



June 25, 2024
File: PE5231-LET.02

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Geotechnical Engineering
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Retaining Wall Design
Noise and Vibration Studies

Attention: **Mr. Evan Johnson**

Subject: **Phase II-Environmental Site Assessment Update
1137 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) 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 F₁-F₄), 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. 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 (F₁-F₄)

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 - Former Retail Fuel Outlet | Eastern portion of Phase II Property | Item 28 – Gasoline and Associated Products Storage in Fixed Tanks | Off-site | PHCs, BTEX | Groundwater |
| APEC 6 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 F₁-F₄);
- 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



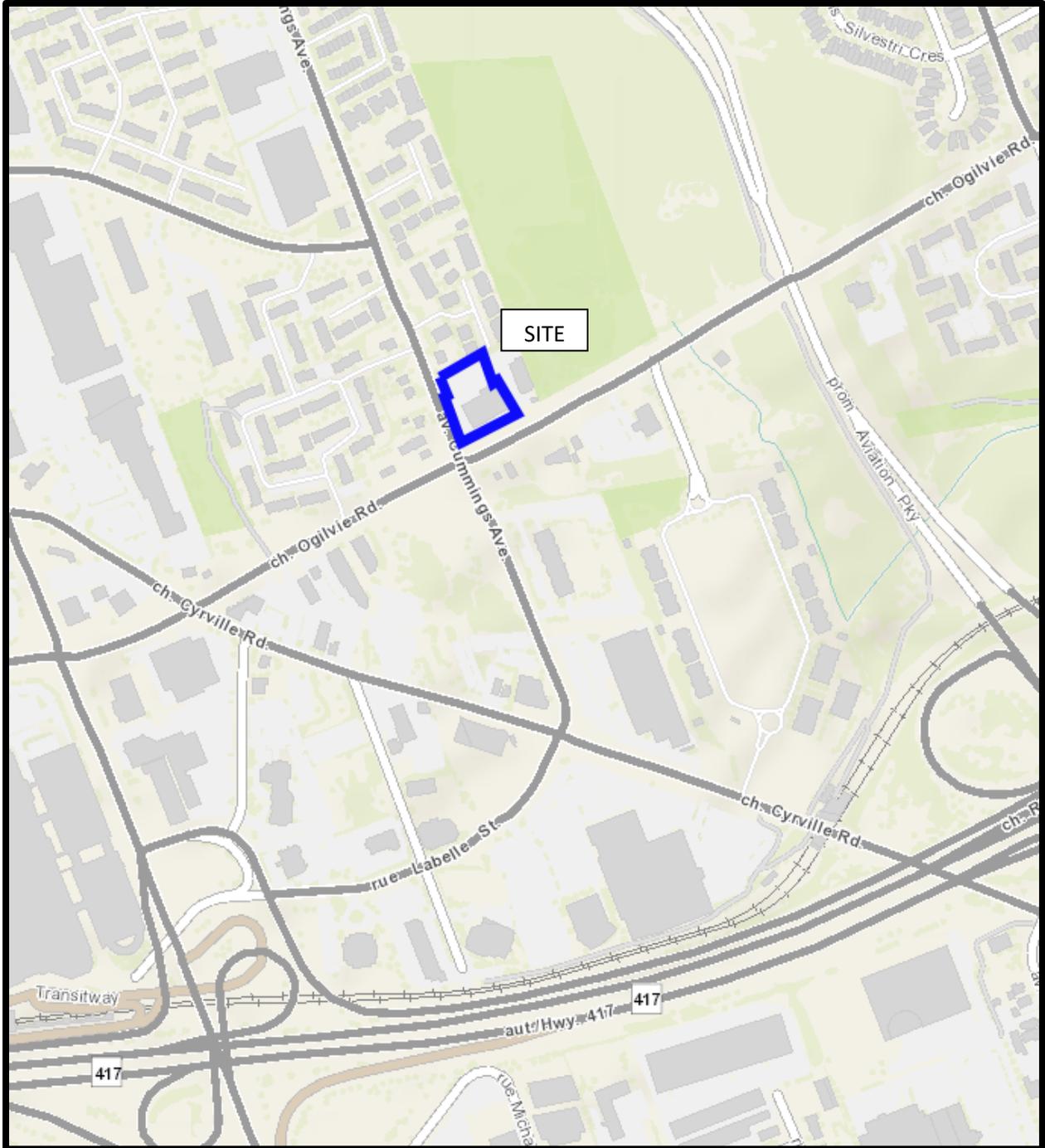


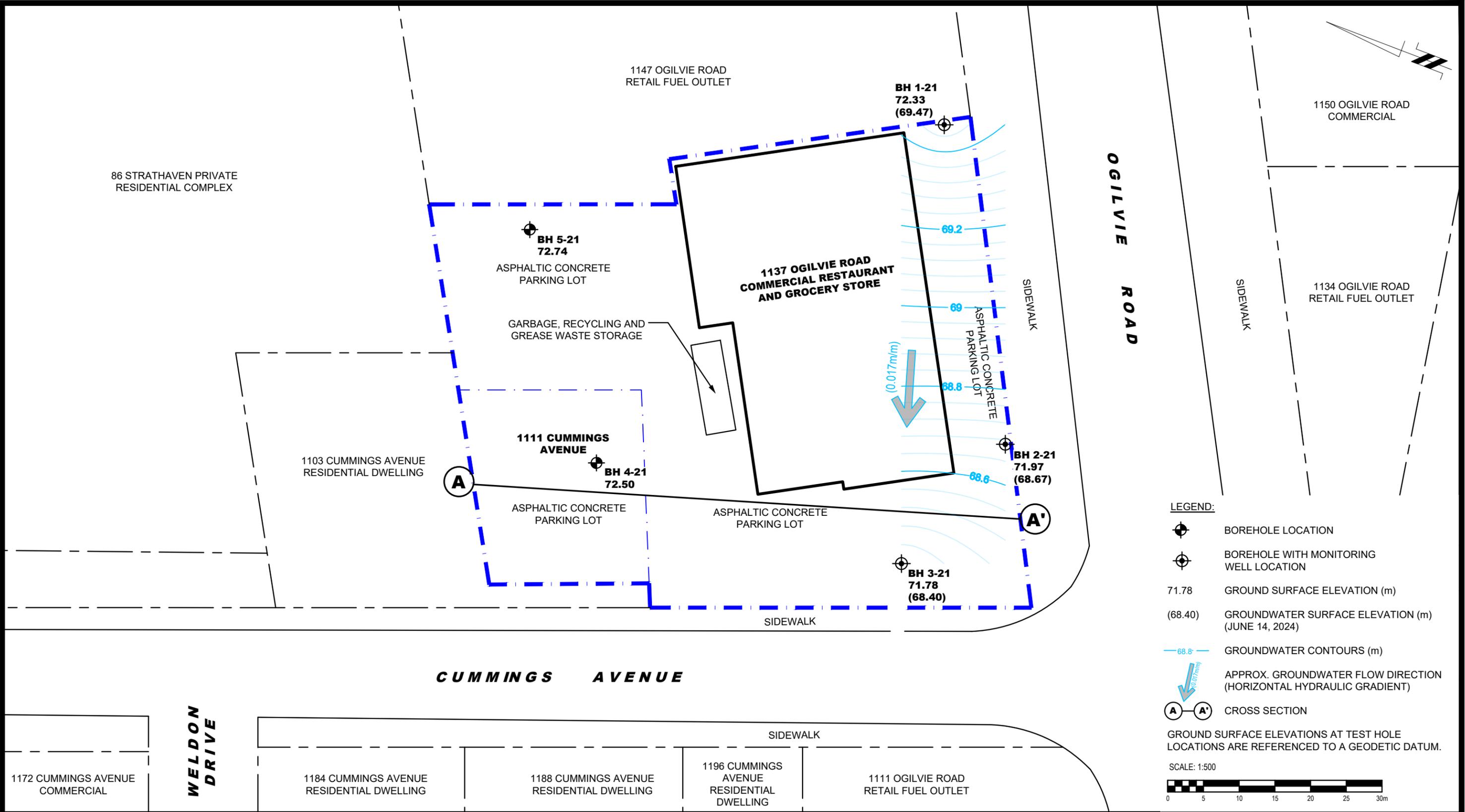
FIGURE 1
KEY PLAN

| 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 |
| Physical 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 | 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 | | | Groundwater, coarse | 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



