February 7, 2025
File: PE5231-LET.02

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TCU Development Corporation
150 Isabella Street, Unit 1207
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Attention: **Mr. Evan Johnson**

Subject: **Phase II-Environmental Site Assessment Update**
1137 and 1151 Ogilvie Road and 1111 Cummings Avenue
Ottawa, Ontario

Dear Sir,

Further to your request, Paterson Group (Paterson) has completed a Phase II Environmental Site Assessment (ESA) Update for the aforementioned property. This report updates a Phase II ESA entitled “Phase II - Environmental Site Assessment, 1137 Ogilvie Road and 1111 Cummings Avenue, Ottawa, Ontario” prepared by Paterson Group, dated May 14, 2021.

This update report is intended to meet the requirements for an updated Phase II ESA, as per the MECP O.Reg. 153/04, as amended. This update report is to be read in conjunction with the 2021 report.

Background Information

The Phase II Property is located at the northeast corner of the Ogilvie Road and Cummings Avenue intersection, in the City of Ottawa, Ontario, which is shown on Figure 1 - Key Plan, following the body of this report.

The Phase I ESA Property is situated in an urban setting consisting of commercial and residential land uses. The south portion of the Phase I ESA Property addressed 1137 Ogilvie Road is currently occupied by single-storey, with one basement level, vacant commercial plaza (previously occupied by a restaurant and grocery store), the eastern portion of the Phase I ESA Property addressed 1151 Ogilvie Road is currently occupied by single-storey restaurant and the remainder of the Phase I Property is used as a parking lot.

Site drainage consists of infiltration and sheet flow to catch basins located in the on-site parking lot and adjacent roadways. The site topography is above the grade of Ogilvie Road and Cummings Avenue with a downward slope towards both. The regional topography slopes down in a westerly direction toward the Rideau River.

Applicable Site Condition Standard

The site condition standards for the property were obtained from Table 7 of the document entitled “Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act”, prepared by the Ontario Ministry of the Environment, Conservation and Parks (MECP), April 2011. The intended use of the Phase II Property is residential, and therefore, the residential standards have been selected for the purpose of this Phase II ESA. The MECP Table 7 Residential/Parkland/Institutional (RPI) Standards are based on the following considerations:

- Coarse-grained soil conditions;
- Shallow soil site conditions;
- Non-potable groundwater conditions; and
- Residential land use.

Section 35 of O.Reg. 153/04 does apply to the Phase II Property in that properties within the Phase I Study Area rely 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 apply to the Phase II Property in that the property is a shallow soil property.

Coarse-grained soil standards were chosen as a conservative approach as grain size analysis has not been completed for the Phase II Property. Based on observations made as part of the Phase II ESA investigation, fine grained standards are not applicable.

Impediments

No impediments were encountered during this Phase II ESA Update.

Investigation Method

Groundwater levels were measured and then purged prior to collecting groundwater samples and a duplicate sample on June 14, 2024 by Paterson.

Groundwater Elevations, Flow Direction and Hydraulic Gradient

Groundwater Elevations, Flow Direction and Hydraulic Gradient

Groundwater levels were measured during the groundwater sampling event on June 14, 2024 using an electronic water level meter. Groundwater levels were recorded from the monitoring wells installed in BH1-21 to BH3-21. The groundwater levels are summarized in Table 5: Groundwater Levels, appended to this report.

The groundwater at the Phase II ESA Property was encountered within the overburden in BH1-21 and within the underlying bedrock in BH2-21 and BH3-21 at depths ranging from approximately 2.86 m to 3.38 m below the existing ground surface.

Using the groundwater elevations recorded during the June 14, 2024 sampling event, groundwater contour mapping was completed as part of this assessment. According to the mapped contour data, groundwater flow was measured in a westerly direction, with a hydraulic gradient of 0.17 m/m. Groundwater contours are shown on Drawing PE5231-3 – Test Hole Location Plan, appended to this report.

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

Soil Quality

As part of the 2021 Phase II ESA, seven soil samples were submitted for laboratory analysis of Benzene, Toluene, Ethylbenzene and Xylenes (BTEX), petroleum hydrocarbons (PHCs, Fractions F_1-F_4), metals, mercury (Hg) and hexavalent chromium (CrVI). BTEX parameter concentrations were not detected above the laboratory detection limit, while PHC and metals parameter concentrations were identified in the soil samples analyzed. Based on the analytical test results, all soil sample parameter concentrations comply with the MECP Table 7 Residential Standards with the exception of the mercury concentration in soil sample BH2-SS2, which exceeds the MECP Table 7 Standards.

It is our opinion that the soil analytical test results from the 2021 Phase II ESA remain valid and are considered sufficient for the purposes of this Phase II ESA Update.

Groundwater Quality

Three groundwater samples, plus one duplicate sample, obtained from the monitoring wells installed in BH1-21, BH2-21, and BH3-21 were submitted for laboratory analysis of BTEX, PHCs, metals, Hg and CrVI. Groundwater monitoring wells installed by EXP were sampled in the fall of 2024. The results of the analytical testing are presented in Table 1, as well as on the laboratory certificate of analysis, appended to this report.

BTEX and PHCs (F_1-F_4)

No BTEX and PHC concentrations were detected in the groundwater samples. All of the analytical results comply with the MECP Table 7 standards.

Metals (including Hg and CrVI)

All metals parameter concentrations detected in the groundwater samples analysed as part of this Phase II-ESA Update comply with the selected MECP Table 7 Standards.

The analytical results for the tested groundwater are shown on Drawing PE5231-5 – Analytical Testing Plan – Groundwater, appended to this report.

Phase II Conceptual Site Model

Potentially Contaminating Activity (PCA) and Area of Potential Environmental Concern (APEC)

As per the 2024 Phase I ESA Update, the PCAs considered to result in APECs on the Phase II Property have been summarized in the table below.

Areas of Potential Environmental Concern

Area of Potential Environmental Concern	Location of Area of Potential Environmental Concern	Potentially Contaminating Activity	Location of PCA (on-site or off-site)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, Soil, and/or Sediment)
APEC 1 - Fill Material of Unknown Quality	Northwest corner of Phase II Property	Item 30 - Importation of Fill Material of Unknown Quality	On-Site	PHCs, BTEX, Metals, Hg, CrVI	Soil
APEC 2 - Existing Retail Fuel Outlet	Western portion of Phase II Property	Item 28 – Gasoline and Associated Products Storage in Fixed Tanks	Off-site	PHCs, BTEX	Groundwater

Areas of Potential Environmental Concern					
Area of Potential Environmental Concern	**Location of Area of Potential Environmental Concern**	**Potentially Contaminating Activity**	**Location of PCA (on-site or off-site)**	**Contaminants of Potential Concern**	**Media Potentially Impacted (Groundwater, Soil, and/or Sediment)**
APEC 3 - Existing Retail Fuel Outlet	Southern portion of Phase II Property	Item 28 – Gasoline and Associated Products Storage in Fixed Tanks	Off-site	PHCs, BTEX	Groundwater
APEC 4 - Former Retail Fuel Outlet	Southern portion of Phase II Property	Item 28 – Gasoline and Associated Products Storage in Fixed Tanks	Off-site	PHCs, BTEX	Groundwater
APEC 5[1] - Application of road salt for the safety of vehicular or pedestrian traffic under conditions of snow or ice	Within parking areas of the Phase II Property	Other: Application of road salt for the safety of vehicular or pedestrian traffic under conditions of snow or ice	On-site	Electrical Conductivity (EC) Sodium Adsorption Ratio (SAR)	Soil
1 – In accordance with Section 49.1 of O.Reg. 153/04 standards are deemed to be met if an applicable site condition standard is exceeded at a property solely because the qualified person has determined that a substance has been applied to surfaces for the safety of vehicular or pedestrian traffic under conditions of snow or ice or both. The exemption outlined in Section 49.1 is being relied up with respect to the RSC property.					

Contaminants of Potential Concern (CPCs)

The following Contaminants of Potential Concern (CPCs) were identified with respect to the Phase II Property:

- ❒ Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX);
- ❒ Petroleum Hydrocarbons, fractions 1 - 4 (PHCs F_1-F_4);
- ❒ Metals (including Mercury and Hexavalent Chromium).

Given the use Phase II Property as a parking lot, it is considered likely that road salt was applied throughout the Phase II Property for the safety of vehicular and pedestrian traffic under conditions of snow or ice. According to Section 49.1 of O.Reg. 153/04, if an applicable site condition standard is exceeded at a property solely because of the following reason, the applicable site condition standard is deemed not to be exceeded for the purpose of Part XV.1 of the Act: “The qualified person has determined, based on a phase one environmental site assessment or a phase two environmental site assessment, that a

substance has been applied to surfaces for the safety of vehicular or pedestrian traffic under conditions of snow or ice or both."

In accordance with Section 49.1 of O.Reg. 153/04, any electrical conductivity (EC) and sodium adsorption ratio (SAR) concentrations on the Phase II Property that exceed the MECP Table 7 standards for a residential land use are deemed *not to be exceeded* for the purpose of Part XV.1 of the Act.

Subsurface Structures and Utilities

Utilities on the Phase II Property included sanitary and storm sewer lines, municipal water service, natural gas and telecommunications connections. Based on standard practice for subsurface utility installation, service trenches are expected to be present approximately 1 to 2m below grade.

Physical Setting

Site Stratigraphy

The stratigraphy of the Phase II Property generally consists of:

- ❒ Asphaltic concrete; encountered at ground surface and extending to a depth of approximately 0.05 to 0.13 m below ground surface;
- ❒ Fill material, consisting of brown silty sand with crushed stone encountered at depths ranging from approximately 0.05 to 0.69 m below ground surface;
- ❒ Fill material, consisting of brown silty clay with sand, gravel and trace topsoil; encountered in BH1, BH2 and BH4 at depths ranging from approximately 0.60 to 2.29 m below ground surface;
- ❒ Fill material, consisting of dark grey to brown silty sand with clay (and trace wood in BH5); encountered in BH3 and BH5 at depths ranging from approximately 0.46 to 2.08 m below ground surface;
- ❒ Fill material, consisting of brown silty sand with gravel and crushed stoned; encountered in BH1, BH2 and BH3 at depths ranging from 1.45 to 3.04 m below ground surface;
- ❒ Shale bedrock, encountered at depths ranging from approximately 1.78 to 3.05 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, appended to this report.

Hydrogeological Characteristics

Groundwater at the Phase II Property was encountered in the bedrock. During the most recent groundwater monitoring event, groundwater flow was measured in a westerly direction, with a hydraulic gradient of 0.17 m/m. Groundwater contours are shown on Drawing PE5231-3 – Test Hole Location Plan.

Approximate Depth to Bedrock

Bedrock was encountered/inferred within all five of the boreholes installed on the Phase II Property as part of the 2021 Phase II ESA at depths ranging from approximately 1.73 to 3.05 m below ground surface, as determined by practical refusal of augering and rock coring activities.

Approximate Depth to Water Table

Depth to the water table at the Phase II Property varies between approximately 2.36 to 3.38 mbgs and is expected to fluctuate seasonal.

Sections 35, 41 and 43.1 of the Regulation

Section 35 of O.Reg. 153/04 does apply to the Phase II Property in that properties within the Phase I Study Area rely 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 apply to the Phase II Property in that the property is a shallow soil property.

Existing Buildings and Structures

The south portion of the Phase II Property is occupied by a single-storey, with one basement level, commercial plaza comprised of a restaurant and grocery store. Constructed circa 1976, the commercial plaza is constructed with a concrete block foundation and is finished on the exterior with brick, in addition to a flat tar and gravel roof with sloped metal siding around the perimeter of the roof. The building is heated and cooled via natural gas-fired roof top units. A site trailer for a nearby construction project is also present on the northwest portion of the Phase II Property.

Proposed Buildings and Other Structures

It is our understanding that the Phase II Property will be redeveloped with a multi-storey residential building with underground parking covering the majority of the site. The proposed building will be surrounded by paved walkways and landscaped areas.

Drinking Water Wells

No drinking water wells are present on the Phase II Property, nor are any suspected to be present within the 250 m study area.

Water Bodies and Areas of Natural Significance

There are no areas of natural and scientific interest or waterbodies on the Phase II Property or within the 250 m study area.

Environmental Condition

Areas Where Contaminants are Present

Based on the findings of the 2021 Phase II ESA and this Phase II ESA Update, groundwater results are in compliance with the MECP Table 7 standards. However, soil results from the 2021 Phase II ESA identified mercury exceeding the applicable MECP Standards in the southwest portion of the Phase II Property.

Analytical test results are presented on Drawing PE5231-4 – Analytical Testing Plan – Soil and Drawing PE5231-5 – Analytical Testing Plan - Groundwater.

