



**GEOTECHNICAL INVESTIGATION  
PEEL REGIONAL POLICE HANGAR APRON EXPANSION/UPGRADES  
BRAMPTON-CALEDON AIRPORT  
CALEDON, ONTARIO  
FOR  
AVIA NG AIRPORT CONSULTANTS**

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PML Ref.: 25HF003  
Report: 1  
May 16, 2025

May 16, 2025

PML Ref.: 24HF003  
Report: 1

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Dear Mr. McDonald

**Geotechnical Investigation**  
**PEEL Regional Police Hanger Apron Expansion/ Upgrades**  
**Brampton – Caledon Airport**  
**Brampton, Ontario**

Peto MacCallum Limited (PML) is pleased to present the results of the geotechnical investigation recently completed for the above noted project site. Authorization to proceed with this assignment was provided by Mr. Ian Rowbotham of Avia NG Airport Consultants in an email dated February 18, 2025.

It is understood that Peel Regional Police have recently acquired a hangar facility at the Brampton-Caledon Airport and are currently planning to upgrade and expand the facility.

This geotechnical investigation is requested to characterize the subsurface soil and ground water conditions within the project area and based on the findings provide geotechnical recommendations for the proposed work.

The subsurface stratigraphy revealed in Boreholes 1 to 4 comprises of pavement structure (asphalt or concrete) or topsoil fill underlain by silt, fine sand, sand and gravel and clayey silt fill deposits to borehole termination depth.

Included in this report are the findings of the geotechnical investigation and our conclusions and recommendations regarding options for Hangar Apron expansion and/or pavement upgrade works.



A limited chemical testing program was carried out as a part of the Terms of Reference for this assignment to check the geoenvironmental quality of the site soil. The purpose of this limited chemical testing is to determine the chemical quality of the soil in relation to the applicable Canadian Environmental Quality Guidelines and excess soil quality standards as per O. Reg. 406/19. to in order to provide preliminary comments for on-site or off-site re-use and/or disposal of excess soil generated during construction.

We trust the information presented in this report is complete within our terms of reference. If you have any questions, please do not hesitate to contact our office.

Sincerely

Peto MacCallum Ltd.

A handwritten signature in blue ink, appearing to read 'S. Jeffrey', is positioned above the printed name.

Scott Jeffrey, P.Eng., QP<sub>ESA</sub>, LEED<sub>GA</sub>  
Director  
Regional Manager, Geotechnical and Geoenvironmental Services

SP/SJ:gs



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## **FIGURES**

Figure 1 – Grain Size Distribution Graph

## **BOREHOLE LOGS**

List of Abbreviations

Log of Borehole Nos. 1 to 4

## **DRAWINGS**

Drawing 1 – Borehole Location Plan

## **APPENDICES**

Appendix A – Engineered Fill

Appendix B – Limited Chemical Testing Program, SGS Canada Inc., Certificates of Analyses

Table B1 – Soil Samples Submitted for Geoenvironmental Metals Testing

Appendix B1 – Routine Sampling Analysis

Appendix B2 – mSPLP Analysis



## **1. INTRODUCTION**

Peto MacCallum Limited (PML) is pleased to present the results of the pavement investigation recently completed for the above noted project site. Authorization to proceed with this assignment was provided by Mr. Ian Rowbotham of Avia NG Airport Consultants in an email dated February 18, 2025.

It is understood that Peel Regional Police have recently acquired a hangar facility at the Brampton-Caledon Airport and are currently planning to upgrade and expand the facility.

This geotechnical investigation is requested to characterize the subsurface soil and ground water conditions within the project area and based on the findings provide geotechnical recommendations for the proposed rehabilitation works.

The comments and recommendations provided in this report are based on the site conditions at the time of the investigation and are applicable only to the proposed development as described in the report. Any changes in development, including finished grades and layout will require review by PML to assess the validity of the report and may require modified recommendations, additional investigation and/or analysis.

## **2. INVESTIGATION PROCEDURES**

### **2.1 Field Work**

The field work for the geotechnical investigation was conducted on February 26, 2025 and comprised of four boreholes (Boreholes 1 to 4) drilled to termination depth of approximately 2 m. The borehole locations are shown on Drawing 1. Prior to carrying out fieldwork, public and private utility locates for the borehole locations and surrounding area were completed.

The borehole locations were selected by the client and established in the field by PML. The borehole locations and geodetic elevations were surveyed with a Sokkia GCX3 Real Time Kinematic (RTK) receiver connected to the Global Navigation Satellite System.