LEGEND:

- BOREHOLE LOCATION
- BOREHOLE WITH MONITORING WELL LOCATION
- 71.78 GROUND SURFACE ELEVATION (m)
- (68.40) GROUNDWATER SURFACE ELEVATION (m) (JUNE 14, 2024)
- 68.8 — GROUNDWATER CONTOURS (m)
- APPROX. GROUNDWATER FLOW DIRECTION (HORIZONTAL HYDRAULIC GRADIENT)
- CROSS SECTION

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

SCALE: 1:500

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

| NO. | REVISIONS | DATE | INITIAL |
|-----|-----------|------|---------|
| | | | |
| | | | |
| | | | |

TCU DEVELOPMENT CORP.

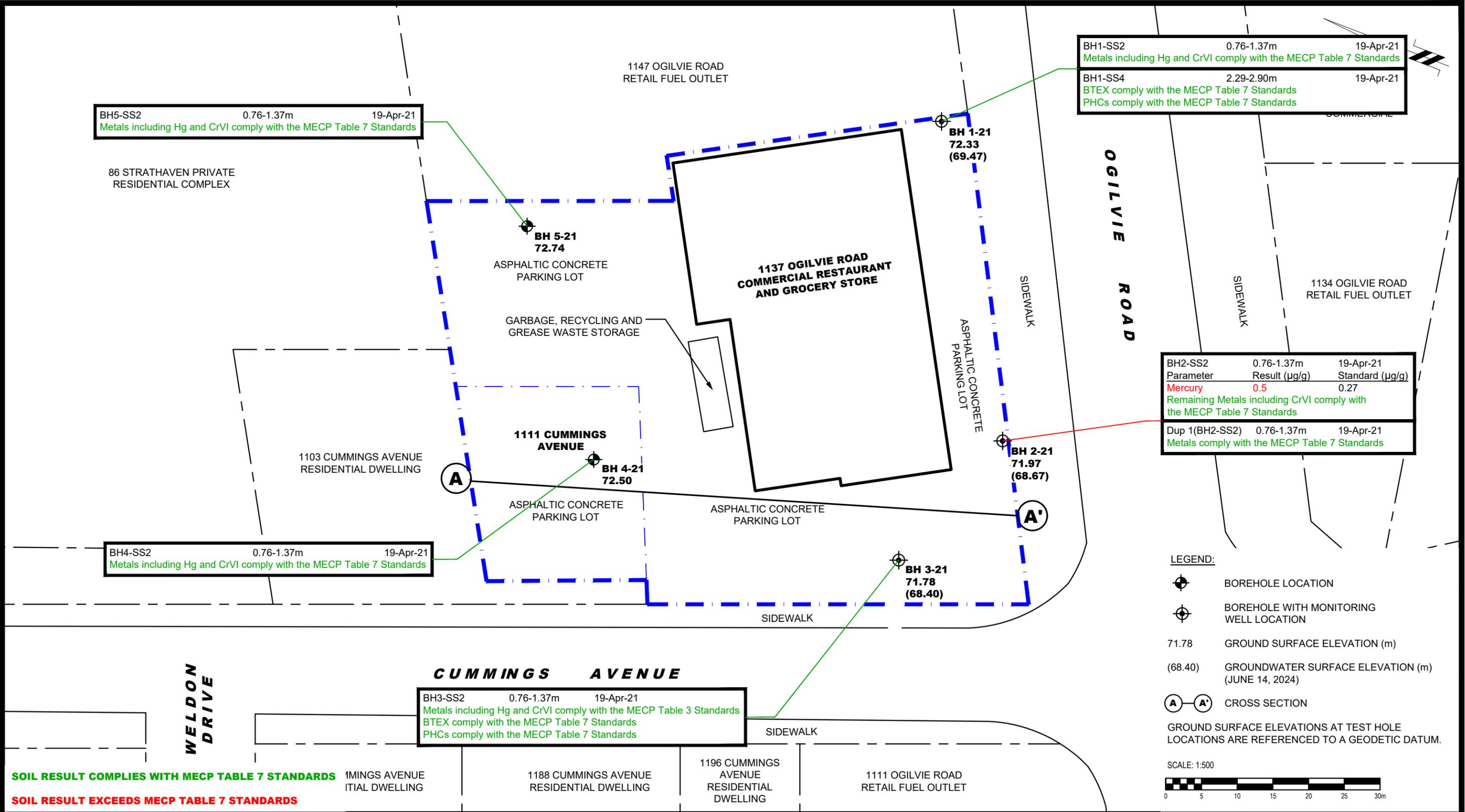
PHASE II - ENVIRONMENTAL SITE ASSESSMENT UPDATE
1137 OGILVIE ROAD AND 1111 CUMMINGS AVENUE

