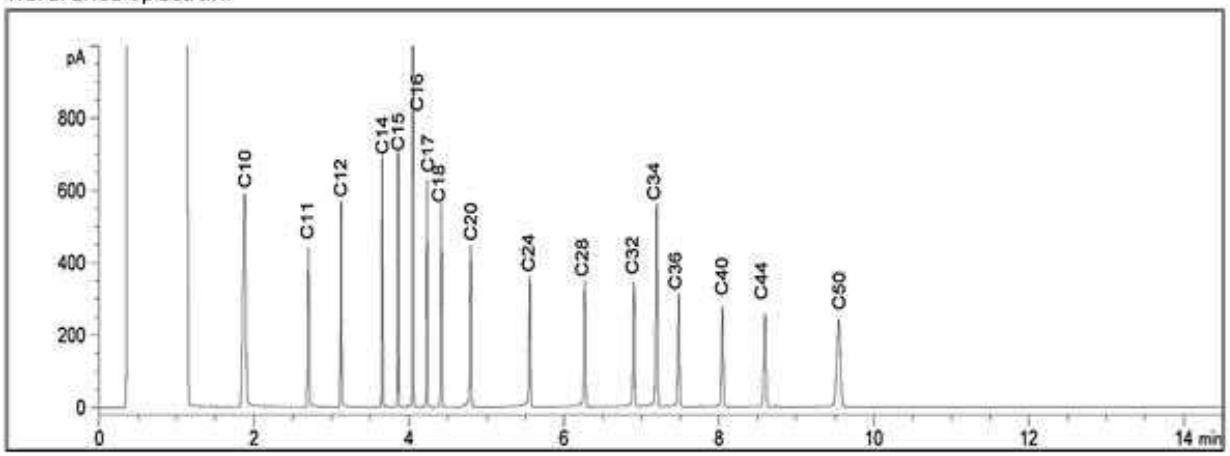
Maxxam Job #: B990299
Report Date: 2019/04/12
Maxxam Sample: JJQ536

exp Services Inc
Client Project #: OTT-00241785-B
Project name: MONTGOMERY
Client ID: BH10-SS3

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Reference Spectrum



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: **C6 - C12**	Diesel: **C10 - C24**	Jet Fuels: **C6 - C16**
Varsol: **C8 - C12**	Fuel Oils: **C6 - C32**	Creosote: **C10 - C26**
Kerosene: **C8 - C16**	Motor Oils: **C16 - C50**	Asphalt: **C18 - C50+**

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam
A Bureau Veritas Group Company

Your Project #: OTT-00241785-BO
Your C.O.C. #: 117554

Attention: Mark McCalla

exp Services Inc
Ottawa Branch
100-2650 Queensview Drive
Ottawa, ON
CANADA K2B 8H6

Report Date: 2019/04/22
Report #: R5679913
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B9A0751
Received: 2019/04/17, 10:45

Sample Matrix: Soil
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Methylnaphthalene Sum (1)	1	N/A	2019/04/22	CAM SOP-00301	EPA 8270D m
Petroleum Hydro. CCME F1 & BTEX in Soil (2)	1	N/A	2019/04/17	OTT SOP-00002	CCME CWS
Petroleum Hydrocarbons F2-F4 in Soil (3)	1	2019/04/17	2019/04/17	OTT SOP-00001	CCME CWS
Moisture	1	N/A	2019/04/18	CAM SOP-00445	McKeague 2nd ed 1978
Moisture (1)	1	N/A	2019/04/18	CAM SOP-00445	Carter 2nd ed 51.2 m
PAH Compounds in Soil by GC/MS (SIM) (1)	1	2019/04/18	2019/04/19	CAM SOP-00318	EPA 8270D m

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing. Maxxam is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Maxxam, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) This test was performed by Maxxam Analytics Mississauga
(2) No lab extraction date is given for F1BTEX & VOC samples that are field preserved with methanol. Extraction date is the date sampled unless otherwise stated.
(3) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data

Your Project #: OTT-00241785-BO
Your C.O.C. #: 117554

Attention: Mark McCalla

exp Services Inc
Ottawa Branch
100-2650 Queensview Drive
Ottawa, ON
CANADA K2B 8H6

Report Date: 2019/04/22
Report #: R5679913
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B9A0751
Received: 2019/04/17, 10:45
reported using validated cold solvent extraction instead of Soxhlet extraction.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Alisha Williamson, Project Manager
Email: AWilliamson@maxxam.ca
Phone# (613) 274-0573
==========
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B9A0751
Report Date: 2019/04/22

exp Services Inc
Client Project #: OTT-00241785-BO
Sampler Initials: MAD

O.REG 153 PAHS (SOIL)

Maxxam ID		JLW130		
Sampling Date		2019/04/04 13:00		
COC Number		117554		
	UNITS	**BH 2 SS3**	**RDL**	**QC Batch**
Inorganics				
Moisture	%	12	1.0	6077209
Calculated Parameters				
Methylnaphthalene, 2-(1-)	ug/g	<0.071	0.071	6074477
Polyaromatic Hydrocarbons				
Acenaphthene	ug/g	<0.050	0.050	6078546
Acenaphthylene	ug/g	<0.050	0.050	6078546
Anthracene	ug/g	<0.050	0.050	6078546
Benzo(a)anthracene	ug/g	<0.050	0.050	6078546
Benzo(a)pyrene	ug/g	<0.050	0.050	6078546
Benzo(b/j)fluoranthene	ug/g	<0.050	0.050	6078546
Benzo(g,h,i)perylene	ug/g	<0.050	0.050	6078546
Benzo(k)fluoranthene	ug/g	<0.050	0.050	6078546
Chrysene	ug/g	<0.050	0.050	6078546
Dibenz(a,h)anthracene	ug/g	<0.050	0.050	6078546
Fluoranthene	ug/g	0.056	0.050	6078546
Fluorene	ug/g	<0.050	0.050	6078546
Indeno(1,2,3-cd)pyrene	ug/g	<0.050	0.050	6078546
1-Methylnaphthalene	ug/g	<0.050	0.050	6078546
2-Methylnaphthalene	ug/g	<0.050	0.050	6078546
Naphthalene	ug/g	<0.050	0.050	6078546
Phenanthrene	ug/g	0.051	0.050	6078546
Pyrene	ug/g	<0.050	0.050	6078546
Surrogate Recovery (%)				
D10-Anthracene	%	107		6078546
D14-Terphenyl (FS)	%	88		6078546
D8-Acenaphthylene	%	99		6078546

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B9A0751
Report Date: 2019/04/22

exp Services Inc
Client Project #: OTT-00241785-BO
Sampler Initials: MAD

O.REG 153 PETROLEUM HYDROCARBONS (SOIL)

Maxxam ID		JLW129			JLW129		
Sampling Date		2019/04/02 13:00			2019/04/02 13:00		
COC Number		117554			117554		
	UNITS	**BH 1 SS7**	**RDL**	**QC Batch**	**BH 1 SS7 Lab-Dup**	**RDL**	**QC Batch**
Inorganics							
Moisture	%	7.7	0.2	6075110			
BTEX & F1 Hydrocarbons							
Benzene	ug/g	<0.02	0.02	6075586			
Toluene	ug/g	<0.02	0.02	6075586			
Ethylbenzene	ug/g	<0.02	0.02	6075586			
o-Xylene	ug/g	<0.02	0.02	6075586			
p+m-Xylene	ug/g	<0.04	0.04	6075586			
Total Xylenes	ug/g	<0.04	0.04	6075586			
F1 (C6-C10)	ug/g	12	10	6075586			
F1 (C6-C10) - BTEX	ug/g	12	10	6075586			
F2-F4 Hydrocarbons							
F2 (C10-C16 Hydrocarbons)	ug/g	51	10	6073563	48	10	6073563
F3 (C16-C34 Hydrocarbons)	ug/g	80	50	6073563	83	50	6073563
F4 (C34-C50 Hydrocarbons)	ug/g	<50	50	6073563	<50	50	6073563
Reached Baseline at C50	ug/g	Yes		6073563	Yes		6073563
Surrogate Recovery (%)							
1,4-Difluorobenzene	%	100		6075586			
4-Bromofluorobenzene	%	107		6075586			
D10-Ethylbenzene	%	109		6075586			
D4-1,2-Dichloroethane	%	97		6075586			
o-Terphenyl	%	83		6073563	86		6073563

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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Maxxam Job #: B9A0751
Report Date: 2019/04/22

exp Services Inc
Client Project #: OTT-00241785-BO
Sampler Initials: MAD

TEST SUMMARY

Maxxam ID: JLW129
Sample ID: BH 1 SS7
Matrix: Soil

Collected: 2019/04/02
Shipped:
Received: 2019/04/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	6075586	N/A	2019/04/17	Fatemeh Habibagahi
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6073563	2019/04/17	2019/04/17	Mariana Vascan
Moisture	BAL	6075110	N/A	2019/04/18	Mariana Vascan

Maxxam ID: JLW129 Dup
Sample ID: BH 1 SS7
Matrix: Soil

Collected: 2019/04/02
Shipped:
Received: 2019/04/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	6073563	2019/04/17	2019/04/17	Mariana Vascan

Maxxam ID: JLW130
Sample ID: BH 2 SS3
Matrix: Soil

Collected: 2019/04/04
Shipped:
Received: 2019/04/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	6074477	N/A	2019/04/22	Automated Statchk
Moisture	BAL	6077209	N/A	2019/04/18	Gurpreet Kaur
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	6078546	2019/04/18	2019/04/19	Mitesh Raj

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Maxxam Job #: B9A0751
Report Date: 2019/04/22

exp Services Inc
Client Project #: OTT-00241785-BO
Sampler Initials: MAD

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	12.0°C

Sample JLW130 [BH 2 SS3] : PAH analysis: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

Results relate only to the items tested.