The boreholes were advanced using continuous flight solid stem augers, powered by Geoprobe 7822DT drill rig equipped with automatic hammer, supplied and operated by a specialist drilling contractor. The work was carried out under full-time supervision of a PML engineering staff member who directed the drilling and sampling operations, documented the pavement structure, soil stratigraphy, monitored ground water conditions, and processed the recovered samples.



Representative samples of the soil were recovered at regular intervals throughout the depths explored. Standard Penetration Tests (SPT) were carried out during sampling operations of the boreholes using conventional split spoon equipment. Additionally, pavement cores were extracted from Boreholes 2 and 3 located in the existing concrete and asphalt pavement areas respectively.

Ground water observations were carried out in the open boreholes during and after completion of drilling by visual examination of the soil, the sampler and the drill rods as the samples were retrieved and, when appropriate, by measurement of the water level in the open borehole. Upon completion of the drilling, the boreholes were decommissioned in accordance with O.Reg. 903/90, as amended.

All of the recovered samples were returned to PML's laboratory for detailed visual examination, soil classification and routine moisture content determinations. The geotechnical testing program included two particle-size distribution analyses and two Atterberg limit tests on selected samples of clayey silt fill encountered in the boreholes.

## **2.2 Chemical Testing**

A limited chemical testing program was included with the geotechnical work to check the geoenvironmental quality of the site soil in order to provide comments regarding on site or off-site re-use and/or disposal options of excess soil. Details concerning the geoenvironmental testing program, including procedures and results of chemical testing are provided in the 'Limited Chemical Testing Program', Section 5 of this report. It is noted that the scope of work did not include a Phase One Environmental Site Assessment (ESA), and the scope of the chemical testing program might not identify all potential or actual occurrences of soil or ground water impairment at the site. Details concerning the geoenvironmental chemical testing program including procedures and results of chemical testing are provided in Appendix B.

## **3. SUMMARIZED SUBSURFACE CONDITIONS**

Reference is made to the appended Log of Borehole sheets for details of the field work including soil descriptions, inferred stratigraphy, Standard Penetration Test (SPT) N values, ground water observations and laboratory moisture content determinations. The borehole (BH) locations are plotted on the attached Borehole Location Plan (Drawing 1).

Due to the soil sampling procedures and the limited size of samples, the depth/elevation demarcations on the borehole logs must be viewed as "transitional" zones, and cannot be construed as exact geologic boundaries between layers.



In general, the subsurface stratigraphy revealed in the boreholes typically comprised surficial topsoil fill in Boreholes 1 and 4 and pavement structure (concrete and asphalt) in Boreholes 2 and 3, underlain by silt fill with some sand and gravel turning into clayey silt fill layer.

### **3.1 Topsoil**

A 0.25 m to 0.7 m thick topsoil fill layer was encountered in Boreholes 1 and 4. The topsoil generally comprised of greyish brown and brown sandy silt with some gravel and trace clay and was observed to have some gravel, trace clay with occasional rootlets, decaying wooden fragments and occasional oxidation staining. The topsoil fill was generally observed to be loose to compact, based on SPT “N” values ranging between 7 to 14 blows per 0.3 m penetration of the split spoon sampler and was judged to be moist as confirmed by moisture content ranging between 12.4 to 15.5%.

### **3.2 Pavement Structure**

A 495 mm thick concrete pavement structure was encountered in Borehole 2 located in the existing concrete apron area. The pavement comprised 241 mm thick Portland cement concrete over 254 mm granular base/subbase. The granular base/subbase was observed to be dense as confirmed by the by the SPT “N” value of 48 and was judged to be moist as confirmed by the laboratory determined moisture content result of 15.9%.

A 254 mm thick asphalt pavement structure was encountered in Borehole 3 located in the existing asphalt pavement area. The asphalt pavement comprised 51 mm thick asphalt over 203 mm granular base. The granular base was observed to be very dense as confirmed by the SPT “N” value of 56 and was judged to be moist as confirmed by the laboratory determined moisture content value of 21.1%.

### **3.3 Fill**

Fill was encountered below the topsoil and/or pavement structure in all boreholes extending to borehole termination depth of 2.1 m. The fill comprised of localized layers of silt, sand and gravel to sand underlain by clayey silt fill.



### 3.3.1 Silt Fill

A 230 mm thick greyish brown silt fill was encountered in Borehole 1 underlying the topsoil fill and extended to depth of 0.70 m (Elevation 281.7). The silt fill generally comprised of trace gravel, some sand and clay and observed to be loose as confirmed by the by SPT “N” value of 7 and judged to be moist as confirmed by the laboratory determined moisture content value of 20.7%.