Types of Contaminants

Based on the findings of the 2021 Phase II ESA and this Phase II ESA Update, the contaminants of concern at the Phase II property are considered to be Mercury in soil.

Contaminated Media

Based on the findings of the 2021 Phase II ESA and this Phase II ESA Update, the concentration of Mercury in soil sample BH2-SS2 exceeds MECP Table 7 standards for soil. All groundwater samples were in compliance with MECP Table 7 Standards.

What Is Known About Areas Where Contaminants Are Present

The impacted soil identified in sample BH2-SS2 is interpreted to have originated off-site from the importation of fill material of unknown quality. The area in which the impact was identified in the borehole has historically been used as parking.

Distribution and Migration of Contaminants

No contaminants exceeding MECP Table 7 standards were identified in the groundwater beneath the Phase II Property. A layer of impacted fill material was identified in the southwest portion of Phase II property. This layer was observed to be approximately 0.85 m thick. Based on the observations made during the field program, in conjunction with analytical test results, it is expected that a limited amount of the fill material is impacted with metals.

Discharge of Contaminants

The metals impacted fill material identified in the southwestern portion of the Phase II Property, is considered to be the result of the importation of fill material of a poor quality.

Climatic and Meteorological Conditions

In general, climatic and meteorological conditions have the potential to affect contaminant distribution. Two (2) ways by which climatic and meteorological conditions may affect contaminant distribution include the downward leaching of contaminants by means of the infiltration of precipitation, and the migration of contaminants via groundwater levels and/or flow, which may fluctuate seasonally. Based on the results of the Phase II ESA, downward leaching does not appear to have significantly affected contaminant distribution at the Phase II Property. Site groundwater was in compliance with MECP standards, so the fluctuation of the groundwater table was considered to have a limited effect on the distribution of contaminants at the Phase II Property.

Potential for Vapour Intrusion

Given the non-volatile nature of the impacts identified in the soil and the location of the soil impacts, the potential for vapour intrusion into the current site building is negligible. It is our understanding that any contamination on the site will be remediated prior to site redevelopment. As such, the potential for vapour intrusion at the Phase II property is considered to be limited.

Recommendations

Soil

Any impacted fill material can be removed from the Phase II Property as part of redevelopment activities. The presence of the impacted fill material is not considered to have an impact on the current operations of the Phase II Property. It is recommended that the excavation of soil be monitored and confirmed by Paterson. Impacted material will

require disposal at a licensed waste disposal facility. Following removal of impacted material, underlying native material will require testing to confirm compliance with site standards.

Non-impacted soil from the Phase II property must be managed in accordance with Ontario Regulation 406/19 (On-Site and Excess Soil Management). It is recommended that excess soil planning occurs in conjunction with site redevelopment. Additional information regarding the excess soil requirements for this property can be provided, if required.

Groundwater

It is recommended that the monitoring wells installed on the Phase II Property remain viable for future monitoring. Prior to site redevelopment, the monitoring wells must be decommissioned in accordance with O.Reg 903.

Statement of Limitations

This Phase II - Environmental Site Assessment Update report has been prepared under the supervision of a qualified person, in general accordance with Ontario Regulation 153/04, as amended. The conclusions presented herein are based on information gathered from a limited historical review and field inspection program.

The findings of the Phase II - ESA Update are based on the review of the previous subsurface program completed on the Phase II Property in conjunction with the most recent analytical test results.

Should any conditions be encountered at the Phase II Property that differ from our findings, we request that we be notified immediately.

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

We trust that this submission satisfies your current requirements. Should you have any questions please contact the undersigned.

Regards,

Paterson Group Inc.

Jeremy Camposarcone, B.Eng.

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

Report Distribution:

- ❑ TCU Development Corporation – Mr. Evan Johnson
- ❑ Paterson Group

Appendix

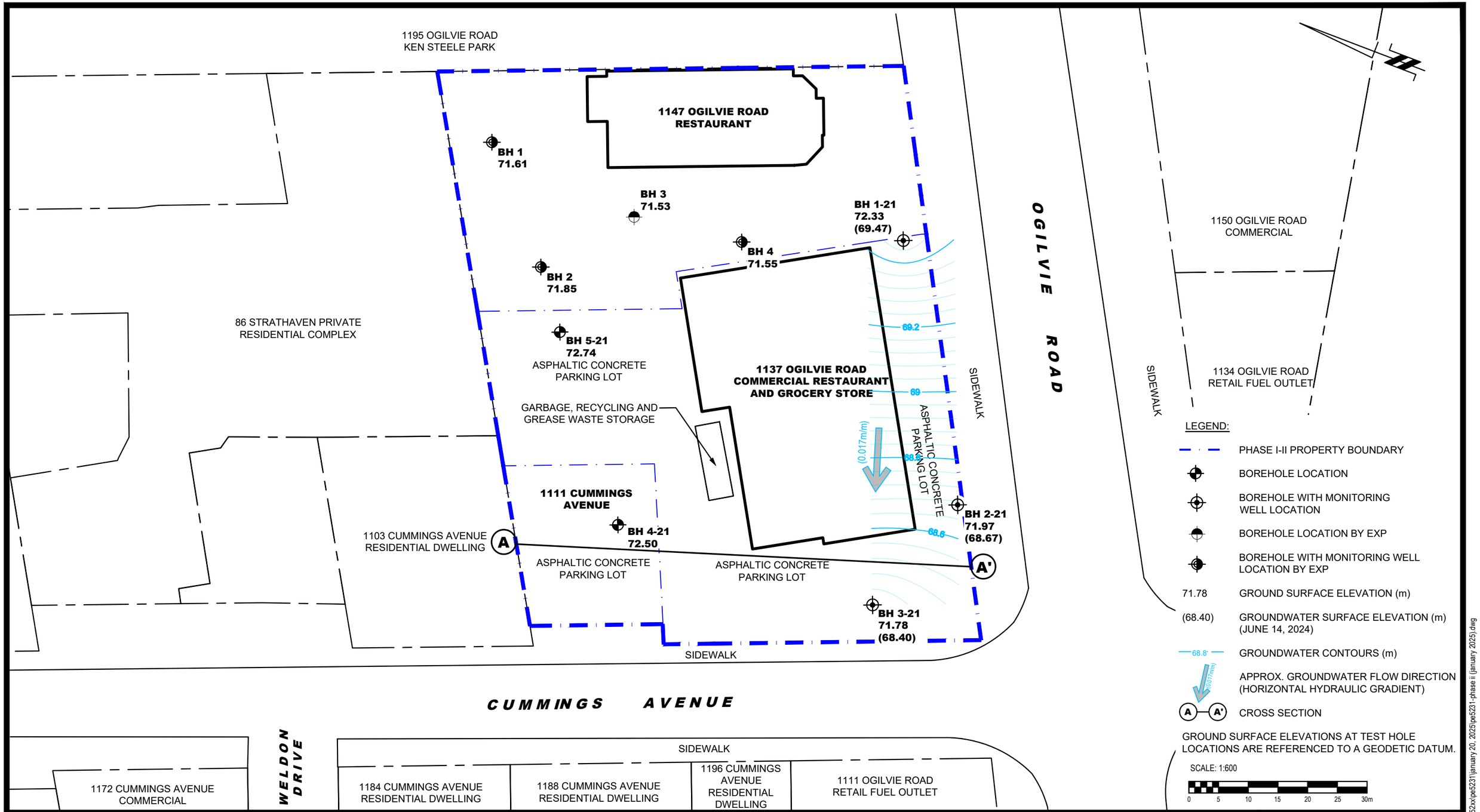
- ❑ Figure 1 – Key Plan
- ❑ Table 1 – Soil Analytical Test Results
- ❑ Table 2 – Groundwater Analytical Test Results
- ❑ Drawing PE5231-3 – Test Hole Location Plan
- ❑ Drawing PE5231-4 – Analytical Testing Plan – Soil
- ❑ Drawing PE5231-4A – Cross Section A-A' - Soil
- ❑ Drawing PE5231-5 – Analytical Testing Plan – Groundwater
- ❑ Drawing PE5231-5A – Cross Section A-A' - Groundwater
- ❑ Laboratory Certificates of Analysis

Parameter	Units	MDL	Regulation	Sample ID						
				BH1-SS2 2117271-01	BH1-SS4 2117271-02	BH2-SS2 2117271-03	BH3-SS2 2117271-04	BH4-SS2 2117271-05	BH5-SS2 2117271-06	Dup 1 2117271-07
Sample Depth (m)			**Reg 153/04-Table 7 Residential, coarse**	**0.76 - 1.37**	**0.33 - 0.53**	**0.76 - 1.37**	**0.76 - 1.37**	**0.76 - 1.37**	**0.76 - 1.37**	**0.76 - 1.37**
Sample Date				**19/Apr/2021**	**19/Apr/2021**	**19/Apr/2021**	**19/Apr/2021**	**19/Apr/2021**	**19/Apr/2021**	**19/Apr/2021**
Phsical Characteristics										
% Solids	% by Wt.	0.1		88.6	92.3	87	82.8	86.2	86.8	83.8
General Inorganics										
pH	N/A	0.05	NV	7.66	7.7	-	-	-	-	-
Metals										
Antimony	ug/g dry	1.0	7.5	ND (1.0)	-	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Arsenic	ug/g dry	1.0	18	6.5	-	6.8	7.1	8.1	9.7	6.7
Barium	ug/g dry	1.0	390	104	-	93.3	94.5	160	115	82.2
Beryllium	ug/g dry	0.5	4.0	0.6	-	0.6	0.6	0.6	0.8	ND (0.5)
Boron	ug/g dry	0.5	120	9	-	6.4	6.8	8	10	5.4
Cadmium	ug/g dry	0.5	1.2	ND (0.5)	-	ND (0.5)	ND (0.5)	0.7	ND (0.5)	ND (0.5)
Chromium (VI)	ug/g dry	0.2	8.0	ND (0.2)	-	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	N/A
Chromium	ug/g dry	5	160	20.8	-	26.2	25.5	28.9	28.2	23
Cobalt	ug/g dry	1	22	13.6	-	11.3	9.6	16	18.8	10.2
Copper	ug/g dry	5	140	31.8	-	27.3	24.9	39.2	45.6	24.7
Lead	ug/g dry	1	120	11.5	-	23.2	19.1	52.9	16.6	19.4
Mercury	ug/g dry	0.1	0.27	ND (0.1)	-	0.5	0.2	0.1	ND (0.1)	N/A
Molybdenum	ug/g dry	1	6.9	4.3	-	3.5	2.4	4.6	3.2	3.5
Nickel	ug/g dry	5	100	47.5	-	37.7	28.4	53.6	50.4	34.7
Selenium	ug/g dry	1	2.4	ND (1.0)	-	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Silver	ug/g dry	0.3	20	ND (0.3)	-	ND (0.3)	ND (0.3)	ND (0.3)	ND (0.3)	ND (0.3)
Thallium	ug/g dry	1	1.0	ND (1.0)	-	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Uranium	ug/g dry	1	23	1.3	-	1.3	1.3	1.5	1.1	1.2
Vanadium	ug/g dry	1	86	30.1	-	33.8	34.4	35.5	37	29.7
Zinc	ug/g dry	10	340	43.3	-	79.9	58.7	123	55	65.7
BTEX										
Benzene	ug/g dry	0.02	0.21	-	ND (0.02)	-	ND (0.02)	-	-	-
Ethylbenzene	ug/g dry	0.05	2.0	-	ND (0.05)	-	ND (0.05)	-	-	-
Toluene	ug/g dry	0.05	2.3	-	ND (0.05)	-	ND (0.05)	-	-	-
m/p-Xylene	ug/g dry	0.05	3.1	-	ND (0.05)	-	ND (0.05)	-	-	-
o-Xylene	ug/g dry	0.05	3.1	-	ND (0.05)	-	ND (0.05)	-	-	-
Xylenes, total	ug/g dry	0.05	3.1	-	ND (0.05)	-	ND (0.05)	-	-	-
Hydrocarbons										
F1 PHCs (C6-C10)	ug/g dry	7	55	-	ND (7)	-	ND (7)	-	-	-
F2 PHCs (C10-C16)	ug/g dry	4	98	-	ND (4)	-	ND (4)	-	-	-
F3 PHCs (C16-C34)	ug/g dry	8	300	-	ND (8)	-	26	-	-	-
F4 PHCs (C34-C50)	ug/g dry	6	2800	-	ND (6)	-	48	-	-	-

2.00	Result exceeds Reg 153/04-Table 7 Residential, coarse Standards
ND (0.2)	MDL exceeds Reg 153/04-Table 7 Residential, coarse Standards
ND (0.2)	No concentrations identified above the MDL
NA	Parameter not analysed
NV	No value given for indicated parameter