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Maxxam Job #: B9A0751
Report Date: 2019/04/22

QUALITY ASSURANCE REPORT

exp Services Inc
Client Project #: OTT-00241785-BO
Sampler Initials: MAD

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6073563	o-Terphenyl	2019/04/17	91	30 - 130	91	30 - 130	86	%		
6075586	1,4-Difluorobenzene	2019/04/17	102	60 - 140	102	60 - 140	101	%		
6075586	4-Bromofluorobenzene	2019/04/17	100	60 - 140	101	60 - 140	101	%		
6075586	D10-Ethylbenzene	2019/04/17	111	30 - 130	105	30 - 130	88	%		
6075586	D4-1,2-Dichloroethane	2019/04/17	93	60 - 140	95	60 - 140	96	%		
6078546	D10-Anthracene	2019/04/18	103	50 - 130	103	50 - 130	102	%		
6078546	D14-Terphenyl (FS)	2019/04/18	89	50 - 130	91	50 - 130	92	%		
6078546	D8-Acenaphthylene	2019/04/18	99	50 - 130	99	50 - 130	99	%		
6073563	F2 (C10-C16 Hydrocarbons)	2019/04/17	96	50 - 130	100	80 - 120	<10	ug/g	6.1	50
6073563	F3 (C16-C34 Hydrocarbons)	2019/04/17	96	50 - 130	100	80 - 120	<50	ug/g	4.2	50
6073563	F4 (C34-C50 Hydrocarbons)	2019/04/17	96	50 - 130	100	80 - 120	<50	ug/g	NC	50
6075110	Moisture	2019/04/18							29	50
6075586	Benzene	2019/04/17	88	60 - 140	92	60 - 140	<0.02	ug/g	NC	50
6075586	Ethylbenzene	2019/04/17	88	60 - 140	91	60 - 140	<0.02	ug/g	NC	50
6075586	F1 (C6-C10) - BTEX	2019/04/17					<10	ug/g	101 (1)	50
6075586	F1 (C6-C10)	2019/04/17	93	60 - 140	94	80 - 120	<10	ug/g	74 (1)	50
6075586	o-Xylene	2019/04/17	86	60 - 140	92	60 - 140	<0.02	ug/g	NC	50
6075586	p+m-Xylene	2019/04/17	80	60 - 140	86	60 - 140	<0.04	ug/g	NC	50
6075586	Toluene	2019/04/17	84	60 - 140	90	60 - 140	<0.02	ug/g	NC	50
6075586	Total Xylenes	2019/04/17					<0.04	ug/g	NC	50
6077209	Moisture	2019/04/18							0	20
6078546	1-Methylnaphthalene	2019/04/18	108	50 - 130	111	50 - 130	<0.0050	ug/g	NC	40
6078546	2-Methylnaphthalene	2019/04/18	96	50 - 130	99	50 - 130	<0.0050	ug/g	NC	40
6078546	Acenaphthene	2019/04/18	92	50 - 130	95	50 - 130	<0.0050	ug/g	NC	40
6078546	Acenaphthylene	2019/04/18	100	50 - 130	99	50 - 130	<0.0050	ug/g	NC	40
6078546	Anthracene	2019/04/18	96	50 - 130	97	50 - 130	<0.0050	ug/g	NC	40
6078546	Benzo(a)anthracene	2019/04/18	109	50 - 130	108	50 - 130	<0.0050	ug/g	NC	40
6078546	Benzo(a)pyrene	2019/04/18	93	50 - 130	96	50 - 130	<0.0050	ug/g	NC	40
6078546	Benzo(b/j)fluoranthene	2019/04/18	92	50 - 130	94	50 - 130	<0.0050	ug/g	NC	40
6078546	Benzo(g,h,i)perylene	2019/04/18	97	50 - 130	98	50 - 130	<0.0050	ug/g	NC	40
6078546	Benzo(k)fluoranthene	2019/04/18	76	50 - 130	92	50 - 130	<0.0050	ug/g	NC	40
6078546	Chrysene	2019/04/18	99	50 - 130	100	50 - 130	<0.0050	ug/g	NC	40

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6078546	Dibenz(a,h)anthracene	2019/04/18	94	50 - 130	91	50 - 130	<0.0050	ug/g	NC	40
6078546	Fluoranthene	2019/04/18	95	50 - 130	97	50 - 130	<0.0050	ug/g	NC	40
6078546	Fluorene	2019/04/18	91	50 - 130	94	50 - 130	<0.0050	ug/g	NC	40
6078546	Indeno(1,2,3-cd)pyrene	2019/04/18	100	50 - 130	101	50 - 130	<0.0050	ug/g	NC	40
6078546	Naphthalene	2019/04/18	84	50 - 130	89	50 - 130	<0.0050	ug/g	NC	40
6078546	Phenanthrene	2019/04/18	92	50 - 130	94	50 - 130	<0.0050	ug/g	NC	40
6078546	Pyrene	2019/04/18	96	50 - 130	97	50 - 130	<0.0050	ug/g	NC	40

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

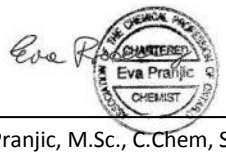
Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Maxxam Job #: B9A0751
Report Date: 2019/04/22

exp Services Inc
Client Project #: OTT-00241785-BO
Sampler Initials: MAD

VALIDATION SIGNATURE PAGE

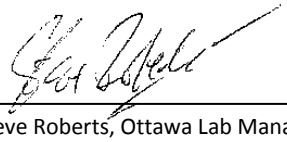
The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist



Liliana Gaburici, VOC Lab



Steve Roberts, Ottawa Lab Manager

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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Maxxam
A Bureau Veritas Group Company

6740 Campobello Road, Mississauga, Ontario L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5779 Toll Free: 800-563-6266
CAM FCD-01191/3

CHAIN OF CUSTODY RECORD 117554 Page ____ of ____

Invoice Information	Report Information (if differs from invoice)	Project Information (where applicable)	Turnaround Time (TAT) Required
Company Name: EXP Services Inc	Company Name:	Quotation #: Stream 3	☐ Regular TAT (5-7 days) Most analyses
Contact Name: MARK MCCALLA	Contact Name:	P.O. #/ AFE#:	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address: 2650 Queensview Drive Ottawa	Address:	Project #: OTT-00241785-B0	Rush TAT (Surcharges will be applied)
Phone: 613 688-1899 Fax:	Phone: Fax:	Site Location:	☐ 1 Day ☒ 2 Days ☐ 3-4 Days
Email: mark.mccalla@exp.com	Email:	Site #:	Date Required:
		Sampled By: MAD	Rush Confirmation #:

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Regulation 153
☐ Table 1 ☒ Res/Park ☐ Med/ Fine
☐ Table 2 ☐ Ind/Comm ☒ Coarse
☒ Table 3 ☐ Agri/ Other
☐ Table ____
FOR RSC (PLEASE CIRCLE) Y / N

Other Regulations
☐ CCME ☐ Sanitary Sewer Bylaw
☐ MISA ☐ Storm Sewer Bylaw
☐ PWQO Region ____
☐ Other (Specify) ____
☐ REG 558 (MIN. 3 DAY TAT REQUIRED)

Include Criteria on Certificate of Analysis: Y / N

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

Analysis Requested

LABORATORY USE ONLY
CUSTODY SEAL: Present (Y) N / Intact (Y) N
COOLER TEMPERATURES: 13.0, 13
COOLING MEDIA PRESENT: (Y) / N

	SAMPLE IDENTIFICATION	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX	# OF CONTAINERS SUBMITTED	FIELD FILTERED (CIRCLE) Metals / Hg / CrVI	BTEX/ PHC F1	PHCs F2 - F4	VOCs	REG 153 METALS & INORGANICS	REG 153 (CPMS METALS	REG 153 METALS (Hg, Cr VI, ICPMS Metals, HWS - B)	PAH							HOLD- DO NOT ANALYZE	COMMENTS
1	BH1 SS7	2019/04/02	1	S			X	X													
2	BH2 SS3	2019/04/02	1	S									X								
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					

17-Apr-19 10:45
Alisha Williamson
B9A0751

RECEIVED IN OTTAWA
on ice

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	MAXXAM JOB #
Mark McCalla	2019/04/17	10:45	Serge Leger	2019/04/17	10:45	

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Maxxam's standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms which are available for viewing at www.maxxam.ca/terms. Sample container, preservation, hold time and packages information can be viewed at http://maxxam.ca/wp-content/uploads/Ontario-COC.pdf.

COC-1004 (03/17)

White: Maxxam ~ Yellow: Client

RUSH!

Maxxam
A Bureau Veritas Group Company

Sent to: Maxxam Mississauga
6740 Campobello Rd
Mississauga, ON, L5N 2L8
Tel: (905) 817-5700

MAXXAM INTERLAB CHAIN OF CUSTODY RECORD

Page 01 of 01

COC # B9A0751-NONT-01-01

REPORT INFORMATION	
Company:	Maxxam
Address:	32 Colonnade Unit 1000, Nepean, Ontario, K2E 7J6
Contact Name:	Alisha Williamson
Email:	AWilliamson@maxxam.ca, scontractor@maxxam.ca
Phone:	
Maxxam Project #:	B9A0751
Client Invoice To:	exp Services Inc (17498)
Client Report To:	exp Services Inc (17498)

Incl. on Report? Yes / No

#	SAMPLE ID	MATRIX	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	SAMPLER INITIALS	# CONT.	ANALYSIS REQUESTED: O.Reg 153 PAHs (Soil)	ADDITIONAL SAMPLE INFORMATION
1	JLW130-BH 2 SS3	SOIL	2019/04/02	13:00	MAD	1	X	(P: 01)
2								
3								
4								
5								
6								
7								
8								
9								
10								

Job Barcode Label

B9A0751

SITE LOCATION:

SITE #:

PROJECT #:
OTT-00241785-BO

PO/AFE, TASK ORDER/SERVICE ORDER, LINE ITEM:

REGULATORY CRITERIA

SPECIAL INSTRUCTIONS
Please inform Maxxam immediately if you are not accredited for the requested test(s).
Please return a copy of this form with the report.

REQUIRED EDDs
National Excel (N001)
OEC Excel (O036)

TURNAROUND TIME
[X] Rush Required
2019/04/22
Date Required
Please inform us if rush charges will be incurred.

COOLER ID:	YES	NO	Temp: (°C)	1	2	3
Custody Seal Present	✓					
Custody Seal Intact	✓					
Cooling Media Present	✓					
				4	4	5

COOLER ID:	YES	NO	Temp: (°C)	1	2	3
Custody Seal Present						
Custody Seal Intact						
Cooling Media Present						

COOLER ID:	YES	NO	Temp: (°C)	1	2	3
Custody Seal Present						
Custody Seal Intact						
Cooling Media Present						