### 3.3.2 Sand to Sand and Gravel Fill

Localized brown fine sand fill was encountered in Borehole 1 at depth between 0.7 to 1.8 m (Elevations 281.7 to 280.6). The sand fill was observed to be very loose as confirmed by the SPT “N” value of 1 and was judged to be moist to wet as confirmed by the laboratory determined moisture content value of 22.7%.

A 190 mm thick dark brown sand and gravel fill was encountered in Borehole 2 underlying the pavement structure at depth between 0.5 to 0.7 m (Elevation 282.1 to 281.7). The cohesionless fill was observed to be dense and was judged to be moist as confirmed by the laboratory determined moisture content value of 15.9%.

### 3.3.3 Clayey Silt Fill

Clayey silt Fill was encountered below the pavement structure and/or sand fill in all the boreholes at depths between 0.25 to 1.8 m (Elevations 282.2 to 280.6) and extended to borehole termination depth of 2.1 m (Elevation 280.5 to 280.3). The clayey silt fill generally observed to be sandy with trace gravel and was observed to be firm to very stiff as confirmed by the SPT “N” value of 6 to 17. Locally, in Borehole 3 an SPT “N” value of 56 was recorded between 0.25 to 0.7 m (Elevation 282.2 to 281.8). This higher blow count is likely attributable to the presence of debris in the fill.

Blackish grey clayey silt fill was encountered in Boreholes 2, 3 and 4 at depths between 0.25 to 0.7 m (Elevations 282.2 to 281.7) and extended to depths between 0.7 to 1.4 m (Elevations 281.8 to 281.2). The cohesive fill was observed to have occasional oxidation staining, organic inclusions, rootlets and minor decaying wood fragments.

The clayey silt fill was observed to be becoming greyish brown in all boreholes at depths between 0.7 to 1.8 m (Elevations 281.8 to 280.6) and extended to the borehole termination depth of 2.1 m (Elevations 280.5 to 280.3). The clayey silt fill layer was observed to have occasional oxidation staining, grey silt inclusions and occasional brick fragments.



Reference is given to Figure 1 for grain size analyses completed on two samples of clayey silt fill (BH 2 SS 3 and BH 4 AS 2). The results indicated 2 to 3% gravel, 23 to 28% sand, 23 to 44% silt and 19 to 31% clay. The results of Atterberg limit test completed on two samples (BH 2 SS 3 and BH 4 AS 2) indicated the liquid limit, plastic limit and plasticity index values to be 30 to 38, 16 to 19 and 14 to 19.

### **3.4 Ground Water Conditions**

Ground water observations carried out during and upon completion of drilling are presented on the appended Log of Borehole Sheets. All boreholes were open and dry upon completion.

## **4. ENGINEERING DISCUSSION AND RECOMMENDATIONS**

### **4.1 Site Preparation**

The soil conditions at the site comprise loose to compact fill. Beyond the existing pavement areas, a topsoil fill is present at surface, extending to depths of 0.46 and 0.69 m in Boreholes 1 and 4, respectively.

Preparation of the site for new pavement areas will require the removal of the existing topsoil fill and any underlying unsuitable variable fill, excessively loose/soft or otherwise deleterious material until competent subgrade is reached. It is envisaged that subexcavation to a minimum depth of 1 m will be required; however, it is noted that the existing fill at Borehole 1 is very loose and therefore a provision should be made to subexcavate to more competent subgrade soil at a depth of about 1.5 m. The subgrade should then be heavily proofrolled under geotechnical supervision to expose any remaining soft/loose or unstable material.

The majority of the excavated topsoil and underlying fill will not be suitable for reuse and should be wasted or otherwise used for landscaping purposes.

The subgrade should be approved by geotechnical personnel prior to any required bulk fill placement for final grading.

Bulk fill placed to raise the grades to the proposed subgrade level should be placed as an engineered fill. Engineered fill should comprise debris free, inorganic soil placed in uniform 200 to 300 mm thick lifts within 3% of the optimum moisture content. Engineered fill to at least 98% Standard Proctor Maximum Dry Density (SPMDD). Further recommendations regarding placement of engineered fill are presented in Appendix A.