Parameter	Units	MDL	Regulation	Sample ID						
				BH1-GW1 2118209-01	BH2-GW1 2118209-02	BH3-GW1 2118209-03	BH1-21-GW2 2425030-01	BH2-21-GW2 2425030-02	BH3-21-GW2 2425030-03	DUP 2425030-04
Sample Depth (m)			Reg 153/04-Table 7 Non-Potable Groundwater, coarse	3.78 - 6.83	3.12 - 6.17	2.82 - 5.87	3.78 - 6.83	3.12 - 6.17	2.82 - 5.87	3.12 - 6.17
Sample Date				26/Apr/2021	26/Apr/2021	26/Apr/2021	14/Jun/2021	14/Jun/2021	14/Jun/2021	14/Jun/2021
Metals										
Mercury	ug/L	0.1	0.1	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)
Antimony	ug/L	0.5	16000	ND (0.5)	ND (0.5)	0.6	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Arsenic	ug/L	1	1500	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Barium	ug/L	1	23000	110	147	68	83	68	48	71
Beryllium	ug/L	0.5	53	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Boron	ug/L	10	36000	98	74	79	111	93	64	90
Cadmium	ug/L	0.1	2.1	ND (0.1)	ND (0.1)	0.5	ND (0.1)	ND (0.1)	1	ND (0.1)
Chromium	ug/L	1	640	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Chromium (VI)	ug/L	10	110	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Cobalt	ug/L	0.5	52	ND (0.5)	1.2	0.7	ND (0.5)	ND (0.5)	1.2	ND (0.5)
Copper	ug/L	0.5	69	1.2	ND (0.5)	1.8	ND (0.5)	ND (0.5)	2.3	ND (0.5)
Lead	ug/L	0.1	20	ND (0.1)	0.3	ND (0.1)	0.3	0.5	0.5	0.4
Molybdenum	ug/L	0.5	7300	4	8.5	8.7	ND (0.5)	3.6	3.2	3.8
Nickel	ug/L	1	390	ND (1)	6	22	ND (1)	5	25	5
Selenium	ug/L	1	50	ND (1)	ND (1)	2	3	ND (1)	1	ND (1)
Silver	ug/L	0.1	1.2	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)
Sodium	ug/L	200	1800000	119000	364000	282000	173000	579000	646000	591000
Thallium	ug/L	0.1	400	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	0.2	0.1	0.2
Uranium	ug/L	0.1	330	7.1	11	33.4	3.4	6.1	17.6	6.2
Vanadium	ug/L	0.5	200	ND (0.5)	0.8	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Zinc	ug/L	5	890	9	16	9	ND (5)	ND (5)	7	ND (5)
BTEX										
Benzene	ug/L	0.5	0.5	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Ethylbenzene	ug/L	0.5	54	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Toluene	ug/L	0.5	320	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
m/p-Xylene	ug/L	0.5	72	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
o-Xylene	ug/L	0.5	72	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Xylenes, total	ug/L	0.5	72	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Hydrocarbons										
F1 PHCs (C6-C10)	ug/L	25	420	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)	ND (25)
F2 PHCs (C10-C16)	ug/L	100	150	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)
F3 PHCs (C16-C34)	ug/L	100	500	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)
F4 PHCs (C34-C50)	ug/L	100	500	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)	ND (100)

2.00	Result exceeds Reg 153/04-Table 7 Non-Potable Groundwater, coarse Standards
ND (0.2)	MDL exceeds Reg 153/04-Table 7 Non-Potable Groundwater, coarse Standards
ND (0.2)	No concentrations identified above the MDL
NA	Parameter not analysed
NV	No value given for indicated parameter



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NO.	REVISIONS	DATE	INITIAL

TCU DEVELOPMENT CORP.

PHASE II - ENVIRONMENTAL SITE ASSESSMENT UPDATE
1137 AND 1147 OGILVIE ROAD AND 1111 CUMMINGS AVENUE
OTTAWA, ONTARIO

Title:

TEST HOLE LOCATION PLAN

Scale: 1:600	Date: 06/2024
Drawn by: YA	Report No.: PE5231-LET.02
Checked by: JC	Dwg. No.: PE5231-3
Approved by: MB	Revision No.:

11x17

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1195 OGILVIE ROAD
KEN STEELE PARK

1147 OGILVIE ROAD
RESTAURANT

BH 1
71.61

BH 3
71.53

BH 1-21
72.33
(69.47)

BH 4
71.55

BH 2
71.85

BH 5-21
72.74
ASPHALTIC CONCRETE
PARKING LOT

86 STRATHAVEN PRIVATE
RESIDENTIAL COMPLEX

1137 OGILVIE ROAD
COMMERCIAL RESTAURANT
AND GROCERY STORE

GARBAGE, RECYCLING AND
GREASE WASTE STORAGE

1111 CUMMINGS
AVENUE

BH 4-21
72.50

BH 2-21
71.97
(68.67)

1103 CUMMINGS AVENUE
RESIDENTIAL DWELLING

A

A'

ASPHALTIC CONCRETE
PARKING LOT

ASPHALTIC CONCRETE
PARKING LOT

ASPHALTIC CONCRETE
PARKING LOT

SIDEWALK

SIDEWALK

OGILVIE ROAD

BH 3-21
71.78
(68.40)

SIDEWALK

CUMMINGS AVENUE

WELDON DRIVE

1172 CUMMINGS AVENUE
COMMERCIAL

1184 CUMMINGS AVENUE
RESIDENTIAL DWELLING

1188 CUMMINGS AVENUE
RESIDENTIAL DWELLING

CUMMINGS AVENUE
RESIDENTIAL DWELLING

1111 OGILVIE ROAD
RETAIL FUEL OUTLET

1150 OGILVIE ROAD
COMMERCIAL

1134 OGILVIE ROAD
RETAIL FUEL OUTLET

BH5-SS2	0.76-1.37m	19-Apr-21
Metals including Hg and CrVI comply with the MECP Table 7 Standards		

BH4-SS2	0.76-1.37m	19-Apr-21
Metals including Hg and CrVI comply with the MECP Table 7 Standards		

BH3-SS2	0.76-1.37m	19-Apr-21
Metals including Hg and CrVI comply with the MECP Table 3 Standards		
BTEX comply with the MECP Table 7 Standards		
PHCs comply with the MECP Table 7 Standards		

BH1-SS2	0.76-1.37m	19-Apr-21
Metals including Hg and CrVI comply with the MECP Table 7 Standards		
BH1-SS4	2.29-2.90m	19-Apr-21
BTEX comply with the MECP Table 7 Standards		
PHCs comply with the MECP Table 7 Standards		

BH2-SS2	0.76-1.37m	19-Apr-21
Parameter	Result (µg/g)	Standard (µg/g)
Mercury	0.5	0.27
Remaining Metals including CrVI comply with the MECP Table 7 Standards		
Dup 1(BH2-SS2)	0.76-1.37m	19-Apr-21
Metals comply with the MECP Table 7 Standards		

LEGEND:

SOIL RESULT COMPLIES WITH MECP TABLE 7 STANDARDS

SOIL RESULT EXCEEDS MECP TABLE 7 STANDARDS

- PHASE I-II PROPERTY BOUNDARY
- BOREHOLE LOCATION
- BOREHOLE WITH MONITORING WELL LOCATION
- BOREHOLE LOCATION BY EXP
- BOREHOLE WITH MONITORING WELL LOCATION BY EXP
- 71.78 GROUND SURFACE ELEVATION (m)
- (68.40) GROUNDWATER SURFACE ELEVATION (m) (JUNE 14, 2024)
- A — A' CROSS SECTION

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

SCALE: 1:600

0 5 10 15 20 25 30m

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PHASE II - ENVIRONMENTAL SITE ASSESSMENT UPDATE
1137 AND 1147 OGILVIE ROAD AND 1111 CUMMINGS AVENUE

OTTAWA, ONTARIO

Title:

ANALYTICAL TESTING PLAN - SOIL

Scale: 1:600	Date: 06/2024
Drawn by: YA	Report No.: PE5231-LET.02
Checked by: JC	Dwg. No.: PE5231-4
Approved by: MB	Revision No.:

11x17

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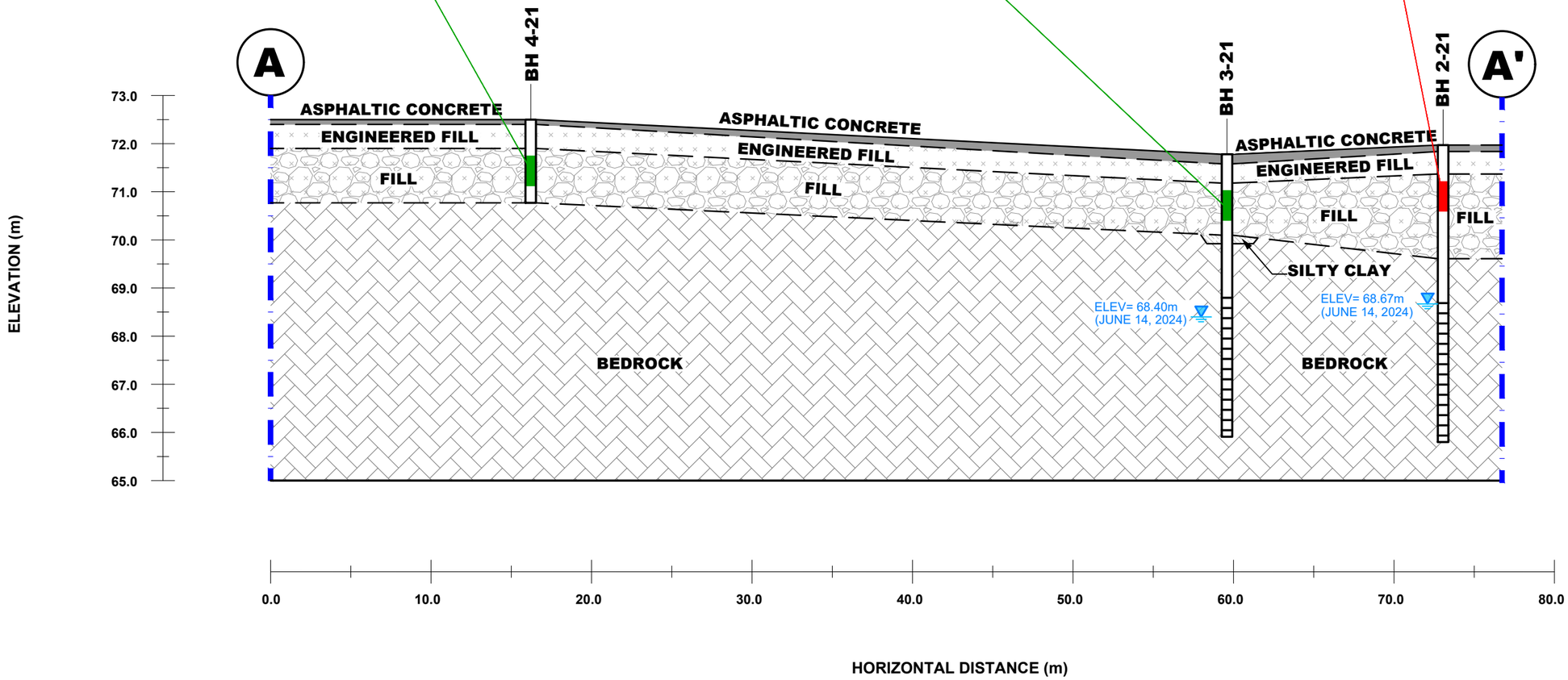
BH4-SS2	0.76-1.37m	19-Apr-21
Metals including Hg and CrVI comply with the MECP Table 7 Standards		

BH3-SS2	0.76-1.37m	19-Apr-21
Metals including Hg and CrVI comply with the MECP Table 7 Standards		
BTEX comply with the MECP Table 7 Standards		
PHCs comply with the MECP Table 7 Standards		

BH2-SS2	0.76-1.37m	19-Apr-21
Parameter	Result (µg/g)	Standard (µg/g)
Mercury	0.5	0.27
Remaining Metals including CrVI comply with the MECP Table 7 Standards		

Dup 1(BH2-SS2)	0.76-1.37m	19-Apr-21
Metals comply with the MECP Table 7 Standards		



SOIL RESULT COMPLIES WITH MECP TABLE 7 STANDARDS

SOIL RESULT EXCEEDS MECP TABLE 7 STANDARDS

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PHASE II - ENVIRONMENTAL SITE ASSESSMENT UPDATE
1137 OGILVIE ROAD AND 1111 CUMMINGS AVENUE
OTTAWA, ONTARIO

Title:

ANALYTICAL TESTING PLAN - SOIL

Scale: AS SHOWN	Date: 06/2024
Drawn by: YA	Report No.: PE5231-LET.02
Checked by: JC	Dwg. No.: PE5231-4A
Approved by: MB	Revision No.:

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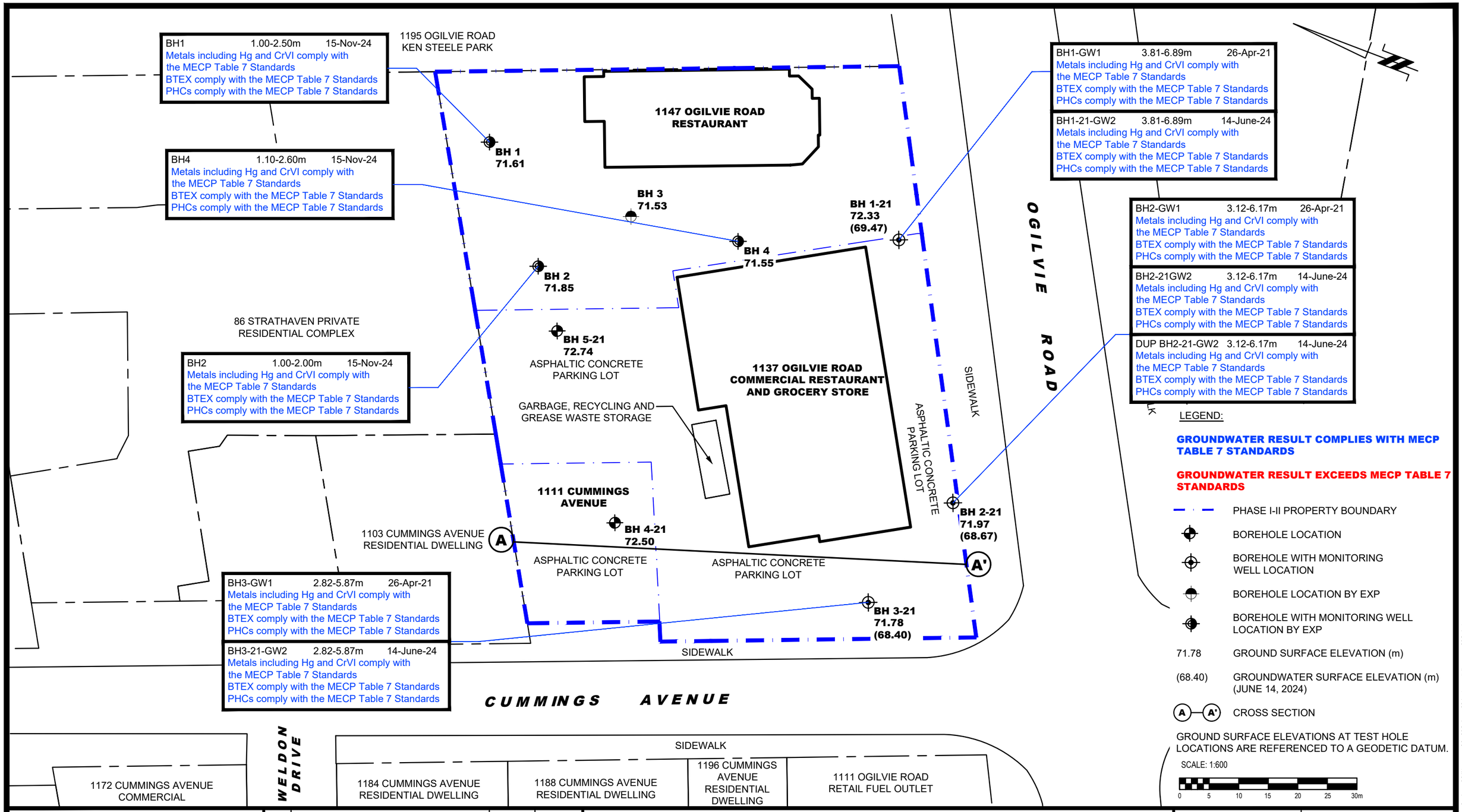

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PHASE II - ENVIRONMENTAL SITE ASSESSMENT UPDATE
1137 AND 1147 OGILVIE ROAD AND 1111 CUMMINGS AVENUE
OTTAWA, ONTARIO

Title:
ANALYTICAL TESTING PLAN - GROUNDWATER

Scale: 1:600	Date: 06/2024
Drawn by: YA	Report No.: PE5231-LET.02
Checked by: JC	Dwg. No.: PE5231-5
Approved by: MB	Revision No.:

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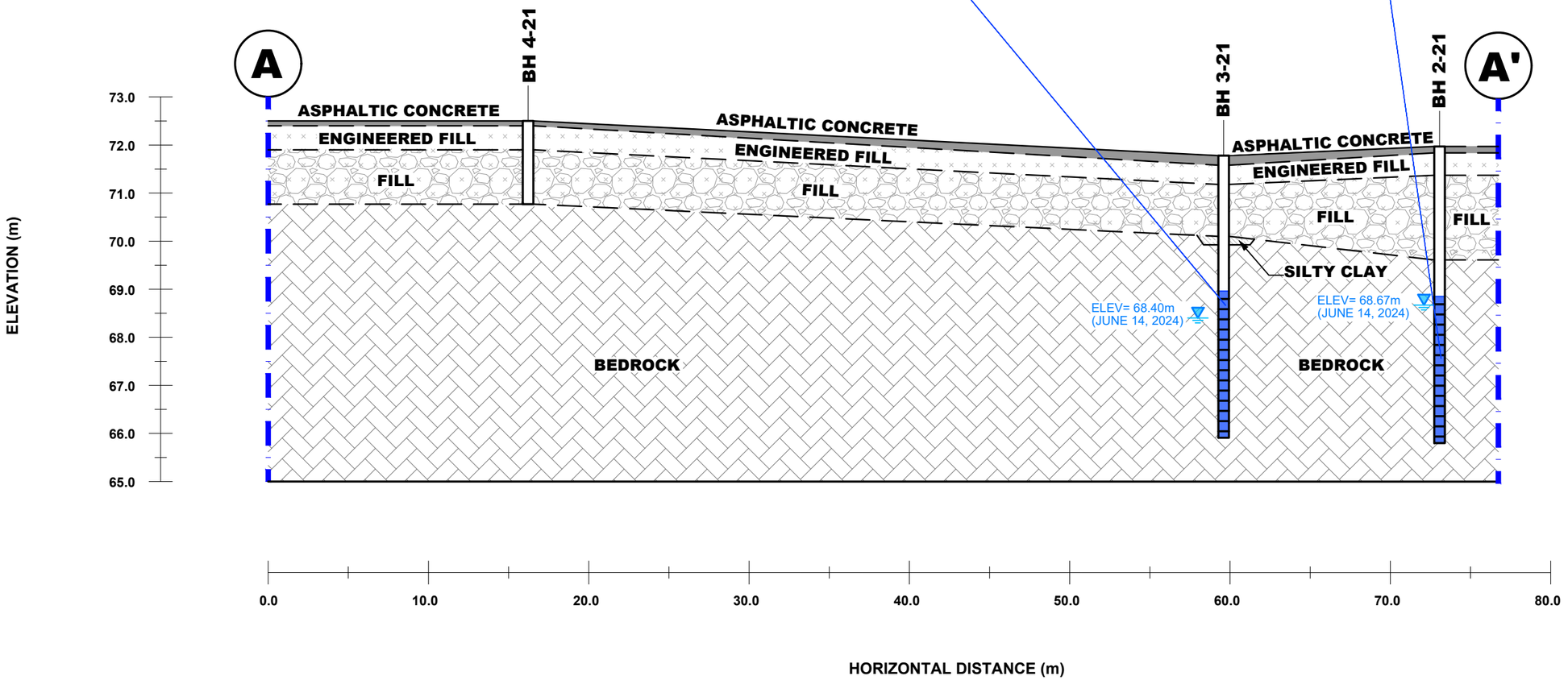
BH3-GW1	2.82-5.87m	26-Apr-21	
Metals including Hg and CrVI comply with the MECP Table 7 Standards			
BTEX comply with the MECP Table 7 Standards			
PHCs comply with the MECP Table 7 Standards			
BH3-21-GW2	2.82-5.87m	14-June-24	
Metals including Hg and CrVI comply with the MECP Table 7 Standards			
BTEX comply with the MECP Table 7 Standards			
PHCs comply with the MECP Table 7 Standards			

BH2-GW1	3.12-6.17m	26-Apr-21	
Metals including Hg and CrVI comply with the MECP Table 7 Standards			
BTEX comply with the MECP Table 7 Standards			
PHCs comply with the MECP Table 7 Standards			
BH2-21GW2	3.12-6.17m	14-June-24	
Metals including Hg and CrVI comply with the MECP Table 7 Standards			
BTEX comply with the MECP Table 7 Standards			
PHCs comply with the MECP Table 7 Standards			
DUP BH2-21-GW2	3.12-6.17m	14-June-24	
Metals including Hg and CrVI comply with the MECP Table 7 Standards			
BTEX comply with the MECP Table 7 Standards			
PHCs comply with the MECP Table 7 Standards			



GROUNDWATER RESULT COMPLIES WITH MECP TABLE 7 STANDARDS

GROUNDWATER RESULT EXCEEDS MECP TABLE 7 STANDARDS

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PHASE II - ENVIRONMENTAL SITE ASSESSMENT UPDATE
1137 OGILVIE ROAD AND 1111 CUMMINGS AVENUE
OTTAWA, ONTARIO

Title:
ANALYTICAL TESTING PLAN - GROUNDWATER

Scale: AS SHOWN	Date: 05/2021
Drawn by: YA	Report No.: PE5231-LET.02
Checked by: JC	Dwg. No.: PE5231-5A
Approved by: MB	Revision No.:

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Certificate of Analysis

Paterson Group Consulting Engineers

154 Colonnade Road South
Nepean, ON K2E 7J5
Attn: Mike Beaudoin

Client PO: 33055
Project: PE5231
Custody: 131534

Report Date: 26-Apr-2021
Order Date: 20-Apr-2021

Order #: 2117271

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

Paracel ID	Client ID
2117271-01	BH1-SS2
2117271-02	BH1-SS4
2117271-03	BH2-SS2
2117271-04	BH3-SS2
2117271-05	BH4-SS2
2117271-06	BH5-SS2
2117271-07	Dup 1

Approved By:

Mark Foto

Mark Foto, M.Sc.
Lab Supervisor

Certificate of Analysis

Report Date: 26-Apr-2021

Client: Paterson Group Consulting Engineers

Order Date: 20-Apr-2021

Client PO: 33055

Project Description: PE5231

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
BTEX by P&T GC-MS	EPA 8260 - P&T GC-MS	22-Apr-21	22-Apr-21
Chromium, hexavalent - soil	MOE E3056 - Extraction, colourimetric	21-Apr-21	22-Apr-21
Mercury by CVAA	EPA 7471B - CVAA, digestion	26-Apr-21	26-Apr-21
pH, soil	EPA 150.1 - pH probe @ 25 °C, CaCl buffered ext.	22-Apr-21	22-Apr-21
PHC F1	CWS Tier 1 - P&T GC-FID	22-Apr-21	22-Apr-21
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	21-Apr-21	23-Apr-21
REG 153: Metals by ICP/MS, soil	EPA 6020 - Digestion - ICP-MS	22-Apr-21	22-Apr-21
Solids, %	Gravimetric, calculation	22-Apr-21	22-Apr-21