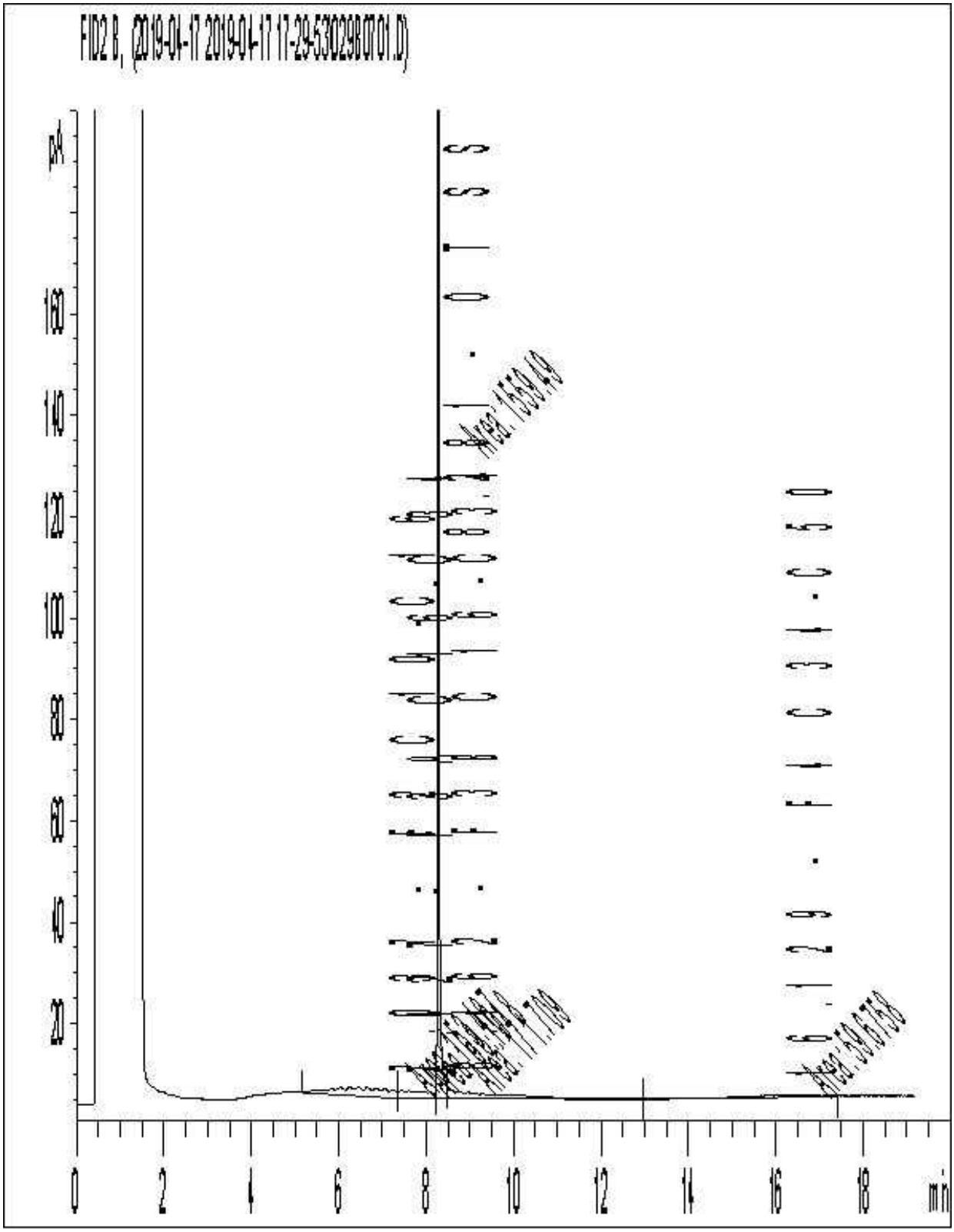
RECEIVING LAB USE ONLY
Maxxam Job #
B9A0751

RELINQUISHED BY: (SIGN & PRINT)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (SIGN & PRINT)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	Samples Labelled By:	Labels Verified By:
1.	2019/04/17	11:30	1.	2019/04/18	08:00		
2.			2.				

Maxxam Job #: B9A0751
Report Date: 2019/04/22
Maxxam Sample: JLW129

exp Services Inc
Client Project #: OTT-00241785-BO
Client ID: BH 1 SS7

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

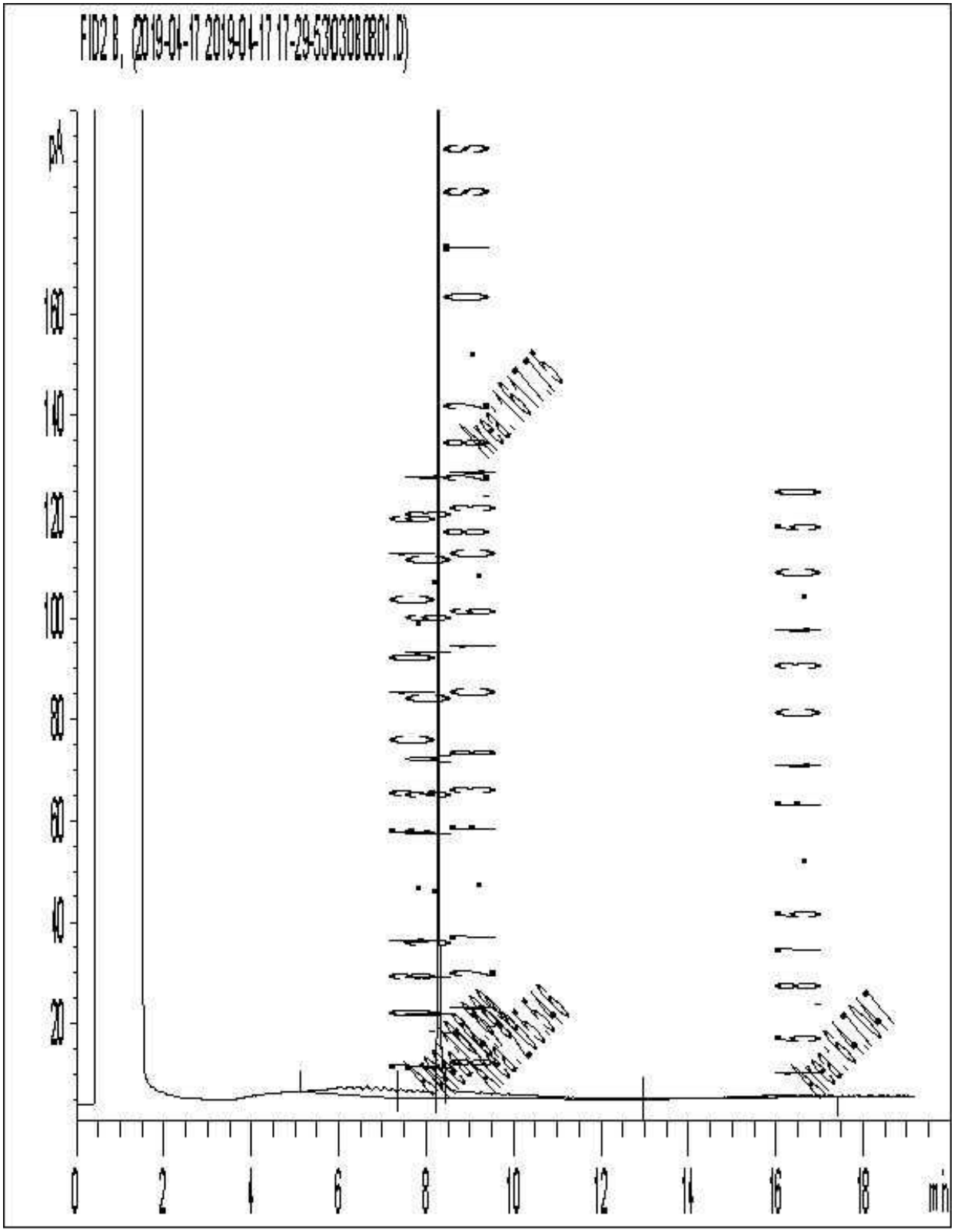


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B9A0751
Report Date: 2019/04/22
Maxxam Sample: JLW129 Lab-Dup

exp Services Inc
Client Project #: OTT-00241785-BO
Client ID: BH 1 SS7

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam
A Bureau Veritas Group Company

Your Project #: OTT-00241785-B
Site Location: MONTGOMERY
Your C.O.C. #: 712975-01-01

Attention: Mark McCalla

exp Services Inc
100-2650 Queensview Drive
Ottawa, ON
CANADA K2B 8H6

Report Date: 2019/04/25
Report #: R5683556
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B9A0656
Received: 2019/04/16, 17:58

Sample Matrix: Water
Samples Received: 5

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
1,3-Dichloropropene Sum	5	N/A	2019/04/24	OTT SOP-00002	EPA 8260C m
Petroleum Hydrocarbons F2-F4 in Water (2)	1	2019/04/17	2019/04/17	OTT SOP-00001	CCME Hydrocarbons
Petroleum Hydrocarbons F2-F4 in Water (2)	3	2019/04/17	2019/04/18	OTT SOP-00001	CCME Hydrocarbons
Dissolved Metals by ICPMS (1)	4	N/A	2019/04/22	CAM SOP-00447	EPA 6020B m
Volatile Organic Compounds and F1 PHCs	4	N/A	2019/04/23	OTT SOP-00002	EPA 8260C m
Volatile Organic Compounds in Water	1	N/A	2019/04/23	OTT SOP-00002	EPA 8260C m

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing. Maxxam is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Maxxam, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) This test was performed by Maxxam Analytics Mississauga
(2) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Maxxam Analytics International Corporation o/a Maxxam Analytics 32 Colonnade Rd, Unit #1000, Nepean, ON K2E 7J6 Phone: 613 274-0573 Fax: 613 274-0574 Website: www.maxxam.ca

Your Project #: OTT-00241785-B
Site Location: MONTGOMERY
Your C.O.C. #: 712975-01-01

Attention: Mark McCalla

exp Services Inc
100-2650 Queensview Drive
Ottawa, ON
CANADA K2B 8H6

Report Date: 2019/04/25
Report #: R5683556
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B9A0656
Received: 2019/04/16, 17:58

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Alisha Williamson, Project Manager
Email: AWilliamson@maxxam.ca
Phone# (613) 274-0573

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B9A0656
Report Date: 2019/04/25

exp Services Inc
Client Project #: OTT-00241785-B
Site Location: MONTGOMERY
Sampler Initials: MAD

O.REG 153 DISSOLVED ICPMS METALS (WATER)

Maxxam ID		JLV697	JLV698	JLV699	JLV700		
Sampling Date		2019/04/16 12:00	2019/04/16 12:00	2019/04/16 12:00	2019/04/16 12:00		
COC Number		712975-01-01	712975-01-01	712975-01-01	712975-01-01		
	UNITS	**MW19-1**	**MW19-2**	**MW19-3**	**DUP-1**	**RDL**	**QC Batch**
Metals							
Dissolved Antimony (Sb)	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	6077360
Dissolved Arsenic (As)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	6077360
Dissolved Barium (Ba)	ug/L	98	53	120	95	2.0	6077360
Dissolved Beryllium (Be)	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	6077360
Dissolved Boron (B)	ug/L	61	49	43	62	10	6077360
Dissolved Cadmium (Cd)	ug/L	<0.10	<0.10	<0.10	<0.10	0.10	6077360
Dissolved Chromium (Cr)	ug/L	<5.0	<5.0	<5.0	<5.0	5.0	6077360
Dissolved Cobalt (Co)	ug/L	<0.50	0.67	<0.50	<0.50	0.50	6077360
Dissolved Copper (Cu)	ug/L	1.0	1.9	1.5	<1.0	1.0	6077360
Dissolved Lead (Pb)	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	6077360
Dissolved Molybdenum (Mo)	ug/L	4.6	3.8	5.0	5.1	0.50	6077360
Dissolved Nickel (Ni)	ug/L	3.8	5.2	4.5	3.7	1.0	6077360
Dissolved Selenium (Se)	ug/L	3.6	5.4	2.3	3.6	2.0	6077360
Dissolved Silver (Ag)	ug/L	<0.10	<0.10	<0.10	<0.10	0.10	6077360
Dissolved Sodium (Na)	ug/L	390000	520000	190000	400000	100	6077360
Dissolved Thallium (Tl)	ug/L	<0.050	<0.050	<0.050	<0.050	0.050	6077360
Dissolved Uranium (U)	ug/L	7.6	15	7.2	7.5	0.10	6077360
Dissolved Vanadium (V)	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	6077360
Dissolved Zinc (Zn)	ug/L	<5.0	<5.0	<5.0	<5.0	5.0	6077360

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B9A0656
Report Date: 2019/04/25

exp Services Inc
Client Project #: OTT-00241785-B
Site Location: MONTGOMERY
Sampler Initials: MAD

O.REG 153 VOCS BY HS & F1-F4 (WATER)