## **4.2 Pavement Construction**

### **4.2.1 New Concrete Pavement**

It is recommended that the Touchdown and Lift-Off area (TLOF) and final approach and Take-Off Area (FATO) be constructed of a Portland Cement Concrete (PCC) pavement. Assuming maximum take-off weight of up to 5,000 kg the following PCC pavement structure is recommended:

<b>Pavement Component</b>	<b>Pavement Layer Thickness for Local Road (mm)</b>
PCC	200
Granular A Base Course (OPSS.MUNI 1150)	200
Granular B Type I Subbase Course (OPSS.MUNI 1150)	300

The Portland cement concrete as delivered to the site should be evaluated on the basis of flexural strength or compressive strength, and should meet the following conditions:

1. An average flexural strength of not less than 4.0 MPa at 28 days, or an average.
2. Compressive strength of not less than 35 MPa at 28 days.
3. A maximum water / cementing material ratio of 0.45; and,
4. A nominal maximum coarse aggregate size of 40 mm.
5. Air entraining of 4 to 7% by volume.

Immediately after placement, the concrete should be cured by protecting it against loss of moisture, rapid temperature change, and mechanical damage.

It is recommended that subdrains be constructed at the pavement edge. Subdrains should comprise 150 mm diameter perforated pipe surrounded with a filter sleeve and bedded and covered with concrete sand up to the underside of the granular subbase. The pipe should be set at least 0.30 m below subgrade and set at sufficient slope to flow to discharge points.



All Granular B subbase and Granular A base courses should be placed in maximum 150 mm thick lifts and be compacted to a 100% Modified Proctor maximum dry density (MPMDD). Frequent inspection, sampling and testing by PML personnel is recommended to approve the granular compaction and the design properties and placement of the asphalt.

Where concrete pavements abut asphalt pavements in areas of aircraft crossings, we recommend that the concrete pavement edge be thickened to 475 mm with the transition occurring over a minimum 3 m distance.

Construction joints (longitudinal direction) should be constructed with dowels. The dowels should be 30 mm diameter epoxy coated 500 mm long smooth dowel bars oiled at the one end and placed across the joint at 400 mm spacing's. In the transverse direction, contraction joints should be saw cut; however, the last 3 joints from the free edge (end of pavement) should also include dowel bars as detailed above.

Contraction and expansion joints must be carefully constructed to ensure proper load transfer and good performance. Isolation joints should be provided between the new and old apron.

Panel sizes should be a maximum of 6 m by 6 m. For non-square panels, the ratio of the largest side to the shortest side should be a maximum 1.25. Panels that do not meet this requirement should be reinforced with 10M epoxy coated deformed bars spaced at 450 mm centres in each direction and located at mid height of the slab.

All construction materials proposed for this airport project should conform to Transport Canada Specifications. Inspection and testing of all pavement construction operations and subgrade preparation should be carried out on a continuous basis by experienced specialist geotechnical/materials quality assurance testing staff to ensure that appropriate materials, procedures, and equipment are used to construct the work.

#### 4.2.2 New Asphalt Pavement Areas

It is assumed that asphalt pavements adjacent to the TLOF/FATO will be required to support maintenance vehicles, fuel trucks and emergency vehicles. Preparation of the subgrade for asphalt pavement construction should follow the procedures outlined in Section 4.1.



The following pavement designs are recommended for heavy-duty (maintenance vehicles, fuel trucks and emergency vehicles trucks) and light-duty (car parking) pavement areas.

<b>Material</b>	<b>Heavy-Duty Pavement Thickness (mm)</b>	<b>Light-Duty Pavement Thickness (mm)</b>
HL 4 Surface Course Asphalt	50	40
HL 4 Base Course Asphalt	40	40
HL 8 Base Course Asphalt	40	-
Granular A Base Course	150	150
Granular B Subbase Course	450	300

The flexible pavement designs provided above consider that construction will be carried out during the drier time of the year and the subgrade is stable, as determined by proofrolling inspected by PML personnel. If the subgrade is wet and unstable, additional granular subbase will be required.

The pavement materials should conform to current OPS specifications. The Granular A base and Granular B subbase courses should be placed in thin lifts and compacted to a minimum of 100% SPMDD, and asphalt should be placed to a minimum of 92% of the material's maximum relative density (MRD). Reference is made to OPS Specification 310, as revised.

During construction, testing should be conducted to confirm the gradation and compaction characteristics of the granular base and subbase materials and the mix design properties of the asphalt.

Pavement subdrains, as recommended for PCC pavements, should also be provided for asphalt pavements.

#### **4.2.3 Existing Pavements**

The existing concrete apron at Borehole 2 has a PCC thickness of 241 mm and a granular base thickness of 254 mm. This is considered structurally adequate for typical helicopter loading and maintenance/operation traffic. It is noted, however, that the total thickness (495 mm) is 165 mm less than what is recommended for frost protection as per Transport Canada guidelines.