Certificate of Analysis

Report Date: 26-Apr-2021

Client: Paterson Group Consulting Engineers

Order Date: 20-Apr-2021

Client PO: 33055

Project Description: PE5231

	Client ID:	BH1-SS2	BH1-SS4	BH2-SS2	BH3-SS2
	Sample Date:	19-Apr-21 09:00	19-Apr-21 09:00	19-Apr-21 09:00	19-Apr-21 09:00
	Sample ID:	2117271-01	2117271-02	2117271-03	2117271-04
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	88.6	92.3	87.0	82.8
General Inorganics					
pH	0.05 pH Units	7.66	7.70	-	-
Metals					
Antimony	1.0 ug/g dry	<1.0	-	<1.0	<1.0
Arsenic	1.0 ug/g dry	6.5	-	6.8	7.1
Barium	1.0 ug/g dry	104	-	93.3	94.5
Beryllium	0.5 ug/g dry	0.6	-	0.6	0.6
Boron	5.0 ug/g dry	9.0	-	6.4	6.8
Cadmium	0.5 ug/g dry	<0.5	-	<0.5	<0.5
Chromium	5.0 ug/g dry	20.8	-	26.2	25.5
Chromium (VI)	0.2 ug/g dry	<0.2	-	<0.2	<0.2
Cobalt	1.0 ug/g dry	13.6	-	11.3	9.6
Copper	5.0 ug/g dry	31.8	-	27.3	24.9
Lead	1.0 ug/g dry	11.5	-	23.2	19.1
Mercury	0.1 ug/g dry	<0.1	-	0.5	0.2
Molybdenum	1.0 ug/g dry	4.3	-	3.5	2.4
Nickel	5.0 ug/g dry	47.5	-	37.7	28.4
Selenium	1.0 ug/g dry	<1.0	-	<1.0	<1.0
Silver	0.3 ug/g dry	<0.3	-	<0.3	<0.3
Thallium	1.0 ug/g dry	<1.0	-	<1.0	<1.0
Uranium	1.0 ug/g dry	1.3	-	1.3	1.3
Vanadium	10.0 ug/g dry	30.1	-	33.8	34.4
Zinc	20.0 ug/g dry	43.3	-	79.9	58.7
Volatiles					
Benzene	0.02 ug/g dry	-	<0.02	-	<0.02
Ethylbenzene	0.05 ug/g dry	-	<0.05	-	<0.05
Toluene	0.05 ug/g dry	-	<0.05	-	<0.05
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
Toluene-d8	Surrogate	-	105%	-	106%
Hydrocarbons					
F1 PHCs (C6-C10)	7 ug/g dry	-	<7	-	<7
F2 PHCs (C10-C16)	4 ug/g dry	-	<4	-	<4

Certificate of Analysis

Report Date: 26-Apr-2021

Client: Paterson Group Consulting Engineers

Order Date: 20-Apr-2021

Client PO: 33055

Project Description: PE5231

	Client ID:	BH1-SS2	BH1-SS4	BH2-SS2	BH3-SS2
	Sample Date:	19-Apr-21 09:00	19-Apr-21 09:00	19-Apr-21 09:00	19-Apr-21 09:00
	Sample ID:	2117271-01	2117271-02	2117271-03	2117271-04
	MDL/Units	Soil	Soil	Soil	Soil
F3 PHCs (C16-C34)	8 ug/g dry	-	<8	-	26
F4 PHCs (C34-C50)	6 ug/g dry	-	<6	-	48
	Client ID:	BH4-SS2	BH5-SS2	Dup 1	-
	Sample Date:	19-Apr-21 09:00	19-Apr-21 09:00	19-Apr-21 09:00	-
	Sample ID:	2117271-05	2117271-06	2117271-07	-
	MDL/Units	Soil	Soil	Soil	-
Physical Characteristics					
% Solids	0.1 % by Wt.	86.2	86.8	83.8	-
Metals					
Antimony	1.0 ug/g dry	<1.0	<1.0	<1.0	-
Arsenic	1.0 ug/g dry	8.1	9.7	6.7	-
Barium	1.0 ug/g dry	160	115	82.2	-
Beryllium	0.5 ug/g dry	0.6	0.8	<0.5	-
Boron	5.0 ug/g dry	8.0	10.0	5.4	-
Cadmium	0.5 ug/g dry	0.7	<0.5	<0.5	-
Chromium	5.0 ug/g dry	28.9	28.2	23.0	-
Chromium (VI)	0.2 ug/g dry	<0.2	<0.2	-	-
Cobalt	1.0 ug/g dry	16.0	18.8	10.2	-
Copper	5.0 ug/g dry	39.2	45.6	24.7	-
Lead	1.0 ug/g dry	52.9	16.6	19.4	-
Mercury	0.1 ug/g dry	0.1	<0.1	-	-
Molybdenum	1.0 ug/g dry	4.6	3.2	3.5	-
Nickel	5.0 ug/g dry	53.6	50.4	34.7	-
Selenium	1.0 ug/g dry	<1.0	<1.0	<1.0	-
Silver	0.3 ug/g dry	<0.3	<0.3	<0.3	-
Thallium	1.0 ug/g dry	<1.0	<1.0	<1.0	-
Uranium	1.0 ug/g dry	1.5	1.1	1.2	-
Vanadium	10.0 ug/g dry	35.5	37.0	29.7	-
Zinc	20.0 ug/g dry	123	55.0	65.7	-

Certificate of Analysis

Report Date: 26-Apr-2021

Client: Paterson Group Consulting Engineers

Order Date: 20-Apr-2021

Client PO: 33055

Project Description: PE5231

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						
Volatiles									
Benzene	ND	0.02	ug/g						
Ethylbenzene	ND	0.05	ug/g						
Toluene	ND	0.05	ug/g						
m,p-Xylenes	ND	0.05	ug/g						
o-Xylene	ND	0.05	ug/g						
Xylenes, total	ND	0.05	ug/g						
Surrogate: Toluene-d8	*8.41*		*ug/g*		*105*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics									
pH	6.88	0.05	pH Units	6.89			0.1	2.3	
Hydrocarbons									
F1 PHCs (C6-C10)	19	7	ug/g dry	15			24.5	40	
F2 PHCs (C10-C16)	ND	4	ug/g dry	ND			NC	30	
F3 PHCs (C16-C34)	ND	8	ug/g dry	ND			NC	30	
F4 PHCs (C34-C50)	ND	6	ug/g dry	ND			NC	30	
Metals									
Antimony	ND	1.0	ug/g dry	ND			NC	30	
Arsenic	4.9	1.0	ug/g dry	4.2			13.6	30	
Barium	437	1.0	ug/g dry	384			12.9	30	
Beryllium	1.2	0.5	ug/g dry	1.0			14.2	30	
Boron	6.1	5.0	ug/g dry	5.5			11.2	30	
Cadmium	ND	0.5	ug/g dry	ND			NC	30	
Chromium (VI)	ND	0.2	ug/g dry	ND			NC	35	
Chromium	136	5.0	ug/g dry	121			11.5	30	
Cobalt	25.9	1.0	ug/g dry	23.5			9.8	30	
Copper	38.5	5.0	ug/g dry	34.9			9.9	30	
Lead	9.3	1.0	ug/g dry	8.5			9.8	30	
Mercury	ND	0.1	ug/g dry	ND			NC	30	
Molybdenum	1.0	1.0	ug/g dry	ND			NC	30	
Nickel	68.3	5.0	ug/g dry	61.8			9.9	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	1.7	1.0	ug/g dry	1.4			14.1	30	
Vanadium	134	10.0	ug/g dry	120			11.2	30	
Zinc	136	20.0	ug/g dry	121			11.9	30	
Physical Characteristics									
% Solids	87.9	0.1	% by Wt.	85.5			2.8	25	
Volatiles									
Benzene	0.063	0.02	ug/g dry	0.070			10.4	50	
Ethylbenzene	0.055	0.05	ug/g dry	0.051			8.1	50	
Toluene	ND	0.05	ug/g dry	ND			NC	50	
m,p-Xylenes	0.097	0.05	ug/g dry	0.087			10.6	50	
o-Xylene	0.073	0.05	ug/g dry	0.078			6.4	50	
Surrogate: Toluene-d8	*9.40*		*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)	189	7	ug/g	ND	94.5	80-120			
F2 PHCs (C10-C16)	70	4	ug/g	ND	81.8	60-140			
F3 PHCs (C16-C34)	202	8	ug/g	ND	97.1	60-140			
F4 PHCs (C34-C50)	137	6	ug/g	ND	104	60-140			
Metals									
Antimony	51.4	1.0	ug/g	ND	103	70-130			
Arsenic	55.4	1.0	ug/g	1.7	107	70-130			
Barium	53.0	1.0	ug/g	ND	106	70-130			
Beryllium	46.9	0.5	ug/g	ND	93.0	70-130			
Boron	44.2	5.0	ug/g	ND	84.1	70-130			
Cadmium	51.0	0.5	ug/g	ND	102	70-130			
Chromium (VI)	4.3	0.2	ug/g	ND	86.0	70-130			
Chromium	106	5.0	ug/g	48.4	115	70-130			
Cobalt	62.5	1.0	ug/g	9.4	106	70-130			
Copper	66.0	5.0	ug/g	14.0	104	70-130			
Lead	52.0	1.0	ug/g	3.4	97.2	70-130			
Mercury	1.60	0.1	ug/g	ND	106	70-130			
Molybdenum	52.3	1.0	ug/g	ND	104	70-130			
Nickel	78.1	5.0	ug/g	24.7	107	70-130			
Selenium	49.4	1.0	ug/g	ND	98.5	70-130			
Silver	48.8	0.3	ug/g	ND	97.6	70-130			
Thallium	50.4	1.0	ug/g	ND	100	70-130			
Uranium	52.4	1.0	ug/g	ND	104	70-130			
Vanadium	109	10.0	ug/g	48.0	122	70-130			
Zinc	103	20.0	ug/g	48.4	109	70-130			
Volatiles									
Benzene	3.31	0.02	ug/g	ND	82.7	60-130			
Ethylbenzene	4.14	0.05	ug/g	ND	104	60-130			
Toluene	3.91	0.05	ug/g	ND	97.9	60-130			
m,p-Xylenes	7.77	0.05	ug/g	ND	97.1	60-130			
o-Xylene	4.11	0.05	ug/g	ND	103	60-130			
Surrogate: Toluene-d8	*8.05*		*ug/g*		*101*	*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

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.

PARAC LABORATORIES

Paracel ID: 2117271

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47
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Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2117271	№ 131534

Client Name: Paterson Group	Project Ref: PE5231	Page 1 of 1
Contact Name: Michael Beaudoin	Quote #:	Turnaround Time
Address: 154 colonnade Road South	PO #: 33055	☐ 1 day ☐ 3 day ☐ 2 day ☑ Regular
Telephone: 613-226-7381	E-mail: MBeaudoin@pattersongroup.ca	Date Required:

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

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

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken: Date	Sample Taken: Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)	pH
1	BH1-SS2	S		1	April 19, 21					X	X	X		X
2	BH1-SS4	S		2			X			[redacted]				X
3	BH2-SS2	↓		2	↓					X	X	X		
4	BH3-SS2			2			X			X	X	X		
5	BH4-SS2			2						X	X	X		
6	BH5-SS2			2						X	X	X		
7	Dup 2	↓		1	↓					X				
8														
9														
10														

Comments:

Method of Delivery: Paracel Courier

Relinquished By (Sign):	Received By Driver/Depot: T. Flowie	Received at Lab: Jurneeporn Ohmai	Verified By:
Relinquished By (Print): Mohammed Rumaltan	Date/Time: 20/04/21 3:30	Date/Time: APR 20, 2021 04.20	Date/Time: Apr 21 2021 9:20
Date/Time: April 20, 2021 / 2:15pm	Temperature: °C	Temperature: 15.3 °C	pH Verified: ☐ By: MA

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Certificate of Analysis

Paterson Group Consulting Engineers

154 Colonnade Road South
Nepean, ON K2E 7J5
Attn: Mike Beaudoin

Client PO: 29879
Project: PE5231
Custody: 59227

Report Date: 3-May-2021
Order Date: 27-Apr-2021

Order #: 2118209

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

Paracel ID	Client ID
2118209-01	BH1-GW1
2118209-02	BH2-GW1
2118209-03	BH3-GW1

Approved By:

Mark Foto

Mark Foto, M.Sc.
Lab Supervisor

Certificate of Analysis

Report Date: 03-May-2021

Client: Paterson Group Consulting Engineers

Order Date: 27-Apr-2021

Client PO: 29879

Project Description: PE5231

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
BTEX by P&T GC-MS	EPA 624 - P&T GC-MS	28-Apr-21	28-Apr-21
Chromium, hexavalent - water	MOE E3056 - colourimetric	29-Apr-21	29-Apr-21
Mercury by CVAA	EPA 245.2 - Cold Vapour AA	28-Apr-21	28-Apr-21
Metals, ICP-MS	EPA 200.8 - ICP-MS	28-Apr-21	28-Apr-21
PHC F1	CWS Tier 1 - P&T GC-FID	28-Apr-21	28-Apr-21
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	29-Apr-21	3-May-21