OTTAWA, ONTARIO

TEST HOLE LOCATION PLAN

| | | | |
|--------------|-------|---------------|-----------------|
| Scale: | 1:500 | Date: | 06/2024 |
| Drawn by: | YA | Report No.: | PE5231-LET.02 |
| Checked by: | JC | Dwg. No.: | PE5231-3 |
| Approved by: | MB | Revision No.: | |

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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

BH5-SS2 0.76-1.37m 19-Apr-21
 Metals including Hg and CrVI 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

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

LEGEND:

- ⊕ BOREHOLE LOCATION
- ⊕ BOREHOLE WITH MONITORING WELL LOCATION
- 71.78 GROUND SURFACE ELEVATION (m)
- (68.40) GROUNDWATER SURFACE ELEVATION (m) (JUNE 14, 2024)
- ⓐ-ⓐ' CROSS SECTION

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

SCALE: 1:500

SOIL RESULT COMPLIES WITH MECP TABLE 7 STANDARDS

SOIL RESULT EXCEEDS MECP TABLE 7 STANDARDS

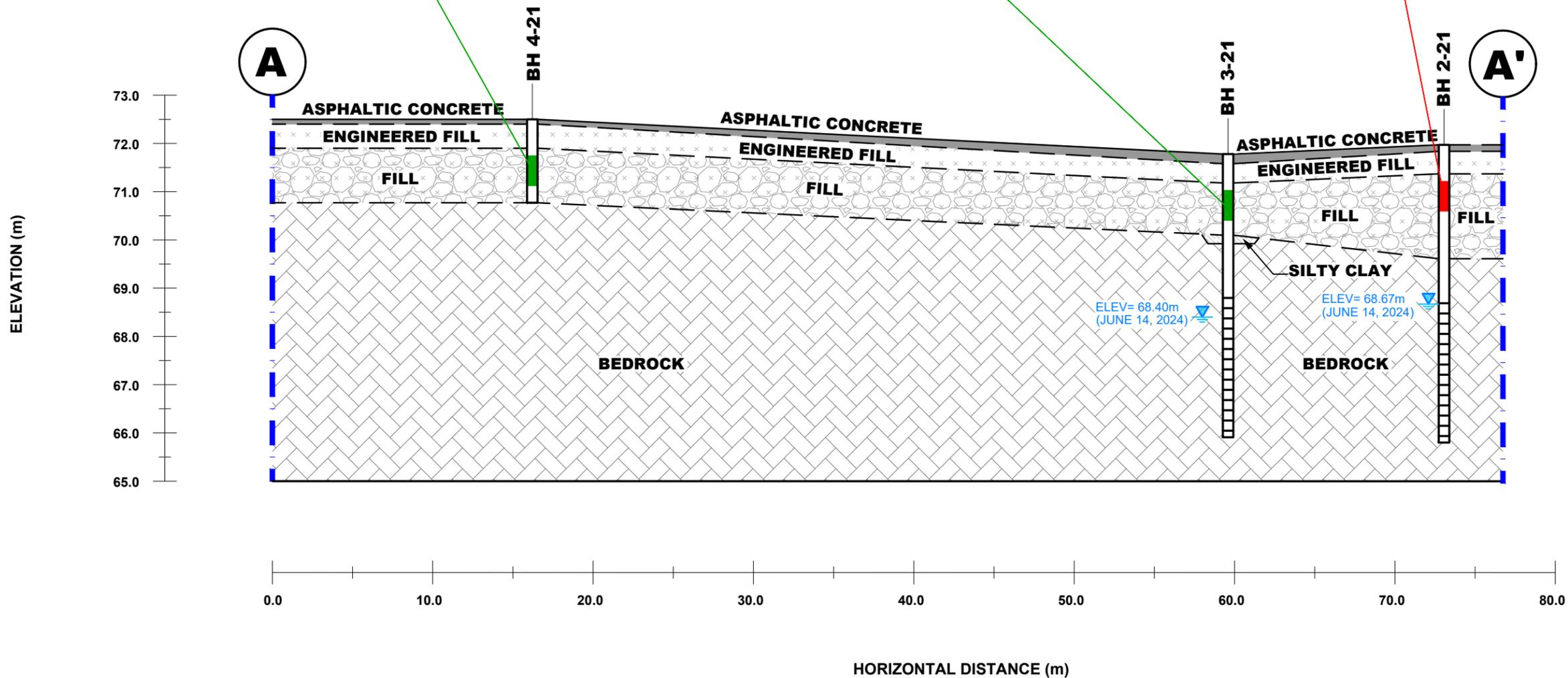
| | | | | |
|--|--|--|----------------------------------|---|
| 9 AURIGA DRIVE OTTAWA, ON K2E 7T9 TEL: (613) 226-7381 | TCU DEVELOPMENT CORP. PHASE II - ENVIRONMENTAL SITE ASSESSMENT UPDATE 1137 OGILVIE ROAD AND 1111 CUMMINGS AVENUE | | | Scale: 1:500 Date: 06/2024 |
| | OTTAWA, ONTARIO ANALYTICAL TESTING PLAN - SOIL | | | Drawn by: YA Report No.: PE5231-LET.02 |
| NO. REVISIONS DATE INITIAL | Title: | | | Checked by: JC Dwg. No.: PE5231-4 |
| | | | Approved by: MB Revision No.: | |