The existing asphalt pavement is a light duty pavement with relatively thin asphalt and granular base layers. Upgrading of the existing asphalt pavement area should comprise a full depth reconstruction in accordance with Section 4.2.1 or 4.2.2.

## **5. LIMITED CHEMICAL TESTING PROGRAM**

PML understands that excess soil may be generated during construction; the volume of which is unknown at this time. A limited chemical testing program was carried out to check the geoenvironmental quality of the soil at selected sampling locations in order to provide comments regarding on site or off-site re-use and/or disposal options of excess soil.

A Phase One Environmental Site Assessment (ESA) or Assessment of Past Uses (APU) was not within the scope of work for this assignment. Accordingly, soil and ground water impairment that has not been identified by the limited chemical testing program may exist elsewhere at the site.

### **5.1 Excess Soil Regulation**

In Ontario the management of excess soil generated during construction projects is regulated by the On-Site and Excess Soil Management Regulation (O. Reg. 406/19). This regulation classifies soil as a waste unless it is being transported for beneficial reuse. Soil quality must meet the applicable Excess Soil Quality Standards (ESQSS) and the quantity of soil must be consistent with the beneficial reuse specified for the reuse site (Receiving Site).

It should be noted that the anticipated volume of excess soil to be generated during construction has not been provided or estimated. As such, the limited soil sampling and chemical testing program presented herein is for preliminary due diligence purpose and does not necessarily fulfill all planning and documentation components of O. Reg. 406/19. Depending on anticipated excess soil volumes additional review and excess soil management planning, including additional sampling, testing, and reporting may be required.

### **5.2 Chemical Testing Protocol**

Representative samples collected during the geotechnical investigation were returned to our laboratory for detailed visual examination. Selected soil samples were submitted for chemical analysis to SGS Canada Inc. (SGS), a Canadian Association for Laboratory Accreditation Inc. (CALA) accredited laboratory in Lakefield, Ontario. The chemical analyses conducted by SGS were in accordance with the O. Reg. 153/04, as amended and Protocol for Analytical Methods



Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act dated March 9, 2004, amended as of July 1, 2011.

As part of the geoenvironmental procedural protocol, all recovered soil samples were examined for visual and olfactory evidence of potential contamination.

Since a Phase One ESA or APU were not completed to identify project specific Contaminants of Potential Concern (COPCs) samples were reviewed and selected for chemical testing in accordance with the proposal whereby five (5) soil samples were selected and analyzed for common contaminant groups including general testing for Metals and Inorganic parameters (M&I); Petroleum Hydrocarbons (PHCs) fractions F1 to F4; benzene, toluene, ethylbenzene and xylene (BTEX), Volatile Organic Compounds (VOCs), Polycyclic Aromatic Hydrocarbons (PAHs) and Polychlorinated Biphenyls (PCBs). In addition, modified Synthetic Precipitate Leaching Procedure (mSPLP) analysis for metals and Volatile Organic Compounds (VOCs) was carried on four representative samples in order to verify leachate screening levels in accordance with O. Reg.406/19, as amended.

The rationale for sample selection was also based on materials exhibiting visual and/or olfactory evidence of contamination, material most likely to be contaminated (i.e., fill materials), site coverage and materials most likely to be excavated during construction.

A list of all samples submitted for analysis is presented in the attached Table B1 along with a summary of the test results. SGS Certificates of Analysis are enclosed in Appendix B.

### **5.3 Site Condition Standards**

#### **5.3.1 On-Site Re-Use**

The Ontario Ministry of the Environment, Conservation and Parks (MECP) has developed a set of Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (April 15, 2011) and O. Reg. 153/04, as amended. The standards consist of nine tables (Table 1 through Table 9) that provide criteria for maximum concentrations of various contaminants. In general, the applicable O. Reg. 153/04, as amended Site Condition Standards (SCSs) depend on the site location, land use, soil texture, bedrock depth, soil pH and source of potable water at the investigation site. In order to determine the Site Sensitivity, Sections 41 and 43.1 of O. Reg. 153/04, as amended were evaluated by PML as per the following table:

### **Site Condition Standard and Site Sensitivity Analysis**

<b>Criteria</b>	<b>Result</b>
Proposed Property Use O. Reg. 153/04, as amended Part I Section 1	Commercial/Industrial
Potable vs. Non-Potable Ground Water O. Reg. 153/04, as amended Part IX Section 35	Non-potable
Proximity to Areas of Natural Significance O. Reg. 153/04, as amended Part IX Section 41 (1) (a)	> 30 m
Soil pH O. Reg. 15/04, as amended Section 41 (1) b	Surface Soil: 5 to 9 Subsurface Soil: 5 to 11
Soil Texture O. Reg. 153/04, as amended Part IX Section 42	Coarse
Proximity to a Water Body O. Reg. 153/04, as amended Part IX Section 43.1	> 30 m
Shallow Soil O. Reg. 153/04, as amended Part IX Section 43.1	No
Site Condition Standards for On-Site Re-Use	Table 3 (T3) Site Condition Standards (SCSs) for Industrial/Commercial/ Community (ICC) Property Use

#### **5.3.2 Off-Site Reuse**

For preliminary evaluation of potential off-Site beneficial reuse options for excess soil, if required, the generic Excess Soil Quality Standards (ESQS) of O. Reg. 406/19 were used. These standards consist of nine tables (Table 1 and Tables 2.1 through Table 9.1) that provide criteria for maximum concentrations of various contaminants. Similar to O. Reg. 153/04, as amended, the O. Reg. 406/19 ESQSs depend on the site location, land use, soil texture, bedrock depth, soil pH and source of potable water at the investigation site.

- For the option of re-using the excess soils with minimal environmental restrictions, the O. Reg. 406/19 Full Depth Background Table 1 (T1) SCSs for Residential/Parkland/Institutional/Industrial/Commercial/Community (RPI/ICC) property uses was considered.



- For the option of re-using the excess soils at a property (or properties) with a potable ground water condition, results were compared to the O. Reg. 406/19 Table 2.1 (T2.1) ESQs for both RPI and ICC land uses.
- For the option of re-using the excess soils at a property (or properties) with a non-potable ground water condition, results were compared to the O. Reg. 406/19 Table 3.1 (T3.1) ESQs for both RPI and ICC land uses.

It is noted that a comparison to other ESQS Tables was not conducted as part of this assignment. If the potential receiving site for excess soil falls within one of these other categories, additional evaluation by PML will be required to confirm conformance.

#### **5.4 Analytical Findings**

Laboratory Certificates of Analysis compared to T1 RPI/ICC are included in Appendix B. The measured values and corresponding SCSs are shown on the certificates of analysis. In the event of an exceedance of the SCSs, the level is shown highlighted in orange, where applicable.

##### **5.4.1 On-Site Re-Use**

Based on the results of chemical testing, the measured concentration of the tested parameters complied with the applicable T3 ICC SCSs for all samples taken within the project area. The test results are supportive of the on-site re-use of the excavated soil from a geoenvironmental perspective.

##### **5.4.2 Off-Site Re-Use**

For evaluation of potential off-site reuse options, a comparison of the results was carried out against the more common O. Reg. 406/19 ESQs of T1, T2.1 and T3.1 for both RPI and ICC property uses. Based on the test results, the measured concentration of the tested parameters complied with the most stringent Table 1 RPI/ICC standards. The results also meet the Table 2.1 and 3.1 ESQs for both RPI and ICC property use. As such, the test results are supportive of off-site beneficial reuse of excess soil that may be generated during construction. Excess soil containing debris, deleterious material or fill soils visually suspected of containing potential contaminants of concern should be separated from the native excavated excess soil and should be subjected to further environmental review for appropriate off-site disposal options.



In addition to the above testing, four selected samples were also submitted for testing in accordance with the O. Reg. 406/19 modified Synthetic Precipitate Leaching Procedure (mSPLP). All test results meet the applicable Table 1: Leachate Screening Levels for Excess Soil Reuse.

## **5.5 Discussion and Recommendations**

In general, excess soil management planning should include, but not necessarily be limited to, the following general planning considerations:

- The work must be completed in accordance with O. Reg. 406/19 and all local by-laws governing soil movement and/or placement at other sites. Additional excess soil management planning including additional sampling testing and reporting may be required for full compliance with O. Reg. 406/19;
- All analytical results and environmental assessment reports must be fully disclosed to the receiving site owners/authorities and they have agreed in writing to receive the material;
- The applicable ESQs for the receiving site have been determined, as confirmed by the environmental consultant and the ESQs are consistent with the chemical quality of the soil originating at the Source Site;
- Transportation and placement of the excess soil is monitored by the environmental consultant to check the material is appropriately placed at the pre-approved site; and,
- The Receiving Site must be arranged and/or approved well in advance of excavation in order to avoid delays during construction. As well, it is noted the chemical testing requirements for various Receiving Sites is site-specific and additional testing may be required, beyond that provided in this report.