Certificate of Analysis

Report Date: 03-May-2021

Client: Paterson Group Consulting Engineers

Order Date: 27-Apr-2021

Client PO: 29879

Project Description: PE5231

	Client ID:	BH1-GW1	BH2-GW1	BH3-GW1	-
	Sample Date:	26-Apr-21 09:00	26-Apr-21 09:00	26-Apr-21 09:00	-
	Sample ID:	2118209-01	2118209-02	2118209-03	-
	MDL/Units	Water	Water	Water	-
Metals					
Mercury	0.1 ug/L	<0.1	<0.1	<0.1	-
Antimony	0.5 ug/L	<0.5	<0.5	0.6	-
Arsenic	1 ug/L	<1	<1	<1	-
Barium	1 ug/L	110	147	68	-
Beryllium	0.5 ug/L	<0.5	<0.5	<0.5	-
Boron	10 ug/L	98	74	79	-
Cadmium	0.1 ug/L	<0.1	<0.1	0.5	-
Chromium	1 ug/L	<1	<1	<1	-
Chromium (VI)	10 ug/L	<10	<10	<10	-
Cobalt	0.5 ug/L	<0.5	1.2	0.7	-
Copper	0.5 ug/L	1.2	<0.5	1.8	-
Lead	0.1 ug/L	<0.1	0.3	<0.1	-
Molybdenum	0.5 ug/L	4.0	8.5	8.7	-
Nickel	1 ug/L	<1	6	22	-
Selenium	1 ug/L	<1	<1	2	-
Silver	0.1 ug/L	<0.1	<0.1	<0.1	-
Sodium	200 ug/L	119000	364000	282000	-
Thallium	0.1 ug/L	<0.1	<0.1	<0.1	-
Uranium	0.1 ug/L	7.1	11.0	33.4	-
Vanadium	0.5 ug/L	<0.5	0.8	<0.5	-
Zinc	5 ug/L	9	16	9	-
Volatiles					
Benzene	0.5 ug/L	<0.5	<0.5	<0.5	-
Ethylbenzene	0.5 ug/L	<0.5	<0.5	<0.5	-
Toluene	0.5 ug/L	<0.5	<0.5	<0.5	-
m,p-Xylenes	0.5 ug/L	<0.5	<0.5	<0.5	-
o-Xylene	0.5 ug/L	<0.5	<0.5	<0.5	-
Xylenes, total	0.5 ug/L	<0.5	<0.5	<0.5	-
Toluene-d8	Surrogate	102%	101%	102%	-
Hydrocarbons					
F1 PHCs (C6-C10)	25 ug/L	<25	<25	<25	-
F2 PHCs (C10-C16)	100 ug/L	<100	<100	<100	-
F3 PHCs (C16-C34)	100 ug/L	<100	<100	<100	-
F4 PHCs (C34-C50)	100 ug/L	<100	<100	<100	-

Certificate of Analysis

Report Date: 03-May-2021

Client: Paterson Group Consulting Engineers

Order Date: 27-Apr-2021

Client PO: 29879

Project Description: PE5231

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						
Metals									
Mercury	ND	0.1	ug/L						
Antimony	ND	0.5	ug/L						
Arsenic	ND	1	ug/L						
Barium	ND	1	ug/L						
Beryllium	ND	0.5	ug/L						
Boron	ND	10	ug/L						
Cadmium	ND	0.1	ug/L						
Chromium (VI)	ND	10	ug/L						
Chromium	ND	1	ug/L						
Cobalt	ND	0.5	ug/L						
Copper	ND	0.5	ug/L						
Lead	ND	0.1	ug/L						
Molybdenum	ND	0.5	ug/L						
Nickel	ND	1	ug/L						
Selenium	ND	1	ug/L						
Silver	ND	0.1	ug/L						
Sodium	ND	200	ug/L						
Thallium	ND	0.1	ug/L						
Uranium	ND	0.1	ug/L						
Vanadium	ND	0.5	ug/L						
Zinc	ND	5	ug/L						
Volatiles									
Benzene	ND	0.5	ug/L						
Ethylbenzene	ND	0.5	ug/L						
Toluene	ND	0.5	ug/L						
m,p-Xylenes	ND	0.5	ug/L						
o-Xylene	ND	0.5	ug/L						
Xylenes, total	ND	0.5	ug/L						
Surrogate: Toluene-d8	*83.4*		*ug/L*		*104*	*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	
Metals									
Mercury	ND	0.1	ug/L	ND			NC	20	
Antimony	ND	0.5	ug/L	ND			NC	20	
Arsenic	ND	1	ug/L	ND			NC	20	
Barium	ND	1	ug/L	ND			NC	20	
Beryllium	ND	0.5	ug/L	ND			NC	20	
Boron	ND	10	ug/L	ND			NC	20	
Cadmium	ND	0.1	ug/L	ND			NC	20	
Chromium (VI)	ND	10	ug/L	ND			NC	20	
Chromium	ND	1	ug/L	ND			NC	20	
Cobalt	ND	0.5	ug/L	ND			NC	20	
Copper	ND	0.5	ug/L	ND			NC	20	
Lead	ND	0.1	ug/L	ND			NC	20	
Molybdenum	ND	0.5	ug/L	ND			NC	20	
Nickel	ND	1	ug/L	ND			NC	20	
Selenium	ND	1	ug/L	ND			NC	20	
Silver	ND	0.1	ug/L	ND			NC	20	
Sodium	ND	200	ug/L	ND			NC	20	
Thallium	ND	0.1	ug/L	ND			NC	20	
Uranium	ND	0.1	ug/L	ND			NC	20	
Vanadium	ND	0.5	ug/L	ND			NC	20	
Zinc	ND	5	ug/L	ND			NC	20	
Volatiles									
Benzene	ND	0.5	ug/L	ND			NC	30	
Ethylbenzene	ND	0.5	ug/L	ND			NC	30	
Toluene	ND	0.5	ug/L	ND			NC	30	
m,p-Xylenes	ND	0.5	ug/L	ND			NC	30	
o-Xylene	ND	0.5	ug/L	ND			NC	30	
Surrogate: Toluene-d8	*82.4*		*ug/L*		*103*	*50-140*			

Certificate of Analysis

Report Date: 03-May-2021

Client: Paterson Group Consulting Engineers

Order Date: 27-Apr-2021

Client PO: 29879

Project Description: PE5231

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	2160	25	ug/L	ND	108	68-117			
F2 PHCs (C10-C16)	1300	100	ug/L	ND	81.4	60-140			
F3 PHCs (C16-C34)	3400	100	ug/L	ND	86.8	60-140			
F4 PHCs (C34-C50)	2040	100	ug/L	ND	82.2	60-140			
Metals									
Mercury	3.29	0.1	ug/L	ND	110	70-130			
Antimony	45.9	0.5	ug/L	ND	91.7	80-120			
Arsenic	48.6	1	ug/L	ND	97.1	80-120			
Barium	50.5	1	ug/L	ND	100	80-120			
Beryllium	44.9	0.5	ug/L	ND	89.7	80-120			
Boron	42	10	ug/L	ND	81.8	80-120			
Cadmium	53.4	0.1	ug/L	ND	107	80-120			
Chromium (VI)	197	10	ug/L	ND	98.5	70-130			
Chromium	50.6	1	ug/L	ND	101	80-120			
Cobalt	49.9	0.5	ug/L	ND	99.8	80-120			
Copper	49.6	0.5	ug/L	ND	99.2	80-120			
Lead	46.3	0.1	ug/L	ND	92.5	80-120			
Molybdenum	42.7	0.5	ug/L	ND	85.3	80-120			
Nickel	49.3	1	ug/L	ND	98.7	80-120			
Selenium	49.3	1	ug/L	ND	98.7	80-120			
Silver	50.7	0.1	ug/L	ND	101	80-120			
Sodium	9200	200	ug/L	ND	90.2	80-120			
Thallium	49.5	0.1	ug/L	ND	99.1	80-120			
Uranium	43.1	0.1	ug/L	ND	86.2	80-120			
Vanadium	48.5	0.5	ug/L	ND	97.1	80-120			
Zinc	52	5	ug/L	ND	105	80-120			
Volatiles									
Benzene	33.0	0.5	ug/L	ND	82.6	60-130			
Ethylbenzene	42.8	0.5	ug/L	ND	107	60-130			
Toluene	39.8	0.5	ug/L	ND	99.4	60-130			
m,p-Xylenes	79.0	0.5	ug/L	ND	98.7	60-130			
o-Xylene	41.8	0.5	ug/L	ND	105	60-130			
Surrogate: Toluene-d8	*81.1*		*ug/L*		*101*	*50-140*			

Certificate of Analysis

Report Date: 03-May-2021

Client: Paterson Group Consulting Engineers

Order Date: 27-Apr-2021

Client PO: 29879

Project Description: PE5231

Qualifier Notes:

Login Qualifiers :

Samples received submerged in water, possibly melted ice. This condition can compromise sample integrity.

Applies to samples: BH1-GW1, BH2-GW1, BH3-GW1

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

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

CCME PHC additional information:

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

PARACEL LABORATORIES LTI

Paracel ID: 2118209

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2118209	№ 59227

Client Name: Paterson Group	Project Ref: PE5731	Page 1 of 1
Contact Name: Mike Beaudoin	Quote #:	Turnaround Time
Address: 154 Colonnade Rd. S.	PO #: 29879	☐ 1 day ☐ 3 day
	E-mail: mbeaudoin@patersongroup.ca	☐ 2 day ☒ Regular
Telephone: 613-226-7381		Date Required:

Regulation 153/04: ☐ Table 1 ☒ Res/Park ☐ Med/Fine ☐ Table 2 ☐ Ind/Comm ☐ Coarse ☒ Table 3 ☐ Agri/Other ☐ Table — For RSC: ☒ Yes ☐ No

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

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

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	Required Analysis: PHCs + BTEX	Metals by ICP	Hg	CrVI
1	BH1-GW1	GW		6	Apr. 26/21	am	X	X	X	X
2	BH2-GW1	"		"	"	"	X	X	X	X
3	BH3-GW1	"		"	"	"	X	X	X	X
4										
5										
6										
7										
8										
9										
10										

Comments:

Method of Delivery: Drop Off

Relinquished By (Sign): DLattin	Received By Driver/Depot:	Received at Lab: Jinnee'Lynn Dokmai	Verified By: BS
Relinquished By (Print): Derek Lattin	Date/Time: Apr 27/21	Date/Time: APR 27, 2021 03:35	Date/Time: April 27, 2021 17:10
Date/Time: April 27 2021 1:36pm	Temperature: 8.1 °C	Temperature: 7.1 °C	pH Verified: ☑ By: BS

13:40

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Certificate of Analysis

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

Client PO: 60440
Project: PE5231
Custody:

Report Date: 20-Jun-2024
Order Date: 14-Jun-2024

Order #: 2425030

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

Paracel ID	Client ID
2425030-01	BH1-21-GW2
2425030-02	BH2-21-GW2
2425030-03	BH3-21-GW2
2425030-04	DUP

Approved By:

Dale Robertson, BSc
Laboratory Director

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
BTEX by P&T GC-MS	EPA 624 - P&T GC-MS	18-Jun-24	18-Jun-24
Chromium, hexavalent - water	MOE E3056 - colourimetric	17-Jun-24	17-Jun-24
Mercury by CVAA	EPA 245.2 - Cold Vapour AA	19-Jun-24	19-Jun-24
Metals, ICP-MS	EPA 200.8 - ICP-MS	18-Jun-24	19-Jun-24
PHC F1	CWS Tier 1 - P&T GC-FID	18-Jun-24	18-Jun-24
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	18-Jun-24	18-Jun-24

Certificate of Analysis

Report Date: 20-Jun-2024

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

Order Date: 14-Jun-2024

Client PO: **60440**

Project Description: PE5231

	Client ID:	BH1-21-GW2	BH2-21-GW2	BH3-21-GW2	DUP	-	-
	Sample Date:	14-Jun-24 09:00	14-Jun-24 09:00	14-Jun-24 09:00	14-Jun-24 09:00		
	Sample ID:	2425030-01	2425030-02	2425030-03	2425030-04		
	Matrix:	Ground Water	Ground Water	Ground Water	Ground Water		
	MDL/Units						
Metals							
Mercury	0.1 ug/L	<0.1	<0.1	<0.1	<0.1	-	-
Antimony	0.5 ug/L	<0.5	<0.5	<0.5	<0.5	-	-
Arsenic	1 ug/L	<1	<1	<1	<1	-	-
Barium	1 ug/L	83	68	48	71	-	-
Beryllium	0.5 ug/L	<0.5	<0.5	<0.5	<0.5	-	-
Boron	10 ug/L	111	93	64	90	-	-
Cadmium	0.1 ug/L	<0.1	<0.1	1.0	<0.1	-	-
Chromium	1 ug/L	<1	<1	<1	<1	-	-
Chromium (VI)	10 ug/L	<10	<10	<10	<10	-	-
Cobalt	0.5 ug/L	<0.5	<0.5	1.2	<0.5	-	-
Copper	0.5 ug/L	<0.5	<0.5	2.3	<0.5	-	-
Lead	0.1 ug/L	0.3	0.5	0.5	0.4	-	-
Molybdenum	0.5 ug/L	<0.5	3.6	3.2	3.8	-	-
Nickel	1 ug/L	<1	5	25	5	-	-
Selenium	1 ug/L	3	<1	1	<1	-	-
Silver	0.1 ug/L	<0.1	<0.1	<0.1	<0.1	-	-
Sodium	200 ug/L	173000	579000	646000	591000	-	-
Thallium	0.1 ug/L	<0.1	0.2	0.1	0.2	-	-
Uranium	0.1 ug/L	3.4	6.1	17.6	6.2	-	-
Vanadium	0.5 ug/L	<0.5	<0.5	<0.5	<0.5	-	-
Zinc	5 ug/L	<5	<5	7	<5	-	-
Volatiles							
Benzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5	-	-
Ethylbenzene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5	-	-
Toluene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5	-	-