Maxxam ID		JLV697			JLV697			JLV698		
Sampling Date		2019/04/16 12:00			2019/04/16 12:00			2019/04/16 12:00		
COC Number		712975-01-01			712975-01-01			712975-01-01		
	UNITS	**MW19-1**	**RDL**	**QC Batch**	**MW19-1 Lab-Dup**	**RDL**	**QC Batch**	**MW19-2**	**RDL**	**QC Batch**
Calculated Parameters										
1,3-Dichloropropene (cis+trans)	ug/L	<0.50	0.50	6074610				<0.50	0.50	6074610
Volatile Organics										
Acetone (2-Propanone)	ug/L	<10	10	6082362	<10	10	6082362	<10	10	6082362
Benzene	ug/L	<0.20	0.20	6082362	<0.20	0.20	6082362	<0.20	0.20	6082362
Bromodichloromethane	ug/L	<0.50	0.50	6082362	<0.50	0.50	6082362	<0.50	0.50	6082362
Bromoform	ug/L	<1.0	1.0	6082362	<1.0	1.0	6082362	<1.0	1.0	6082362
Bromomethane	ug/L	<0.50	0.50	6082362	<0.50	0.50	6082362	<0.50	0.50	6082362
Carbon Tetrachloride	ug/L	<0.20	0.20	6082362	<0.20	0.20	6082362	<0.20	0.20	6082362
Chlorobenzene	ug/L	<0.20	0.20	6082362	<0.20	0.20	6082362	<0.20	0.20	6082362
Chloroform	ug/L	<0.20	0.20	6082362	<0.20	0.20	6082362	0.68	0.20	6082362
Dibromochloromethane	ug/L	<0.50	0.50	6082362	<0.50	0.50	6082362	<0.50	0.50	6082362
1,2-Dichlorobenzene	ug/L	<0.50	0.50	6082362	<0.50	0.50	6082362	<0.50	0.50	6082362
1,3-Dichlorobenzene	ug/L	<0.50	0.50	6082362	<0.50	0.50	6082362	<0.50	0.50	6082362
1,4-Dichlorobenzene	ug/L	<0.50	0.50	6082362	<0.50	0.50	6082362	<0.50	0.50	6082362
Dichlorodifluoromethane (FREON 12)	ug/L	<1.0	1.0	6082362	<1.0	1.0	6082362	<1.0	1.0	6082362
1,1-Dichloroethane	ug/L	<0.20	0.20	6082362	<0.20	0.20	6082362	<0.20	0.20	6082362
1,2-Dichloroethane	ug/L	<0.50	0.50	6082362	<0.50	0.50	6082362	<0.50	0.50	6082362
1,1-Dichloroethylene	ug/L	<0.20	0.20	6082362	<0.20	0.20	6082362	<0.20	0.20	6082362
cis-1,2-Dichloroethylene	ug/L	<0.50	0.50	6082362	<0.50	0.50	6082362	<0.50	0.50	6082362
trans-1,2-Dichloroethylene	ug/L	<0.50	0.50	6082362	<0.50	0.50	6082362	<0.50	0.50	6082362
1,2-Dichloropropane	ug/L	<0.20	0.20	6082362	<0.20	0.20	6082362	<0.20	0.20	6082362
cis-1,3-Dichloropropene	ug/L	<0.30	0.30	6082362	<0.30	0.30	6082362	<0.30	0.30	6082362
trans-1,3-Dichloropropene	ug/L	<0.40	0.40	6082362	<0.40	0.40	6082362	<0.40	0.40	6082362
Ethylbenzene	ug/L	<0.20	0.20	6082362	<0.20	0.20	6082362	<0.20	0.20	6082362
Ethylene Dibromide	ug/L	<0.20	0.20	6082362	<0.20	0.20	6082362	<0.20	0.20	6082362
Hexane	ug/L	<1.0	1.0	6082362	<1.0	1.0	6082362	<1.0	1.0	6082362
Methylene Chloride(Dichloromethane)	ug/L	<2.0	2.0	6082362	<2.0	2.0	6082362	<2.0	2.0	6082362
Methyl Ethyl Ketone (2-Butanone)	ug/L	<10	10	6082362	<10	10	6082362	<10	10	6082362
Methyl Isobutyl Ketone	ug/L	<5.0	5.0	6082362	<5.0	5.0	6082362	<5.0	5.0	6082362
Methyl t-butyl ether (MTBE)	ug/L	<0.50	0.50	6082362	<0.50	0.50	6082362	<0.50	0.50	6082362
Styrene	ug/L	<0.50	0.50	6082362	<0.50	0.50	6082362	<0.50	0.50	6082362
1,1,1,2-Tetrachloroethane	ug/L	<0.50	0.50	6082362	<0.50	0.50	6082362	<0.50	0.50	6082362
1,1,2,2-Tetrachloroethane	ug/L	<0.50	0.50	6082362	<0.50	0.50	6082362	<0.50	0.50	6082362

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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Maxxam Job #: B9A0656
Report Date: 2019/04/25

exp Services Inc
Client Project #: OTT-00241785-B
Site Location: MONTGOMERY
Sampler Initials: MAD

O.REG 153 VOCS BY HS & F1-F4 (WATER)

Maxxam ID		JLV697			JLV697			JLV698		
Sampling Date		2019/04/16 12:00			2019/04/16 12:00			2019/04/16 12:00		
COC Number		712975-01-01			712975-01-01			712975-01-01		
	UNITS	**MW19-1**	**RDL**	**QC Batch**	**MW19-1 Lab-Dup**	**RDL**	**QC Batch**	**MW19-2**	**RDL**	**QC Batch**
Tetrachloroethylene	ug/L	<0.20	0.20	6082362	<0.20	0.20	6082362	<0.20	0.20	6082362
Toluene	ug/L	<0.20	0.20	6082362	<0.20	0.20	6082362	<0.20	0.20	6082362
1,1,1-Trichloroethane	ug/L	<0.20	0.20	6082362	<0.20	0.20	6082362	<0.20	0.20	6082362
1,1,2-Trichloroethane	ug/L	<0.50	0.50	6082362	<0.50	0.50	6082362	<0.50	0.50	6082362
Trichloroethylene	ug/L	<0.20	0.20	6082362	<0.20	0.20	6082362	<0.20	0.20	6082362
Trichlorofluoromethane (FREON 11)	ug/L	<0.50	0.50	6082362	<0.50	0.50	6082362	<0.50	0.50	6082362
Vinyl Chloride	ug/L	<0.20	0.20	6082362	<0.20	0.20	6082362	<0.20	0.20	6082362
p+m-Xylene	ug/L	<0.20	0.20	6082362	<0.20	0.20	6082362	<0.20	0.20	6082362
o-Xylene	ug/L	<0.20	0.20	6082362	<0.20	0.20	6082362	<0.20	0.20	6082362
Total Xylenes	ug/L	<0.20	0.20	6082362	<0.20	0.20	6082362	<0.20	0.20	6082362
F1 (C6-C10)	ug/L	<25	25	6082362	<25	25	6082362	<25	25	6082362
F1 (C6-C10) - BTEX	ug/L	<25	25	6082362	<25	25	6082362	<25	25	6082362
F2-F4 Hydrocarbons										
F2 (C10-C16 Hydrocarbons)	ug/L	<100	100	6072615				<100	100	6072615
F3 (C16-C34 Hydrocarbons)	ug/L	<200	200	6072615				<200	200	6072615
F4 (C34-C50 Hydrocarbons)	ug/L	<200	200	6072615				<200	200	6072615
Reached Baseline at C50	ug/L	Yes		6072615				Yes		6072615
Surrogate Recovery (%)										
o-Terphenyl	%	107		6072615				106		6072615
4-Bromofluorobenzene	%	101		6082362	100		6082362	99		6082362
D4-1,2-Dichloroethane	%	111		6082362	109		6082362	103		6082362
D8-Toluene	%	98		6082362	98		6082362	98		6082362

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exp Services Inc
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Site Location: MONTGOMERY
Sampler Initials: MAD

O.REG 153 VOCS BY HS & F1-F4 (WATER)

Maxxam ID		JLV699	JLV700		
Sampling Date		2019/04/16 12:00	2019/04/16 12:00		
COC Number		712975-01-01	712975-01-01		
	UNITS	**MW19-3**	**DUP-1**	**RDL**	**QC Batch**
Calculated Parameters					
1,3-Dichloropropene (cis+trans)	ug/L	<0.50	<0.50	0.50	6074610
Volatile Organics					
Acetone (2-Propanone)	ug/L	<10	<10	10	6082362
Benzene	ug/L	<0.20	<0.20	0.20	6082362
Bromodichloromethane	ug/L	<0.50	<0.50	0.50	6082362
Bromoform	ug/L	<1.0	<1.0	1.0	6082362
Bromomethane	ug/L	<0.50	<0.50	0.50	6082362
Carbon Tetrachloride	ug/L	<0.20	<0.20	0.20	6082362
Chlorobenzene	ug/L	<0.20	<0.20	0.20	6082362
Chloroform	ug/L	0.35	<0.20	0.20	6082362
Dibromochloromethane	ug/L	<0.50	<0.50	0.50	6082362
1,2-Dichlorobenzene	ug/L	<0.50	<0.50	0.50	6082362
1,3-Dichlorobenzene	ug/L	<0.50	<0.50	0.50	6082362
1,4-Dichlorobenzene	ug/L	<0.50	<0.50	0.50	6082362
Dichlorodifluoromethane (FREON 12)	ug/L	<1.0	<1.0	1.0	6082362
1,1-Dichloroethane	ug/L	<0.20	<0.20	0.20	6082362
1,2-Dichloroethane	ug/L	<0.50	<0.50	0.50	6082362
1,1-Dichloroethylene	ug/L	<0.20	<0.20	0.20	6082362
cis-1,2-Dichloroethylene	ug/L	<0.50	<0.50	0.50	6082362
trans-1,2-Dichloroethylene	ug/L	<0.50	<0.50	0.50	6082362
1,2-Dichloropropane	ug/L	<0.20	<0.20	0.20	6082362
cis-1,3-Dichloropropene	ug/L	<0.30	<0.30	0.30	6082362
trans-1,3-Dichloropropene	ug/L	<0.40	<0.40	0.40	6082362
Ethylbenzene	ug/L	<0.20	<0.20	0.20	6082362
Ethylene Dibromide	ug/L	<0.20	<0.20	0.20	6082362
Hexane	ug/L	<1.0	<1.0	1.0	6082362
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	2.0	6082362
Methyl Ethyl Ketone (2-Butanone)	ug/L	<10	<10	10	6082362
Methyl Isobutyl Ketone	ug/L	<5.0	<5.0	5.0	6082362
Methyl t-butyl ether (MTBE)	ug/L	<0.50	<0.50	0.50	6082362
Styrene	ug/L	<0.50	<0.50	0.50	6082362
1,1,1,2-Tetrachloroethane	ug/L	<0.50	<0.50	0.50	6082362
1,1,2,2-Tetrachloroethane	ug/L	<0.50	<0.50	0.50	6082362

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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exp Services Inc
Client Project #: OTT-00241785-B
Site Location: MONTGOMERY
Sampler Initials: MAD

O.REG 153 VOCS BY HS & F1-F4 (WATER)