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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

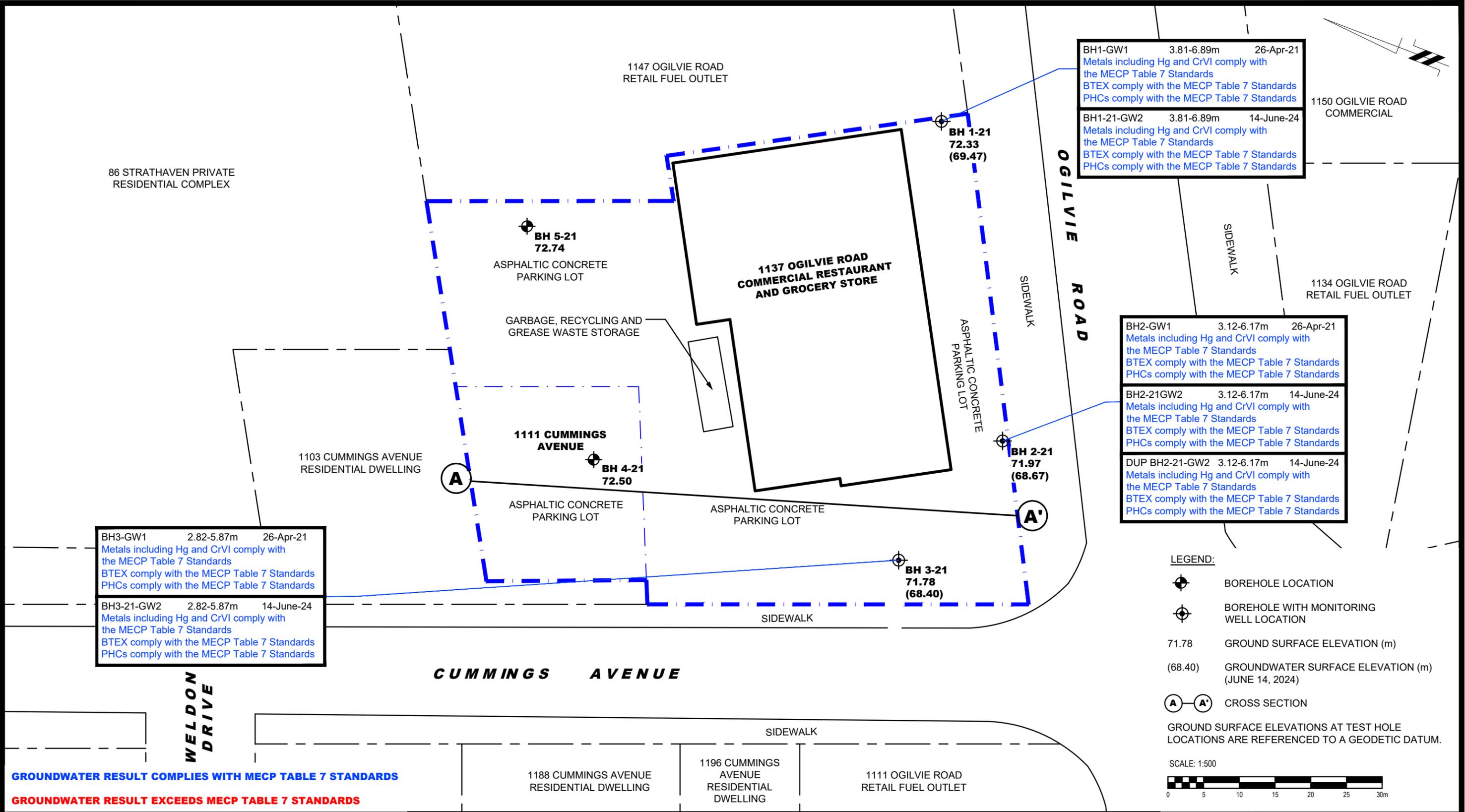
PATERSON GROUP
9 AURIGA DRIVE
OTTAWA, ON
K2E 7T9
TEL: (613) 226-7381