	Client ID:	BH1-21-GW2	BH2-21-GW2	BH3-21-GW2	DUP	-	-
	Sample Date:	14-Jun-24 09:00	14-Jun-24 09:00	14-Jun-24 09:00	14-Jun-24 09:00		
	Sample ID:	2425030-01	2425030-02	2425030-03	2425030-04		
	Matrix:	Ground Water	Ground Water	Ground Water	Ground Water		
	MDL/Units						
Volatiles							
m,p-Xylenes	0.5 ug/L	<0.5	<0.5	<0.5	<0.5	-	-
o-Xylene	0.5 ug/L	<0.5	<0.5	<0.5	<0.5	-	-
Xylenes, total	0.5 ug/L	<0.5	<0.5	<0.5	<0.5	-	-
Toluene-d8	Surrogate	114%	114%	113%	114%	-	-
Hydrocarbons							
F1 PHCs (C6-C10)	25 ug/L	<25	<25	<25	<25	-	-
F2 PHCs (C10-C16)	100 ug/L	<100	<100	<100	<100	-	-
F3 PHCs (C16-C34)	100 ug/L	<100	<100	<100	<100	-	-
F4 PHCs (C34-C50)	100 ug/L	<100	<100	<100	<100	-	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons								
F1 PHCs (C6-C10)	ND	25	ug/L					
F2 PHCs (C10-C16)	ND	100	ug/L					
F3 PHCs (C16-C34)	ND	100	ug/L					
F4 PHCs (C34-C50)	ND	100	ug/L					
Metals								
Mercury	ND	0.1	ug/L					
Antimony	ND	0.5	ug/L					
Arsenic	ND	1	ug/L					
Barium	ND	1	ug/L					
Beryllium	ND	0.5	ug/L					
Boron	ND	10	ug/L					
Cadmium	ND	0.1	ug/L					
Chromium (VI)	ND	10	ug/L					
Chromium	ND	1	ug/L					
Cobalt	ND	0.5	ug/L					
Copper	ND	0.5	ug/L					
Lead	ND	0.1	ug/L					
Molybdenum	ND	0.5	ug/L					
Nickel	ND	1	ug/L					
Selenium	ND	1	ug/L					
Silver	ND	0.1	ug/L					
Sodium	ND	200	ug/L					
Thallium	ND	0.1	ug/L					
Uranium	ND	0.1	ug/L					
Vanadium	ND	0.5	ug/L					
Zinc	ND	5	ug/L					
Volatiles								
Benzene	ND	0.5	ug/L					
Ethylbenzene	ND	0.5	ug/L					
Toluene	ND	0.5	ug/L					
m,p-Xylenes	ND	0.5	ug/L					
o-Xylene	ND	0.5	ug/L					

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
Xylenes, total	ND	0.5	ug/L					
Surrogate: Toluene-d8	*90.8*		*%*	*113*	*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	
Metals									
Mercury	ND	0.1	ug/L	ND			NC	20	
Antimony	ND	0.5	ug/L	ND			NC	20	
Arsenic	ND	1	ug/L	ND			NC	20	
Barium	ND	1	ug/L	ND			NC	20	
Beryllium	ND	0.5	ug/L	ND			NC	20	
Boron	ND	10	ug/L	ND			NC	20	
Cadmium	ND	0.1	ug/L	ND			NC	20	
Chromium (VI)	ND	10	ug/L	ND			NC	20	
Chromium	ND	1	ug/L	ND			NC	20	
Cobalt	ND	0.5	ug/L	ND			NC	20	
Copper	ND	0.5	ug/L	ND			NC	20	
Lead	ND	0.1	ug/L	ND			NC	20	
Molybdenum	ND	0.5	ug/L	ND			NC	20	
Nickel	ND	1	ug/L	ND			NC	20	
Selenium	ND	1	ug/L	ND			NC	20	
Silver	ND	0.1	ug/L	ND			NC	20	
Sodium	873	200	ug/L	1230			34.3	20	QR-05
Thallium	ND	0.1	ug/L	ND			NC	20	
Uranium	ND	0.1	ug/L	ND			NC	20	
Vanadium	ND	0.5	ug/L	ND			NC	20	
Zinc	ND	5	ug/L	ND			NC	20	
Volatiles									
Benzene	ND	0.5	ug/L	ND			NC	30	
Ethylbenzene	ND	0.5	ug/L	ND			NC	30	
Toluene	ND	0.5	ug/L	ND			NC	30	
m,p-Xylenes	ND	0.5	ug/L	ND			NC	30	
o-Xylene	ND	0.5	ug/L	ND			NC	30	
Surrogate: Toluene-d8	*91.3*		*%*		*114*	*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)	1830	25	ug/L	ND	106	85-115			
F2 PHCs (C10-C16)	1670	100	ug/L	ND	104	60-140			
F3 PHCs (C16-C34)	4270	100	ug/L	ND	109	60-140			
F4 PHCs (C34-C50)	2300	100	ug/L	ND	92.7	60-140			
Metals									
Mercury	2.83	0.1	ug/L	ND	94.4	70-130			
Arsenic	47.7	1	ug/L	ND	95.4	80-120			
Barium	48.3	1	ug/L	ND	96.4	80-120			
Beryllium	48.7	0.5	ug/L	ND	97.4	80-120			
Boron	47	10	ug/L	ND	91.4	80-120			
Cadmium	50.2	0.1	ug/L	ND	100	80-120			
Chromium (VI)	184	10	ug/L	ND	92.0	70-130			
Chromium	49.5	1	ug/L	ND	98.8	80-120			
Cobalt	46.7	0.5	ug/L	ND	93.3	80-120			
Copper	47.1	0.5	ug/L	ND	93.8	80-120			
Lead	46.0	0.1	ug/L	ND	92.0	80-120			
Molybdenum	39.7	0.5	ug/L	ND	78.8	80-120			QM-07
Nickel	47.1	1	ug/L	ND	94.1	80-120			
Selenium	46.6	1	ug/L	ND	93.1	80-120			
Silver	44.8	0.1	ug/L	ND	89.5	80-120			
Sodium	10400	200	ug/L	1230	91.3	80-120			
Thallium	46.2	0.1	ug/L	ND	92.4	80-120			
Uranium	45.3	0.1	ug/L	ND	90.6	80-120			
Vanadium	48.2	0.5	ug/L	ND	96.3	80-120			
Zinc	49	5	ug/L	ND	98.8	80-120			
Volatiles									
Benzene	47.0	0.5	ug/L	ND	117	60-130			
Ethylbenzene	37.4	0.5	ug/L	ND	93.6	60-130			
Toluene	39.3	0.5	ug/L	ND	98.2	60-130			
m,p-Xylenes	72.8	0.5	ug/L	ND	91.0	60-130			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
o-Xylene	36.7	0.5	ug/L	ND	91.8	60-130			
Surrogate: Toluene-d8	*80.3*		*%*		*100*	*50-140*			

Qualifier Notes:

QC Qualifiers:

QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on other acceptable QC.
QR-05	Duplicate RPDs higher than normally accepted. Remaining batch QA\QC was acceptable. May be sample effect.

Sample Data Revisions:

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable

ND: Not Detected

MDL: Method Detection Limit

Source Result: Data used as source for matrix and duplicate samples

%REC: Percent recovery.

RPD: Relative percent difference.

NC: Not Calculated

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory. All prescribed quality criteria identified in the method has been met.

- F1 range corrected for BTEX.

- F2 to F3 ranges corrected for appropriate PAHs where available.

- The gravimetric heavy hydrocarbons (F4G) are not to be added to C6 to C50 hydrocarbons.

- In the case where F4 and F4G are both reported, the greater of the two results is to be used for comparison to CWS PHC criteria.

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

PARACEL LABORATORIES LTD.

Paracel ID: 2425030

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2425030	

Client Name: Paterson
Contact Name: Michael Beaudoin
Address: 9 Auriga Drive
Telephone: 613-226-7381

Project Ref: PE5231
Quote #:
PO #: ~~60440~~ 60440
E-mail: mbeaudoin@patersongroup.ca
kparchal@patersongroup.ca

Page 1 of 1

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

☑ REG 153/04 ☐ REG 406/19

☐ Table 1 ☐ Res/Park ☐ Med/Fine
☐ Table 2 ☐ Ind/Comm ☐ Coarse
☐ Table 3 ☐ Agri/Other
☑ Table 7
For RSC: ☐ Yes ☐ No

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

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

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHCs/BTEX	Metals by ICP	Hg	CrVI
1	BH1-21-GW2	GW		6	06/14/2024		✓	✓	✓	✓
2	BH2-21-GW2									
3	BH3-21-GW2			1						
4	DUP									
5										
6										
7										
8										
9										
10										

Comments:

Relinquished By (Sign):
Relinquished By (Print): Kuldeep Parchal
Date/Time: 06/14/2024
Custody Seal Intact: ☐ Yes ☐ No ☐ N/A

Received at Depot:
Date/Time:
Temperature: °C

Received at Lab: 1658
Date/Time: June 14th
Temperature: 7.3

Method of Delivery:
Verified By: SO
Date/Time: June 17, 2024 11:27
pH Verified: ☐ By: SO

Revision 5.0

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Certificate of Analysis

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

Client PO: 61766
Project: PE5231
Custody:

Report Date: 21-Nov-2024
Order Date: 15-Nov-2024

Order #: 2446592

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

Paracel ID	Client ID
2446592-01	BH1-21-GW3
2446592-02	BH2-21-GW3
2446592-03	BH3-21-GW3
2446592-04	DUP1

Approved By:

Mark Foto, M.Sc.
Lab Supervisor

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Chromium, hexavalent - water	MOE E3056 - colourimetric	18-Nov-24	18-Nov-24
Mercury by CVAA	EPA 245.2 - Cold Vapour AA	18-Nov-24	18-Nov-24
Metals, ICP-MS	EPA 200.8 - ICP-MS	18-Nov-24	19-Nov-24
PHC F1	CWS Tier 1 - P&T GC-FID	18-Nov-24	18-Nov-24
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	20-Nov-24	21-Nov-24
REG 153: VOCs by P&T GC/MS	EPA 624 - P&T GC-MS	18-Nov-24	18-Nov-24

Certificate of Analysis

Report Date: 21-Nov-2024

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

Order Date: 15-Nov-2024

Client PO: **61766**

Project Description: **PE5231**

	Client ID:	BH1-21-GW3	BH2-21-GW3	BH3-21-GW3	DUP1	-	-
	Sample Date:	15-Nov-24 09:00	15-Nov-24 09:00	15-Nov-24 09:00	15-Nov-24 09:00		
	Sample ID:	2446592-01	2446592-02	2446592-03	2446592-04		
	Matrix:	Ground Water	Ground Water	Ground Water	Ground Water		
	MDL/Units						
Metals							
Mercury	0.1 ug/L	<0.1	<0.1	<0.1	<0.1	-	-
Antimony	0.5 ug/L	<0.5	<0.5	<0.5	<0.5	-	-
Arsenic	1 ug/L	<1	<1	<1	<1	-	-
Barium	1 ug/L	115	72	50	95	-	-
Beryllium	0.5 ug/L	<0.5	<0.5	<0.5	<0.5	-	-
Boron	10 ug/L	172	111	75	159	-	-
Cadmium	0.1 ug/L	<0.1	<0.1	0.9	<0.1	-	-
Chromium	1 ug/L	<1	<1	<1	<1	-	-
Chromium (VI)	10 ug/L	<10	<10	<10	<10	-	-
Cobalt	0.5 ug/L	<0.5	1.3	1.0	<0.5	-	-
Copper	0.5 ug/L	<0.5	0.6	3.2	<0.5	-	-
Lead	0.1 ug/L	<0.1	<0.1	<0.1	<0.1	-	-
Molybdenum	0.5 ug/L	<0.5	3.3	3.2	<0.5	-	-
Nickel	1 ug/L	<1	4	23	<1	-	-
Selenium	1 ug/L	1	<1	<1	1	-	-
Silver	0.1 ug/L	<0.1	<0.1	<0.1	<0.1	-	-
Sodium	200 ug/L	245000	507000	627000	240000	-	-
Thallium	0.1 ug/L	<0.1	<0.1	0.1	<0.1	-	-
Uranium	0.1 ug/L	2.7	7.0	10.7	2.7	-	-
Vanadium	0.5 ug/L	<0.5	<0.5	<0.5	<0.5	-	-
Zinc	5 ug/L	<5	7	6	<5	-	-
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	-	-