Maxxam ID		JLV699	JLV700		
Sampling Date		2019/04/16 12:00	2019/04/16 12:00		
COC Number		712975-01-01	712975-01-01		
	UNITS	**MW19-3**	**DUP-1**	**RDL**	**QC Batch**
Tetrachloroethylene	ug/L	<0.20	<0.20	0.20	6082362
Toluene	ug/L	<0.20	<0.20	0.20	6082362
1,1,1-Trichloroethane	ug/L	<0.20	<0.20	0.20	6082362
1,1,2-Trichloroethane	ug/L	<0.50	<0.50	0.50	6082362
Trichloroethylene	ug/L	<0.20	<0.20	0.20	6082362
Trichlorofluoromethane (FREON 11)	ug/L	<0.50	<0.50	0.50	6082362
Vinyl Chloride	ug/L	<0.20	<0.20	0.20	6082362
p+m-Xylene	ug/L	<0.20	<0.20	0.20	6082362
o-Xylene	ug/L	<0.20	<0.20	0.20	6082362
Total Xylenes	ug/L	<0.20	<0.20	0.20	6082362
F1 (C6-C10)	ug/L	<25	<25	25	6082362
F1 (C6-C10) - BTEX	ug/L	<25	<25	25	6082362
F2-F4 Hydrocarbons					
F2 (C10-C16 Hydrocarbons)	ug/L	<100	<100	100	6072615
F3 (C16-C34 Hydrocarbons)	ug/L	<200	<200	200	6072615
F4 (C34-C50 Hydrocarbons)	ug/L	<200	<200	200	6072615
Reached Baseline at C50	ug/L	Yes	Yes		6072615
Surrogate Recovery (%)					
o-Terphenyl	%	104	105		6072615
4-Bromofluorobenzene	%	95	100		6082362
D4-1,2-Dichloroethane	%	100	111		6082362
D8-Toluene	%	99	98		6082362

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exp Services Inc
Client Project #: OTT-00241785-B
Site Location: MONTGOMERY
Sampler Initials: MAD

O.REG 153 VOCS (WATER)

Maxxam ID		JLV701		
Sampling Date		2019/04/16 12:00		
COC Number		712975-01-01		
	UNITS	**TRIP BLANK**	**RDL**	**QC Batch**
Calculated Parameters				
1,3-Dichloropropene (cis+trans)	ug/L	<0.50	0.50	6074610
Volatile Organics				
Acetone (2-Propanone)	ug/L	<10	10	6083182
Benzene	ug/L	<0.20	0.20	6083182
Bromodichloromethane	ug/L	<0.50	0.50	6083182
Bromoform	ug/L	<1.0	1.0	6083182
Bromomethane	ug/L	<0.50	0.50	6083182
Carbon Tetrachloride	ug/L	<0.20	0.20	6083182
Chlorobenzene	ug/L	<0.20	0.20	6083182
Chloroform	ug/L	<0.20	0.20	6083182
Dibromochloromethane	ug/L	<0.50	0.50	6083182
1,2-Dichlorobenzene	ug/L	<0.50	0.50	6083182
1,3-Dichlorobenzene	ug/L	<0.50	0.50	6083182
1,4-Dichlorobenzene	ug/L	<0.50	0.50	6083182
Dichlorodifluoromethane (FREON 12)	ug/L	<1.0	1.0	6083182
1,1-Dichloroethane	ug/L	<0.20	0.20	6083182
1,2-Dichloroethane	ug/L	<0.50	0.50	6083182
1,1-Dichloroethylene	ug/L	<0.20	0.20	6083182
cis-1,2-Dichloroethylene	ug/L	<0.50	0.50	6083182
trans-1,2-Dichloroethylene	ug/L	<0.50	0.50	6083182
1,2-Dichloropropane	ug/L	<0.20	0.20	6083182
cis-1,3-Dichloropropene	ug/L	<0.30	0.30	6083182
trans-1,3-Dichloropropene	ug/L	<0.40	0.40	6083182
Ethylbenzene	ug/L	<0.20	0.20	6083182
Ethylene Dibromide	ug/L	<0.20	0.20	6083182
Hexane	ug/L	<1.0	1.0	6083182
Methylene Chloride(Dichloromethane)	ug/L	<2.0	2.0	6083182
Methyl Ethyl Ketone (2-Butanone)	ug/L	<10	10	6083182
Methyl Isobutyl Ketone	ug/L	<5.0	5.0	6083182
Methyl t-butyl ether (MTBE)	ug/L	<0.50	0.50	6083182
Styrene	ug/L	<0.50	0.50	6083182
1,1,1,2-Tetrachloroethane	ug/L	<0.50	0.50	6083182
1,1,2,2-Tetrachloroethane	ug/L	<0.50	0.50	6083182

RDL = Reportable Detection Limit
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exp Services Inc
Client Project #: OTT-00241785-B
Site Location: MONTGOMERY
Sampler Initials: MAD

O.REG 153 VOCS (WATER)

Maxxam ID		JLV701		
Sampling Date		2019/04/16 12:00		
COC Number		712975-01-01		
	UNITS	**TRIP BLANK**	**RDL**	**QC Batch**
Tetrachloroethylene	ug/L	<0.20	0.20	6083182
Toluene	ug/L	<0.20	0.20	6083182
1,1,1-Trichloroethane	ug/L	<0.20	0.20	6083182
1,1,2-Trichloroethane	ug/L	<0.50	0.50	6083182
Trichloroethylene	ug/L	<0.20	0.20	6083182
Trichlorofluoromethane (FREON 11)	ug/L	<0.50	0.50	6083182
Vinyl Chloride	ug/L	<0.20	0.20	6083182
p+m-Xylene	ug/L	<0.20	0.20	6083182
o-Xylene	ug/L	<0.20	0.20	6083182
Total Xylenes	ug/L	<0.20	0.20	6083182
Surrogate Recovery (%)				
4-Bromofluorobenzene	%	97		6083182
D4-1,2-Dichloroethane	%	102		6083182
D8-Toluene	%	97		6083182

RDL = Reportable Detection Limit
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Report Date: 2019/04/25

exp Services Inc
Client Project #: OTT-00241785-B
Site Location: MONTGOMERY
Sampler Initials: MAD

TEST SUMMARY

Maxxam ID: JLV697
Sample ID: MW19-1
Matrix: Water

Collected: 2019/04/16
Shipped:
Received: 2019/04/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6074610	N/A	2019/04/24	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	6072615	2019/04/17	2019/04/17	Mariana Vascan
Dissolved Metals by ICPMS	ICP/MS	6077360	N/A	2019/04/22	Thao Nguyen
Volatile Organic Compounds and F1 PHCs	GC/MSFD	6082362	N/A	2019/04/23	Liliana Gaburici

Maxxam ID: JLV697 Dup
Sample ID: MW19-1
Matrix: Water

Collected: 2019/04/16
Shipped:
Received: 2019/04/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Volatile Organic Compounds and F1 PHCs	GC/MSFD	6082362	N/A	2019/04/23	Liliana Gaburici

Maxxam ID: JLV698
Sample ID: MW19-2
Matrix: Water

Collected: 2019/04/16
Shipped:
Received: 2019/04/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6074610	N/A	2019/04/24	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	6072615	2019/04/17	2019/04/18	Mariana Vascan
Dissolved Metals by ICPMS	ICP/MS	6077360	N/A	2019/04/22	Thao Nguyen
Volatile Organic Compounds and F1 PHCs	GC/MSFD	6082362	N/A	2019/04/23	Liliana Gaburici

Maxxam ID: JLV699
Sample ID: MW19-3
Matrix: Water

Collected: 2019/04/16
Shipped:
Received: 2019/04/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6074610	N/A	2019/04/24	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	6072615	2019/04/17	2019/04/18	Mariana Vascan
Dissolved Metals by ICPMS	ICP/MS	6077360	N/A	2019/04/22	Thao Nguyen
Volatile Organic Compounds and F1 PHCs	GC/MSFD	6082362	N/A	2019/04/23	Liliana Gaburici

Maxxam ID: JLV700
Sample ID: DUP-1
Matrix: Water

Collected: 2019/04/16
Shipped:
Received: 2019/04/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6074610	N/A	2019/04/24	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	6072615	2019/04/17	2019/04/18	Mariana Vascan
Dissolved Metals by ICPMS	ICP/MS	6077360	N/A	2019/04/22	Thao Nguyen
Volatile Organic Compounds and F1 PHCs	GC/MSFD	6082362	N/A	2019/04/23	Liliana Gaburici

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Maxxam Job #: B9A0656
Report Date: 2019/04/25

exp Services Inc
Client Project #: OTT-00241785-B
Site Location: MONTGOMERY
Sampler Initials: MAD

TEST SUMMARY

Maxxam ID: JLV701
Sample ID: TRIP BLANK
Matrix: Water

Collected: 2019/04/16
Shipped:
Received: 2019/04/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	6074610	N/A	2019/04/24	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	6083182	N/A	2019/04/23	Liliana Gaburici

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Maxxam Job #: B9A0656
Report Date: 2019/04/25

exp Services Inc
Client Project #: OTT-00241785-B
Site Location: MONTGOMERY
Sampler Initials: MAD

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	7.0°C

Results relate only to the items tested.

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Maxxam Job #: B9A0656
Report Date: 2019/04/25

QUALITY ASSURANCE REPORT

exp Services Inc
Client Project #: OTT-00241785-B
Site Location: MONTGOMERY
Sampler Initials: MAD