| NO. | REVISIONS | DATE | INITIAL |
|-----|-----------|------|---------|
| | | | |
| | | | |
| | | | |

TCU DEVELOPMENT CORP.
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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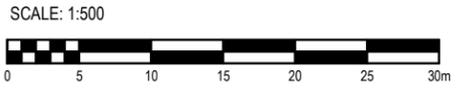


| | | | |
|------------|------------|------------|---|
| BH3-GW1 | 2.82-5.87m | 26-Apr-21 | Metals including Hg and CrVI comply with the MECP Table 7 Standards BTEX comply with the MECP Table 7 Standards PHCs comply with the MECP Table 7 Standards |
| BH3-21-GW2 | 2.82-5.87m | 14-June-24 | Metals including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

| | | | |
|------------|------------|------------|---|
| BH1-GW1 | 3.81-6.89m | 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 |
| BH1-21-GW2 | 3.81-6.89m | 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 |

- LEGEND:**
- BOREHOLE LOCATION
 - BOREHOLE WITH MONITORING WELL LOCATION
 - 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.



GROUNDWATER RESULT COMPLIES WITH MECP TABLE 7 STANDARDS

GROUNDWATER RESULT EXCEEDS MECP TABLE 7 STANDARDS

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

| NO. | REVISIONS | DATE | INITIAL |
|-----|-----------|------|---------|
| | | | |
| | | | |
| | | | |

TCU DEVELOPMENT CORP.