All chemical testing must satisfy the specific requirements of the selected Receiving Site(s), which may be more or less than the limited testing included with this Report. As such, additional sampling, and chemical testing (including testing for additional parameters) may be required at the time of construction in order to verify that the chemical quality of the excess soil leaving the Site meets the minimum requirements of the Receiving Site(s).

It should be noted that the soil conditions between and beyond the sampled locations may differ from those encountered during this assignment. PML should be contacted if impacted soil conditions become apparent during future development to further assess and appropriately handle the materials, if any, and evaluate whether modifications to the conclusions documented in this report are necessary.

## **6. CLOSURE**

We trust the information presented in this report is sufficient for your immediate requirements. If you have any questions or require further information, please do not hesitate to contact our office.

Sincerely

Peto MacCallum Ltd.

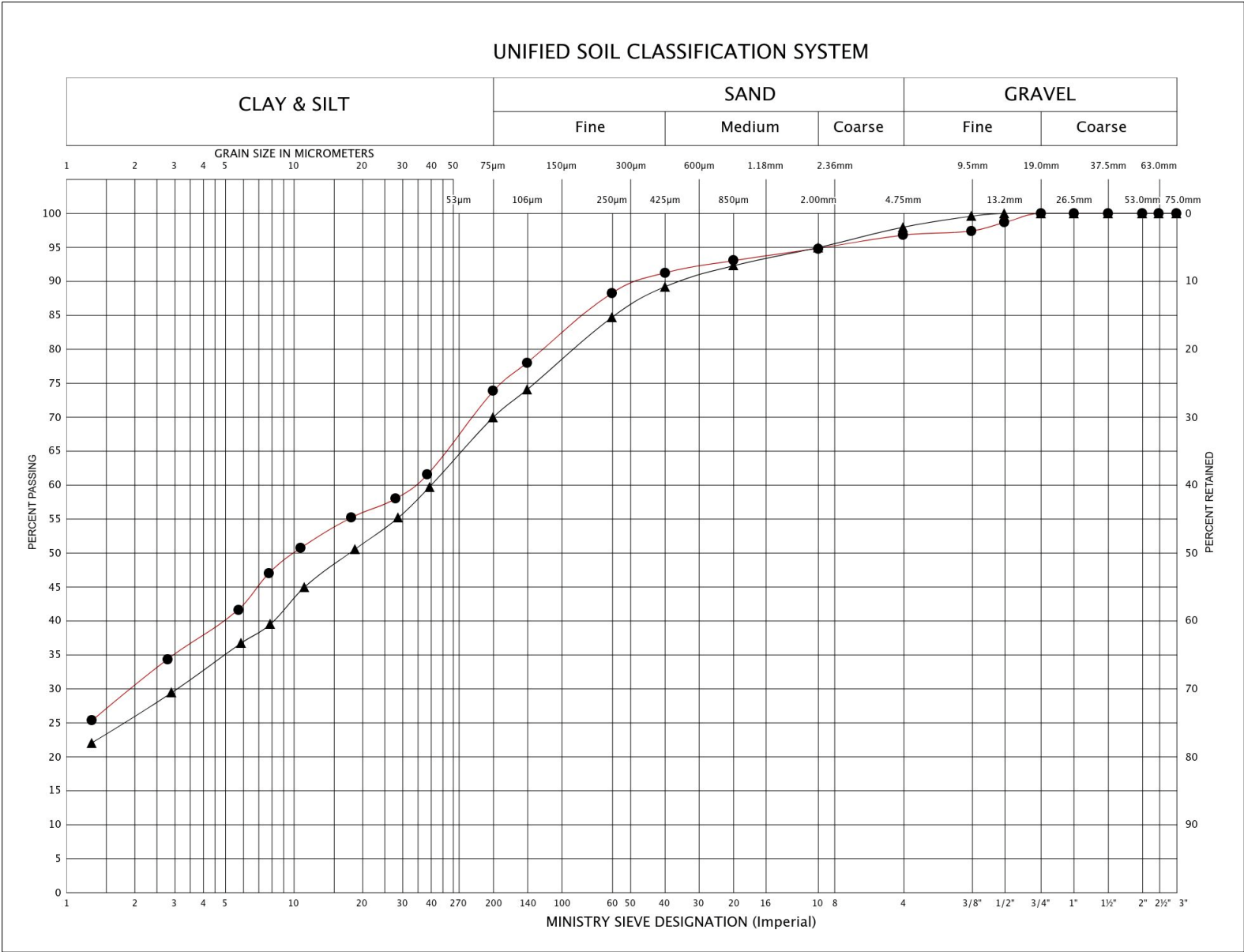


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Regional Manager, Geotechnical and Geoenvironmental Services

SP/SJ:gs



LEGEND	BH	BH-2	BH-4
	SAMPLE	SS-3	AS-2
	SYMBOL	●	▲

# LIST OF ABBREVIATIONS



## PENETRATION RESISTANCE

Standard Penetration Resistance N: - The number of blows required to advance a standard split spoon sampler 0.3 m into the subsoil. Driven by means of a 63.5 kg hammer falling freely a distance of 0.76 m.