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6072615	o-Terphenyl	2019/04/17	104	30 - 130	106	30 - 130	108	%		
6082362	4-Bromofluorobenzene	2019/04/23	106	70 - 130	104	70 - 130	96	%		
6082362	D4-1,2-Dichloroethane	2019/04/23	126	70 - 130	120	70 - 130	94	%		
6082362	D8-Toluene	2019/04/23	97	70 - 130	97	70 - 130	102	%		
6083182	4-Bromofluorobenzene	2019/04/23			104	70 - 130	97	%		
6083182	D4-1,2-Dichloroethane	2019/04/23			122	70 - 130	111	%		
6083182	D8-Toluene	2019/04/23			99	70 - 130	96	%		
6072615	F2 (C10-C16 Hydrocarbons)	2019/04/17	97	50 - 130	96	80 - 120	<100	ug/L	8.6	50
6072615	F3 (C16-C34 Hydrocarbons)	2019/04/17	97	50 - 130	96	80 - 120	<200	ug/L	NC	50
6072615	F4 (C34-C50 Hydrocarbons)	2019/04/17	97	50 - 130	96	80 - 120	<200	ug/L	NC	50
6077360	Dissolved Antimony (Sb)	2019/04/22	104	80 - 120	101	80 - 120	<0.50	ug/L	NC	20
6077360	Dissolved Arsenic (As)	2019/04/22	100	80 - 120	99	80 - 120	<1.0	ug/L	NC	20
6077360	Dissolved Barium (Ba)	2019/04/22	101	80 - 120	99	80 - 120	<2.0	ug/L	1.7	20
6077360	Dissolved Beryllium (Be)	2019/04/22	100	80 - 120	98	80 - 120	<0.50	ug/L	NC	20
6077360	Dissolved Boron (B)	2019/04/22	100	80 - 120	100	80 - 120	<10	ug/L	3.0	20
6077360	Dissolved Cadmium (Cd)	2019/04/22	100	80 - 120	99	80 - 120	<0.10	ug/L	NC	20
6077360	Dissolved Chromium (Cr)	2019/04/22	100	80 - 120	98	80 - 120	<5.0	ug/L	NC	20
6077360	Dissolved Cobalt (Co)	2019/04/22	99	80 - 120	98	80 - 120	<0.50	ug/L	NC	20
6077360	Dissolved Copper (Cu)	2019/04/22	98	80 - 120	99	80 - 120	<1.0	ug/L	7.4	20
6077360	Dissolved Lead (Pb)	2019/04/22	97	80 - 120	96	80 - 120	<0.50	ug/L	2.8	20
6077360	Dissolved Molybdenum (Mo)	2019/04/22	104	80 - 120	102	80 - 120	<0.50	ug/L	15	20
6077360	Dissolved Nickel (Ni)	2019/04/22	99	80 - 120	98	80 - 120	<1.0	ug/L	NC	20
6077360	Dissolved Selenium (Se)	2019/04/22	101	80 - 120	100	80 - 120	<2.0	ug/L	NC	20
6077360	Dissolved Silver (Ag)	2019/04/22	99	80 - 120	100	80 - 120	<0.10	ug/L	NC	20
6077360	Dissolved Sodium (Na)	2019/04/22	96	80 - 120	94	80 - 120	<100	ug/L	1.9	20
6077360	Dissolved Thallium (Tl)	2019/04/22	96	80 - 120	95	80 - 120	<0.050	ug/L	NC	20
6077360	Dissolved Uranium (U)	2019/04/22	97	80 - 120	96	80 - 120	<0.10	ug/L	3.9	20
6077360	Dissolved Vanadium (V)	2019/04/22	101	80 - 120	99	80 - 120	<0.50	ug/L	NC	20
6077360	Dissolved Zinc (Zn)	2019/04/22	101	80 - 120	97	80 - 120	<5.0	ug/L	NC	20
6082362	1,1,1,2-Tetrachloroethane	2019/04/23	118	70 - 130	112	70 - 130	<0.50	ug/L	NC	30
6082362	1,1,1-Trichloroethane	2019/04/23	99	70 - 130	94	70 - 130	<0.20	ug/L	NC	30
6082362	1,1,2,2-Tetrachloroethane	2019/04/23	108	70 - 130	111	70 - 130	<0.50	ug/L	NC	30

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Maxxam Job #: B9A0656
Report Date: 2019/04/25

QUALITY ASSURANCE REPORT(CONT'D)

exp Services Inc
Client Project #: OTT-00241785-B
Site Location: MONTGOMERY
Sampler Initials: MAD

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6082362	1,1,2-Trichloroethane	2019/04/23	118	70 - 130	107	70 - 130	<0.50	ug/L	NC	30
6082362	1,1-Dichloroethane	2019/04/23	93	70 - 130	87	70 - 130	<0.20	ug/L	NC	30
6082362	1,1-Dichloroethylene	2019/04/23	93	70 - 130	86	70 - 130	<0.20	ug/L	NC	30
6082362	1,2-Dichlorobenzene	2019/04/23	95	70 - 130	91	70 - 130	<0.50	ug/L	NC	30
6082362	1,2-Dichloroethane	2019/04/23	112	70 - 130	102	70 - 130	<0.50	ug/L	NC	30
6082362	1,2-Dichloropropane	2019/04/23	95	70 - 130	89	70 - 130	<0.20	ug/L	NC	30
6082362	1,3-Dichlorobenzene	2019/04/23	88	70 - 130	85	70 - 130	<0.50	ug/L	NC	30
6082362	1,4-Dichlorobenzene	2019/04/23	93	70 - 130	90	70 - 130	<0.50	ug/L	NC	30
6082362	Acetone (2-Propanone)	2019/04/23	111	60 - 140	111	60 - 140	<10	ug/L	NC	30
6082362	Benzene	2019/04/23	98	70 - 130	91	70 - 130	<0.20	ug/L	NC	30
6082362	Bromodichloromethane	2019/04/23	107	70 - 130	98	70 - 130	<0.50	ug/L	NC	30
6082362	Bromoform	2019/04/23	108	70 - 130	123	70 - 130	<1.0	ug/L	NC	30
6082362	Bromomethane	2019/04/23	117	60 - 140	108	60 - 140	<0.50	ug/L	NC	30
6082362	Carbon Tetrachloride	2019/04/23	98	70 - 130	93	70 - 130	<0.20	ug/L	NC	30
6082362	Chlorobenzene	2019/04/23	98	70 - 130	94	70 - 130	<0.20	ug/L	NC	30
6082362	Chloroform	2019/04/23	95	70 - 130	94	70 - 130	<0.20	ug/L	NC	30
6082362	cis-1,2-Dichloroethylene	2019/04/23	91	70 - 130	85	70 - 130	<0.50	ug/L	NC	30
6082362	cis-1,3-Dichloropropene	2019/04/23	81	70 - 130	99	70 - 130	<0.30	ug/L	NC	30
6082362	Dibromochloromethane	2019/04/23	128	70 - 130	120	70 - 130	<0.50	ug/L	NC	30
6082362	Dichlorodifluoromethane (FREON 12)	2019/04/23	112	60 - 140	103	60 - 140	<1.0	ug/L	NC	30
6082362	Ethylbenzene	2019/04/23	84	70 - 130	79	70 - 130	<0.20	ug/L	NC	30
6082362	Ethylene Dibromide	2019/04/23	124	70 - 130	113	70 - 130	<0.20	ug/L	NC	30
6082362	F1 (C6-C10) - BTEX	2019/04/23					<25	ug/L	NC	30
6082362	F1 (C6-C10)	2019/04/23	101	60 - 140	93	60 - 140	<25	ug/L	NC	30
6082362	Hexane	2019/04/23	92	70 - 130	88	70 - 130	<1.0	ug/L	NC	30
6082362	Methyl Ethyl Ketone (2-Butanone)	2019/04/23	95	60 - 140	113	60 - 140	<10	ug/L	NC	30
6082362	Methyl Isobutyl Ketone	2019/04/23	118	70 - 130	114	70 - 130	<5.0	ug/L	NC	30
6082362	Methyl t-butyl ether (MTBE)	2019/04/23	96	70 - 130	91	70 - 130	<0.50	ug/L	NC	30
6082362	Methylene Chloride(Dichloromethane)	2019/04/23	107	70 - 130	99	70 - 130	<2.0	ug/L	NC	30
6082362	o-Xylene	2019/04/23	92	70 - 130	89	70 - 130	<0.20	ug/L	NC	30
6082362	p+m-Xylene	2019/04/23	90	70 - 130	85	70 - 130	<0.20	ug/L	NC	30
6082362	Styrene	2019/04/23	96	70 - 130	92	70 - 130	<0.50	ug/L	NC	30

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Maxxam Job #: B9A0656
Report Date: 2019/04/25

QUALITY ASSURANCE REPORT(CONT'D)

exp Services Inc
Client Project #: OTT-00241785-B
Site Location: MONTGOMERY
Sampler Initials: MAD

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6082362	Tetrachloroethylene	2019/04/23	88	70 - 130	84	70 - 130	<0.20	ug/L	NC	30
6082362	Toluene	2019/04/23	91	70 - 130	86	70 - 130	<0.20	ug/L	NC	30
6082362	Total Xylenes	2019/04/23					<0.20	ug/L	NC	30
6082362	trans-1,2-Dichloroethylene	2019/04/23	92	70 - 130	86	70 - 130	<0.50	ug/L	NC	30
6082362	trans-1,3-Dichloropropene	2019/04/23	101	70 - 130	87	70 - 130	<0.40	ug/L	NC	30
6082362	Trichloroethylene	2019/04/23	98	70 - 130	94	70 - 130	<0.20	ug/L	NC	30
6082362	Trichlorofluoromethane (FREON 11)	2019/04/23	93	70 - 130	87	70 - 130	<0.50	ug/L	NC	30
6082362	Vinyl Chloride	2019/04/23	126	70 - 130	115	70 - 130	<0.20	ug/L	NC	30
6083182	1,1,1,2-Tetrachloroethane	2019/04/23			120	70 - 130	<0.50	ug/L	8.1	30
6083182	1,1,1-Trichloroethane	2019/04/23			100	70 - 130	<0.20	ug/L	3.2	30
6083182	1,1,2,2-Tetrachloroethane	2019/04/23			108	70 - 130	<0.50	ug/L	3.5	30
6083182	1,1,2-Trichloroethane	2019/04/23			118	70 - 130	<0.50	ug/L	14	30
6083182	1,1-Dichloroethane	2019/04/23			93	70 - 130	<0.20	ug/L	7.6	30
6083182	1,1-Dichloroethylene	2019/04/23			90	70 - 130	<0.20	ug/L	3.2	30
6083182	1,2-Dichlorobenzene	2019/04/23			98	70 - 130	<0.50	ug/L	4.6	30
6083182	1,2-Dichloroethane	2019/04/23			110	70 - 130	<0.50	ug/L	14	30
6083182	1,2-Dichloropropane	2019/04/23			95	70 - 130	<0.20	ug/L	11	30
6083182	1,3-Dichlorobenzene	2019/04/23			90	70 - 130	<0.50	ug/L	1.2	30
6083182	1,4-Dichlorobenzene	2019/04/23			96	70 - 130	<0.50	ug/L	2.4	30
6083182	Acetone (2-Propanone)	2019/04/23			113	60 - 140	<10	ug/L	17	30
6083182	Benzene	2019/04/23			97	70 - 130	<0.20	ug/L	7.4	30
6083182	Bromodichloromethane	2019/04/23			105	70 - 130	<0.50	ug/L	10	30
6083182	Bromoform	2019/04/23			111	70 - 130	<1.0	ug/L	5.1	30
6083182	Bromomethane	2019/04/23			84	60 - 140	<0.50	ug/L	6.8	30
6083182	Carbon Tetrachloride	2019/04/23			97	70 - 130	<0.20	ug/L	2.0	30
6083182	Chlorobenzene	2019/04/23			99	70 - 130	<0.20	ug/L	5.0	30
6083182	Chloroform	2019/04/23			103	70 - 130	<0.20	ug/L	16	30
6083182	cis-1,2-Dichloroethylene	2019/04/23			91	70 - 130	<0.50	ug/L	9.1	30
6083182	cis-1,3-Dichloropropene	2019/04/23			90	70 - 130	<0.30	ug/L	11	30
6083182	Dibromochloromethane	2019/04/23			84	70 - 130	<0.50	ug/L	30	30
6083182	Dichlorodifluoromethane (FREON 12)	2019/04/23			108	60 - 140	<1.0	ug/L	13	30
6083182	Ethylbenzene	2019/04/23			84	70 - 130	<0.20	ug/L	3.1	30