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

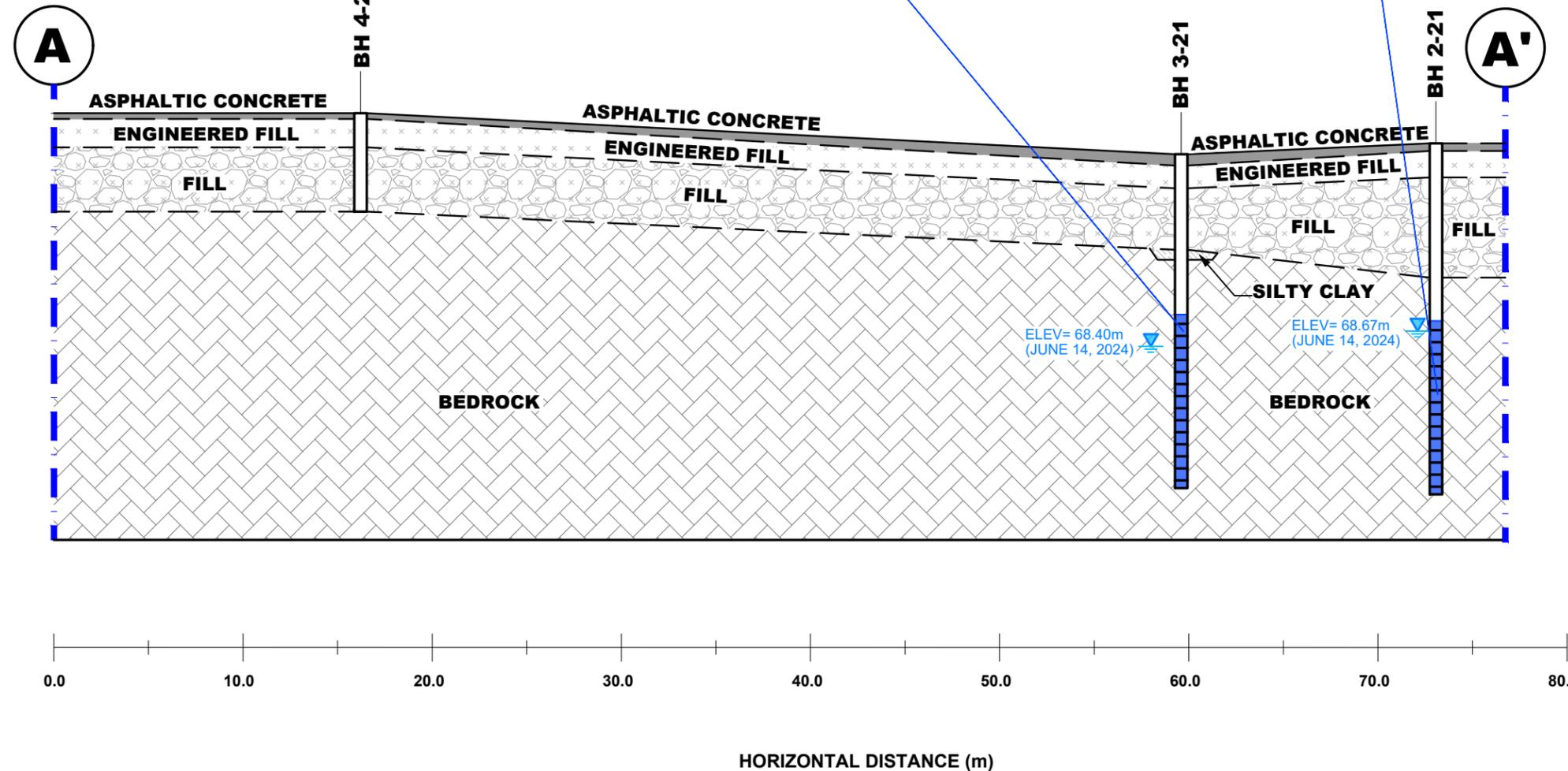
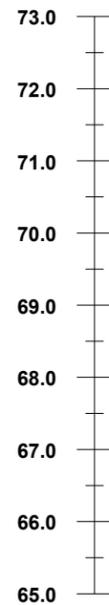
OTTAWA, ONTARIO

Title: **ANALYTICAL TESTING PLAN - GROUNDWATER**

| | | | |
|--------------|-------|---------------|-----------------|
| Scale: | 1:500 | 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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ELEVATION (m)



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



| NO. | REVISIONS | DATE | INITIAL |
|-----|-----------|------|---------|
| | | | |
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TCU DEVELOPMENT CORP.
 PHASE II - ENVIRONMENTAL SITE ASSESSMENT UPDATE
 1137 OGILVIE ROAD AND 1111 CUMMINGS AVENUE
 OTTAWA, ONTARIO
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 (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:

| Parcel 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

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

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 | - | - |

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 | | | | | | |

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 | - | - |

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

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 | | | | | |

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

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 | | | |

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

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 | | | |

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

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 | | | |

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

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 | | | |

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

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.

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