	Client ID:	BH1-21-GW3	BH2-21-GW3	BH3-21-GW3	DUP1	-	-
	Sample Date:	15-Nov-24 09:00	15-Nov-24 09:00	15-Nov-24 09:00	15-Nov-24 09:00		
	Sample ID:	2446592-01	2446592-02	2446592-03	2446592-04		
	Matrix:	Ground Water	Ground Water	Ground Water	Ground Water		
	MDL/Units						
Volatiles							
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,	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	-	-

Certificate of Analysis

Report Date: 21-Nov-2024

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

Order Date: 15-Nov-2024

Client PO: 61766

Project Description: PE5231

	Client ID:	BH1-21-GW3	BH2-21-GW3	BH3-21-GW3	DUP1	-	-
	Sample Date:	15-Nov-24 09:00	15-Nov-24 09:00	15-Nov-24 09:00	15-Nov-24 09:00		
	Sample ID:	2446592-01	2446592-02	2446592-03	2446592-04		
	Matrix:	Ground Water	Ground Water	Ground Water	Ground Water		
	MDL/Units						
Volatiles							
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	-	-
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	111%	111%	111%	112%	-	-
Toluene-d8	Surrogate	107%	107%	108%	106%	-	-
Dibromofluoromethane	Surrogate	90.2%	87.9%	90.6%	89.8%	-	-
Hydrocarbons							
F1 PHCs (C6-C10)	25 ug/L	<25	<25	<25	<25	-	-
F2 PHCs (C10-C16)	100 ug/L	<100	<100	<100	<100	-	-
F3 PHCs (C16-C34)	100 ug/L	<100	<100	<100	<100	-	-
F4 PHCs (C34-C50)	100 ug/L	<100	<100	<100	<100	-	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons								
F1 PHCs (C6-C10)	ND	25	ug/L					
F2 PHCs (C10-C16)	ND	100	ug/L					
F3 PHCs (C16-C34)	ND	100	ug/L					
F4 PHCs (C34-C50)	ND	100	ug/L					
Metals								
Mercury	ND	0.1	ug/L					
Antimony	ND	0.5	ug/L					
Arsenic	ND	1	ug/L					
Barium	ND	1	ug/L					
Beryllium	ND	0.5	ug/L					
Boron	ND	10	ug/L					
Cadmium	ND	0.1	ug/L					
Chromium (VI)	ND	10	ug/L					
Chromium	ND	1	ug/L					
Cobalt	ND	0.5	ug/L					
Copper	ND	0.5	ug/L					
Lead	ND	0.1	ug/L					
Molybdenum	ND	0.5	ug/L					
Nickel	ND	1	ug/L					
Selenium	ND	1	ug/L					
Silver	ND	0.1	ug/L					
Sodium	ND	200	ug/L					
Thallium	ND	0.1	ug/L					
Uranium	ND	0.1	ug/L					
Vanadium	ND	0.5	ug/L					
Zinc	ND	5	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					

Method Quality Control: Blank

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

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
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	*90.7*		*%*	*113*	*50-140*			
Surrogate: Dibromofluoromethane	*65.5*		*%*	*81.9*	*50-140*			
Surrogate: Toluene-d8	*89.2*		*%*	*112*	*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	
Metals									
Mercury	ND	0.1	ug/L	ND			NC	20	
Antimony	0.98	0.5	ug/L	ND			NC	20	
Arsenic	ND	1	ug/L	ND			NC	20	
Barium	ND	1	ug/L	ND			NC	20	
Beryllium	ND	0.5	ug/L	ND			NC	20	
Boron	ND	10	ug/L	ND			NC	20	
Cadmium	ND	0.1	ug/L	ND			NC	20	
Chromium (VI)	ND	10	ug/L	ND			NC	20	
Chromium	ND	1	ug/L	ND			NC	20	
Cobalt	ND	0.5	ug/L	ND			NC	20	
Copper	ND	0.5	ug/L	ND			NC	20	
Lead	ND	0.1	ug/L	ND			NC	20	
Molybdenum	0.52	0.5	ug/L	ND			NC	20	
Nickel	ND	1	ug/L	ND			NC	20	
Selenium	ND	1	ug/L	ND			NC	20	
Silver	ND	0.1	ug/L	ND			NC	20	
Sodium	ND	200	ug/L	231			NC	20	
Thallium	ND	0.1	ug/L	ND			NC	20	
Uranium	ND	0.1	ug/L	ND			NC	20	
Vanadium	ND	0.5	ug/L	ND			NC	20	
Zinc	ND	5	ug/L	ND			NC	20	
Volatiles									
Acetone	133	5.0	ug/L	140			5.1	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	

Method Quality Control: Duplicate

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

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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	*90.3*		*%*		*113*	*50-140*			
Surrogate: Dibromofluoromethane	*73.8*		*%*		*92.2*	*50-140*			
Surrogate: Toluene-d8	*85.7*		*%*		*107*	*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)	1810	25	ug/L	ND	105	85-115			
F2 PHCs (C10-C16)	1430	100	ug/L	ND	89.6	60-140			
F3 PHCs (C16-C34)	4480	100	ug/L	ND	114	60-140			
F4 PHCs (C34-C50)	2470	100	ug/L	ND	99.8	60-140			
Metals									
Mercury	2.71	0.1	ug/L	ND	90.4	70-130			
Arsenic	47.4	1	ug/L	ND	94.8	80-120			
Barium	55.1	1	ug/L	ND	109	80-120			
Beryllium	49.6	0.5	ug/L	ND	99.2	80-120			
Boron	40	10	ug/L	ND	77.2	80-120			QM-07
Cadmium	55.6	0.1	ug/L	ND	111	80-120			
Chromium (VI)	200	10	ug/L	ND	100	75-115			
Chromium	50.2	1	ug/L	ND	100	80-120			
Cobalt	48.4	0.5	ug/L	ND	96.7	80-120			
Copper	46.3	0.5	ug/L	ND	92.6	80-120			
Lead	42.9	0.1	ug/L	ND	85.8	80-120			
Molybdenum	38.2	0.5	ug/L	ND	75.7	80-120			QM-07
Nickel	48.7	1	ug/L	ND	97.4	80-120			
Selenium	44.9	1	ug/L	ND	89.9	80-120			
Silver	55.0	0.1	ug/L	ND	110	80-120			
Sodium	10500	200	ug/L	231	103	80-120			
Thallium	48.8	0.1	ug/L	ND	97.6	80-120			
Uranium	45.2	0.1	ug/L	ND	90.5	80-120			
Vanadium	48.1	0.5	ug/L	ND	96.1	80-120			
Zinc	49	5	ug/L	ND	98.2	80-120			
Volatiles									
Acetone	69.2	5.0	ug/L	ND	69.2	50-140			
Benzene	37.1	0.5	ug/L	ND	92.8	60-130			
Bromodichloromethane	35.3	0.5	ug/L	ND	88.3	60-130			
Bromoform	44.4	0.5	ug/L	ND	111	60-130			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Bromomethane	37.5	0.5	ug/L	ND	93.8	50-140			
Carbon Tetrachloride	40.5	0.2	ug/L	ND	101	60-130			
Chlorobenzene	46.4	0.5	ug/L	ND	116	60-130			
Chloroform	38.2	0.5	ug/L	ND	95.4	60-130			
Dibromochloromethane	45.7	0.5	ug/L	ND	114	60-130			
Dichlorodifluoromethane	44.4	1.0	ug/L	ND	111	50-140			
1,2-Dichlorobenzene	42.6	0.5	ug/L	ND	106	60-130			
1,3-Dichlorobenzene	42.6	0.5	ug/L	ND	106	60-130			
1,4-Dichlorobenzene	45.2	0.5	ug/L	ND	113	60-130			
1,1-Dichloroethane	34.5	0.5	ug/L	ND	86.3	60-130			
1,2-Dichloroethane	35.7	0.5	ug/L	ND	89.3	60-130			
1,1-Dichloroethylene	32.7	0.5	ug/L	ND	81.7	60-130			
cis-1,2-Dichloroethylene	36.3	0.5	ug/L	ND	90.8	60-130			
trans-1,2-Dichloroethylene	31.4	0.5	ug/L	ND	78.4	60-130			
1,2-Dichloropropane	33.8	0.5	ug/L	ND	84.6	60-130			
cis-1,3-Dichloropropylene	30.0	0.5	ug/L	ND	75.1	60-130			
trans-1,3-Dichloropropylene	32.4	0.5	ug/L	ND	81.0	60-130			
Ethylbenzene	42.2	0.5	ug/L	ND	106	60-130			
Ethylene dibromide (dibromoethane, 1,2-)	37.1	0.2	ug/L	ND	92.7	60-130			
Hexane	43.3	1.0	ug/L	ND	108	60-130			
Methyl Ethyl Ketone (2-Butanone)	69.2	5.0	ug/L	ND	69.2	50-140			
Methyl Isobutyl Ketone	63.1	5.0	ug/L	ND	63.1	50-140			
Methyl tert-butyl ether	74.6	2.0	ug/L	ND	74.6	50-140			
Methylene Chloride	30.2	5.0	ug/L	ND	75.6	60-130			
Styrene	39.0	0.5	ug/L	ND	97.4	60-130			
1,1,1,2-Tetrachloroethane	43.3	0.5	ug/L	ND	108	60-130			
1,1,2,2-Tetrachloroethane	38.2	0.5	ug/L	ND	95.4	60-130			
Tetrachloroethylene	49.7	0.5	ug/L	ND	124	60-130			
Toluene	44.2	0.5	ug/L	ND	110	60-130			
1,1,1-Trichloroethane	38.0	0.5	ug/L	ND	95.0	60-130			
1,1,2-Trichloroethane	34.4	0.5	ug/L	ND	86.0	60-130			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Trichloroethylene	33.8	0.5	ug/L	ND	84.5	60-130			
Trichlorofluoromethane	31.8	1.0	ug/L	ND	79.5	60-130			
Vinyl chloride	37.5	0.5	ug/L	ND	93.8	50-140			
m,p-Xylenes	86.5	0.5	ug/L	ND	108	60-130			
o-Xylene	43.8	0.5	ug/L	ND	109	60-130			
Surrogate: 4-Bromofluorobenzene	*77.2*		*%*		*96.6*	*50-140*			
Surrogate: Dibromofluoromethane	*75.0*		*%*		*93.7*	*50-140*			
Surrogate: Toluene-d8	*79.8*		*%*		*99.8*	*50-140*			

Qualifier Notes:

QC Qualifiers:

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

Sample Data Revisions:

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable

ND: Not Detected

MDL: Method Detection Limit

Source Result: Data used as source for matrix and duplicate samples

%REC: Percent recovery.

RPD: Relative percent difference.

NC: Not Calculated

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory. All prescribed quality criteria identified in the method has been met.

- F1 range corrected for BTEX.

- F2 to F3 ranges corrected for appropriate PAHs where available.

- The gravimetric heavy hydrocarbons (F4G) are not to be added to C6 to C50 hydrocarbons.

- In the case where F4 and F4G are both reported, the greater of the two results is to be used for comparison to CWS PHC criteria.

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

PARACEL LABORATORIES LTD.

Paracel ID: 2446592

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)
2446592	

Client Name: Paterson Group	Project Ref: PE5231	Page 1 of 1
Contact Name: Michael Beaudoin	Quote #:	Turnaround Time: ☐ 1 day ☐ 3 day ☐ 2 day ☒ Regular
Address: 9 Auriga Drive	PO #: 61766	Date Required:
Telephone:	E-mail: mbeaudoin@patersongroup.ca, aucholz@patersongroup.ca	

☒ REG 153/04 ☐ REG 406/19

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

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

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

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken: Date	Sample Taken: Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)	Required Analysis
1	BH1-21-GW3	GW		6	Nov. 15, 2024		X	X		X	X	X		
2	BH2-21-GW3	GW		6	↓		X	X		X	X	X		
3	BH3-21-GW3	GW		6	↓		X	X		X	X	X		
4	DUP1	GW		6	↓		X	X		X	X	X		
5														
6														
7														
8														
9														
10														

Comments:

Method of Delivery: Paracel Courier

Relinquished By (Sign): Amelia Ucholz	Received at Depot:	Received at Lab:	Verified By: SO
Relinquished By (Print): Amelia Ucholz	Date/Time:	Date/Time: Nov 15 19:47	Date/Time: Nov 15, 2024 4:00 pm
Date/Time: November 15, 2024	Temperature: °C	Temperature: 13.6	pH Verified: ☑ By: SS

Chain of Custody (Env) v1v

Revision 5.0