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
6083182	Ethylene Dibromide	2019/04/23			100	70 - 130	<0.20	ug/L	7.7	30
6083182	Hexane	2019/04/23			94	70 - 130	<1.0	ug/L	4.8	30
6083182	Methyl Ethyl Ketone (2-Butanone)	2019/04/23			102	60 - 140	<10	ug/L	7.9	30
6083182	Methyl Isobutyl Ketone	2019/04/23			109	70 - 130	<5.0	ug/L	2.2	30
6083182	Methyl t-butyl ether (MTBE)	2019/04/23			93	70 - 130	<0.50	ug/L	9.0	30
6083182	Methylene Chloride(Dichloromethane)	2019/04/23			105	70 - 130	<2.0	ug/L	7.8	30
6083182	o-Xylene	2019/04/23			93	70 - 130	<0.20	ug/L	2.5	30
6083182	p+m-Xylene	2019/04/23			88	70 - 130	<0.20	ug/L	0.10	30
6083182	Styrene	2019/04/23			98	70 - 130	<0.50	ug/L	5.1	30
6083182	Tetrachloroethylene	2019/04/23			88	70 - 130	<0.20	ug/L	1.4	30
6083182	Toluene	2019/04/23			92	70 - 130	<0.20	ug/L	4.6	30
6083182	Total Xylenes	2019/04/23					<0.20	ug/L		
6083182	trans-1,2-Dichloroethylene	2019/04/23			92	70 - 130	<0.50	ug/L	3.9	30
6083182	trans-1,3-Dichloropropene	2019/04/23			102	70 - 130	<0.40	ug/L	13	30
6083182	Trichloroethylene	2019/04/23			96	70 - 130	<0.20	ug/L	2.7	30
6083182	Trichlorofluoromethane (FREON 11)	2019/04/23			92	70 - 130	<0.50	ug/L	0.99	30
6083182	Vinyl Chloride	2019/04/23			124	70 - 130	<0.20	ug/L	42 (1)	30

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

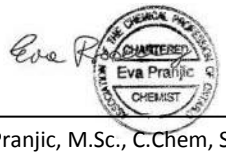
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Maxxam Job #: B9A0656
Report Date: 2019/04/25

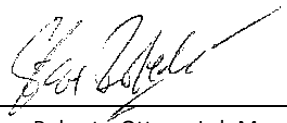
exp Services Inc
Client Project #: OTT-00241785-B
Site Location: MONTGOMERY
Sampler Initials: MAD

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist



Steve Roberts, Ottawa Lab Manager

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#17497 exp Services Inc	Company Name:		Quotation #:	B91716	Maxxam Job #:	Bottle Order #:
Attention:	Accounts Payable	Attention:	Mark McCalla / Mark Devlin	P.O. #:			712975
Address:	100-2650 Queensview Drive Ottawa ON K2B 8H6	Address:		Project:	OTT-00241785-B	COC #:	Project Manager:
Tel:	(613) 688-1899 Fax: (613) 225-7337	Tel:	(613) 225-9940 Ext: 243 Fax:	Project Name:	Montgomery	C#712975-01-01	Alisha Williamson
Email:	accounting.ottawa@exp.com; Karen.Burke@exp.com;	Email:	mark.mccalla@exp.com;mark.mccalla@exp.com	Site #:			
				Sampled By:	MAD		

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011)
- ☐ Table 1 ☒ Res/Park ☐ Medium/Fine
- ☒ Table 2 ☐ Ind/Comm ☒ Coarse
- ☒ Table 3 ☐ Agri/Other ☒ For RSC
- ☐ Table ___

Other Regulations
- ☐ CCME ☐ Sanitary Sewer Bylaw
- ☐ Reg 558. ☐ Storm Sewer Bylaw
- ☐ MISA Municipality ___
- ☐ PWQO
- ☐ Other ___

Special Instructions

Include Criteria on Certificate of Analysis (Y/N)? ___

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects

Regular (Standard) TAT: ☒
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests..
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: ___ Time Required: ___ ☐
Rush Confirmation Number: ___ *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): Metals / Hg / Cr VI	O.Reg 153 VOCs by HS & F1-F4	O.Reg 153 PAHs	O.Reg 153 Dissolved ICPMS Metals (Water)	VOC						# of Bottles	Comments
1		MW19-1	April 16 2019	12:00	GW	Y	X		X							6	
2		MW19-2	↓	↓	↓	Y	X		X							↓	
3		MW19-3				Y	X		X								
4		Dup 1				Y	X		X								
5		Trip Blank			DI					X						2	
6																	
7																	
8																	
9																	
10																	

16-Apr-19 17:58
Alisha Williamson
B9A0656

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Laboratory Use Only				
Mark Devlin	19/04/16	5:50pm	Serge Léger	19/04/16	17:58		Time Sensitive	Temperature (°C) on Recei	Custody Seal	Yes	No
Mark Devlin								7.4.10	Present	☒	
									Intact	☒	

RECEIVED IN OTTAWA

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO MAXXAM'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.MAXXAM.CA/TERMS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

** SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT HTTP://MAXXAM.CA/WP-CONTENT/UPLOADS/ONTARIO-COC.PDF.

SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

White: Maxxa Yellow: Client

Maxxam Analytics International Corporation o/a Maxxam Analytics

Maxxam Analytics International Corporation o/a Maxxam Analytics
6740 Campobello Road, Mississauga, Ontario Canada L5N 2L8 Tel:(905) 817-5700 Toll-free:800-563-6266 Fax:(905) 817-5777 www.maxxam.ca

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#17497 exp Services Inc	Company Name:		Quotation #:	B91716	Maxxam Job #:	Bottle Order #:
Attention:	Accounts Payable	Attention:	Mark McCalla / Mark Devlin	P.O. #:			712975
Address:	100-2650 Queensview Drive Ottawa ON K2B 8H6	Address:		Project:	OTT-00241785-B	COC #:	Project Manager:
Tel:	(613) 688-1899 Fax: (613) 225-7337	Tel:	(613) 225-9940 Ext: 243 Fax:	Project Name:	Montgomery	C#712975-01-01	Alisha Williamson
Email:	accounting.ottawa@exp.com; Karen.Burke@exp.com;	Email:	mark.mccalla@exp.com;mark.mccalla@exp.com	Site #:			
				Sampled By:	MAD		

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011)	Other Regulations	Special Instructions
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4		Dup 1				Y	X		X								
5		Trip Blank			DI					X						2	
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Alisha Williamson
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								7.4.10	Intact	X	

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4/4/5

SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

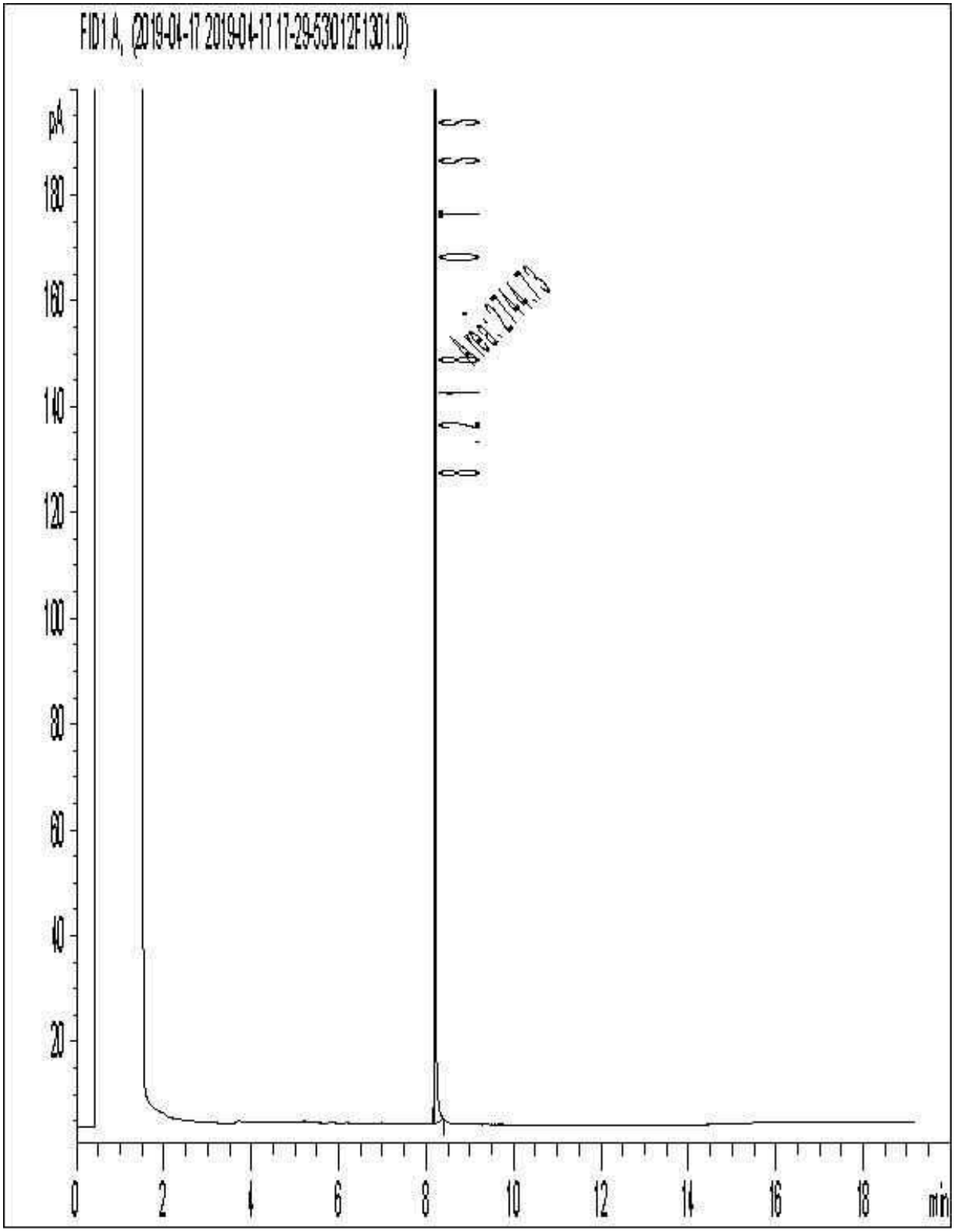
White: Maxxa Yellow: Client

Maxxam Analytics International Corporation o/a Maxxam Analytics

Maxxam Job #: B9A0656
Report Date: 2019/04/25
Maxxam Sample: JLV697

exp Services Inc
Client Project #: OTT-00241785-B
Project name: MONTGOMERY
Client ID: MW19-1

Petroleum Hydrocarbons F2-F4 in Water Chromatogram

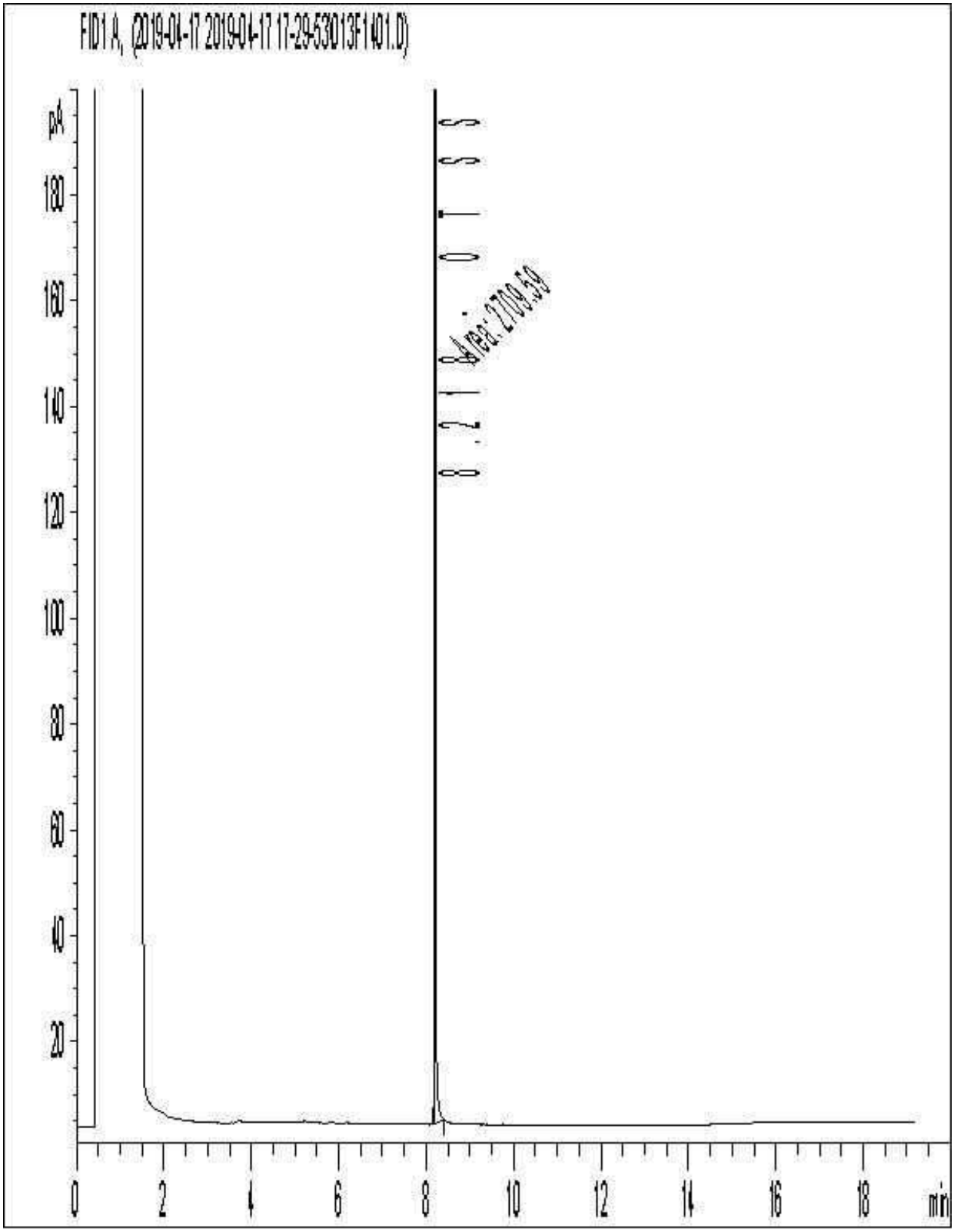


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B9A0656
Report Date: 2019/04/25
Maxxam Sample: JLV698

exp Services Inc
Client Project #: OTT-00241785-B
Project name: MONTGOMERY
Client ID: MW19-2

Petroleum Hydrocarbons F2-F4 in Water Chromatogram

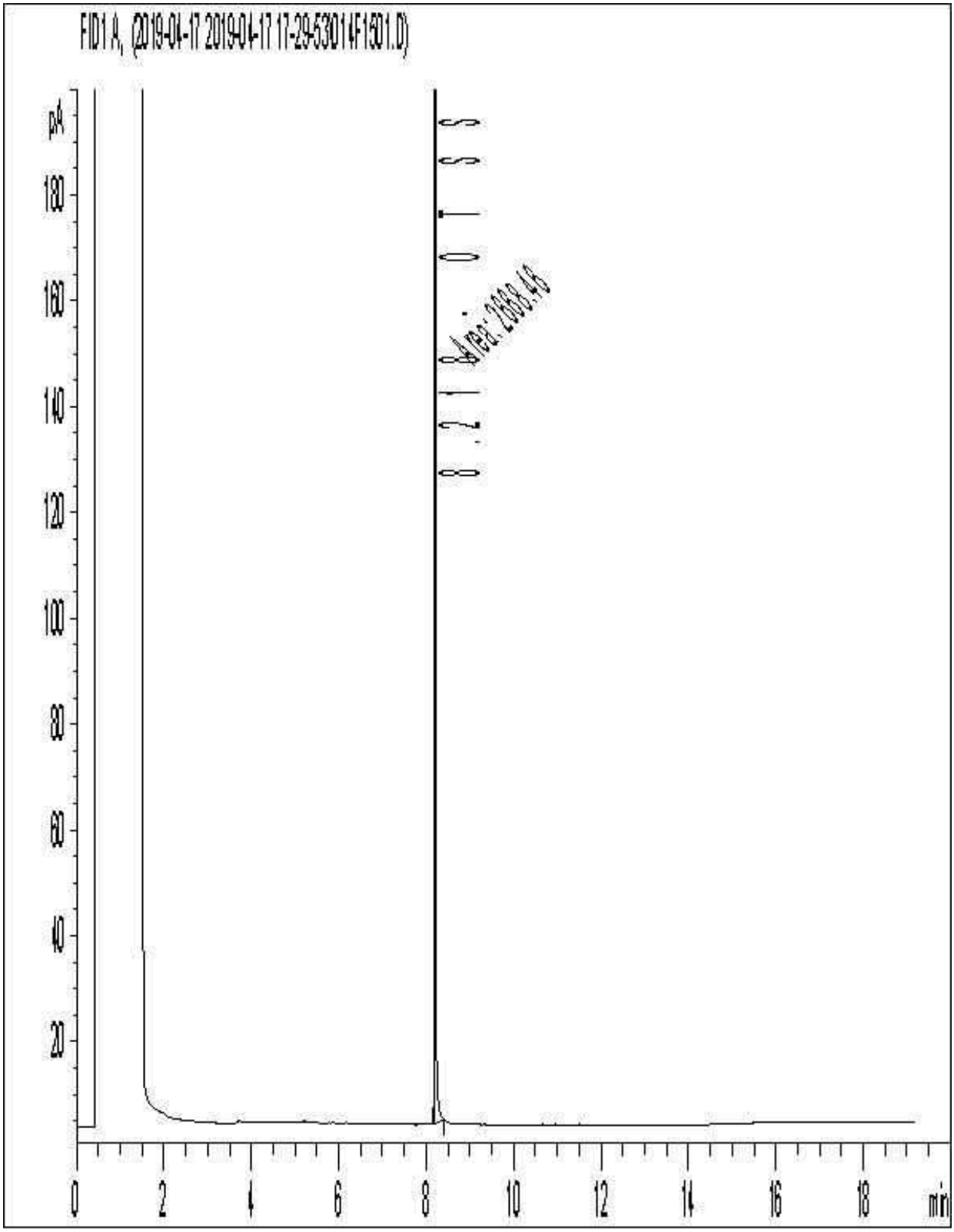


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B9A0656
Report Date: 2019/04/25
Maxxam Sample: JLV699

exp Services Inc
Client Project #: OTT-00241785-B
Project name: MONTGOMERY
Client ID: MW19-3

Petroleum Hydrocarbons F2-F4 in Water Chromatogram

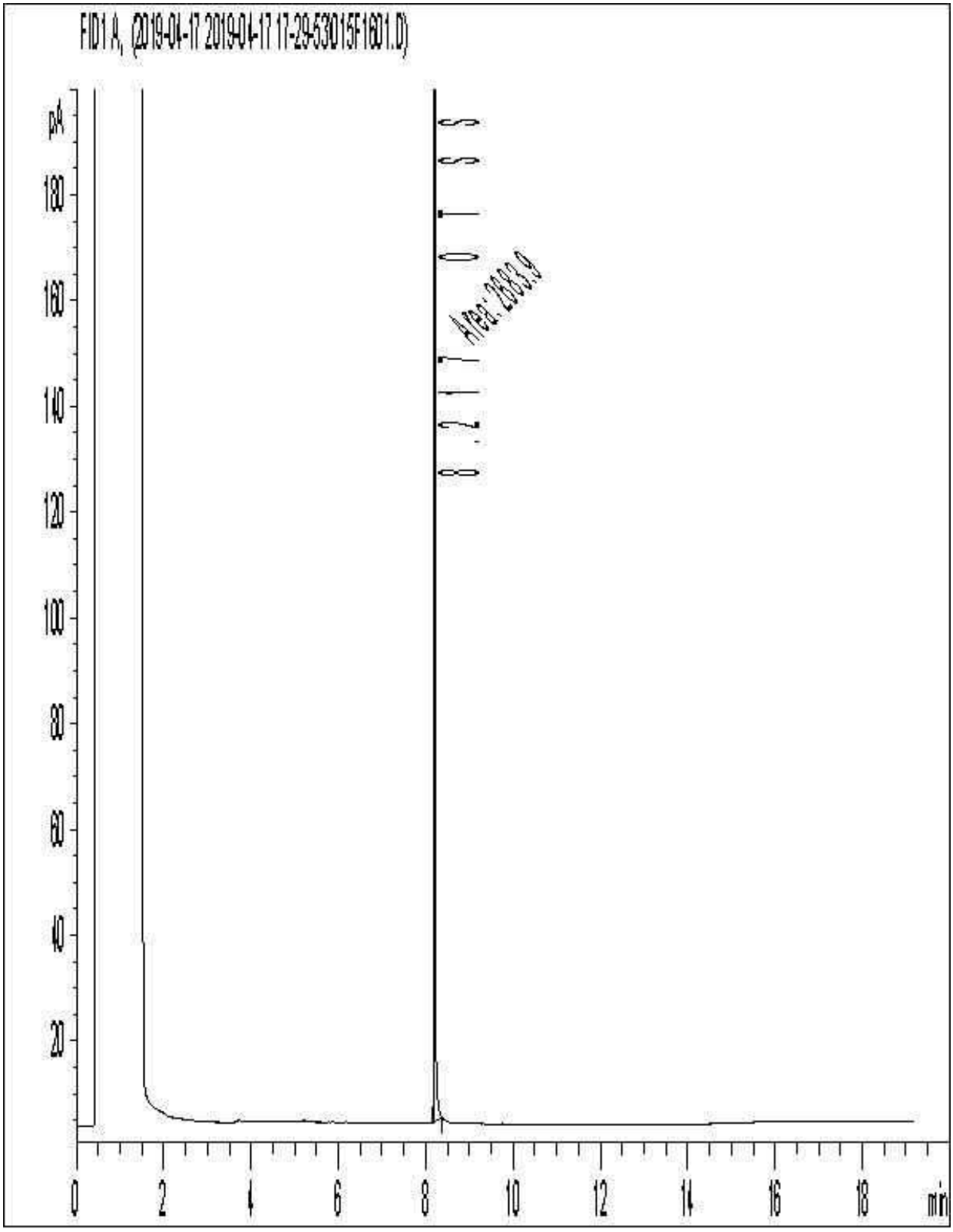


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B9A0656
Report Date: 2019/04/25
Maxxam Sample: JLV700

exp Services Inc
Client Project #: OTT-00241785-B
Project name: MONTGOMERY
Client ID: DUP-1

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.