Dynamic Penetration Resistance: - The number of blows required to advance a 51 mm, 60 degree cone, fitted to the end of drill rods, 0.3 m into the subsoil. The driving energy being 475 J per blow.

## DESCRIPTION OF SOIL

The consistency of cohesive soils and the relative density or denseness of cohesionless soils are described in the following terms:

<u>CONSISTENCY</u>	<u>N (blows/0.3 m)</u>	<u>c (kPa)</u>	<u>DENSENESS</u>	<u>N (blows/0.3 m)</u>
Very Soft	0 - 2	0 - 12	Very Loose	0 - 4
Soft	2 - 4	12 - 25	Loose	4 - 10
Firm	4 - 8	25 - 50	Compact	10 - 30
Stiff	8 - 15	50 - 100	Dense	30 - 50
Very Stiff	15 - 30	100 - 200	Very Dense	> 50
Hard	> 30	> 200		
WTPL	Wetter Than Plastic Limit			
APL	About Plastic Limit			
DTPL	Drier Than Plastic Limit			

## TYPE OF SAMPLE

SS	Split Spoon	TW	Thinwall Open
WS	Washed Sample	TP	Thinwall Piston
SB	Scraper Bucket Sample	OS	Oosterberg Sample
AS	Auger Sample	FS	Foil Sample
CS	Chunk Sample	RC	Rock Core
ST	Slotted Tube Sample		
	PH	Sample Advanced Hydraulically	
	PM	Sample Advanced Manually	

## SOIL TESTS

Qu	Unconfined Compression	LV	Laboratory Vane
Q	Undrained Triaxial	FV	Field Vane
Qcu	Consolidated Undrained Triaxial	C	Consolidation
Qd	Drained Triaxial		

## LOG OF BOREHOLE NO. 1

17T 590358.5E 4845439N

**PROJECT** Geotechnical Investigation Peel Regional Police Hangar Apron Expansion/Upgrades

**PML REF.** 25HF003

**LOCATION** Brampton-Caledon Airport

**BORING DATE** February 26, 2025

**ENGINEER** SJ

**BORING METHOD** Continuous Flight Solid Stem Augers

**TECHNICIAN** SP

SOIL PROFILE			SAMPLES			ELEVATION SCALE	SHEAR STRENGTH (kPa)				PLASTIC LIMIT w <sub>p</sub>	NATURAL MOISTURE CONTENT w	LIQUID LIMIT w <sub>L</sub>	UNIT WEIGHT kN/m <sup>3</sup>	GROUND WATER OBSERVATIONS AND REMARKS
DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES		+ FIELD VANE    Δ TORVANE    ○ Qu ▲ POCKET PENETROMETER    ○ Q								
							DYNAMIC CONE PENETRATION STANDARD PENETRATION TEST    ×								
							50    100    150    200				WATER CONTENT (%)				
							20    40    60    80				10    20    30    40				
0.0	SURFACE ELEVATION 282.4														
	TOPSOIL: Loose greyish brown sandy silt topsoil, some gravel, moist ; occasional rootlets, wood fragments		1A	SS	7										
0.46						282									
281.92	FILL: Loose greyish brown silt fill, some sand and clay, trace gravel, moist		1B												
0.69															
281.69	becoming very loose brown fine sand, trace silt, moist to wet														
1.0			2 <sup>1</sup>	SS	1										
						281									
1.8															
280.6	becoming stiff clayey silt fill, sandy, trace gravel, DTPL to APL; occasional oxidation staining, grey silt inclusion, brick fragments		3	SS	10										
2.0															
2.1															
280.3	BOREHOLE TERMINATED AT 2.1 m														Upon completion of augering, open to 2.13 m and water at 1.4 m.
3.0															
4.0															

**NOTES** <sup>1</sup> Sample submitted for chemical analysis

## LOG OF BOREHOLE NO. 2

17T 590340.3E 4845441N

**PROJECT** Geotechnical Investigation Peel Regional Police Hangar Apron Expansion/Upgrades

**PML REF.** 25HF003

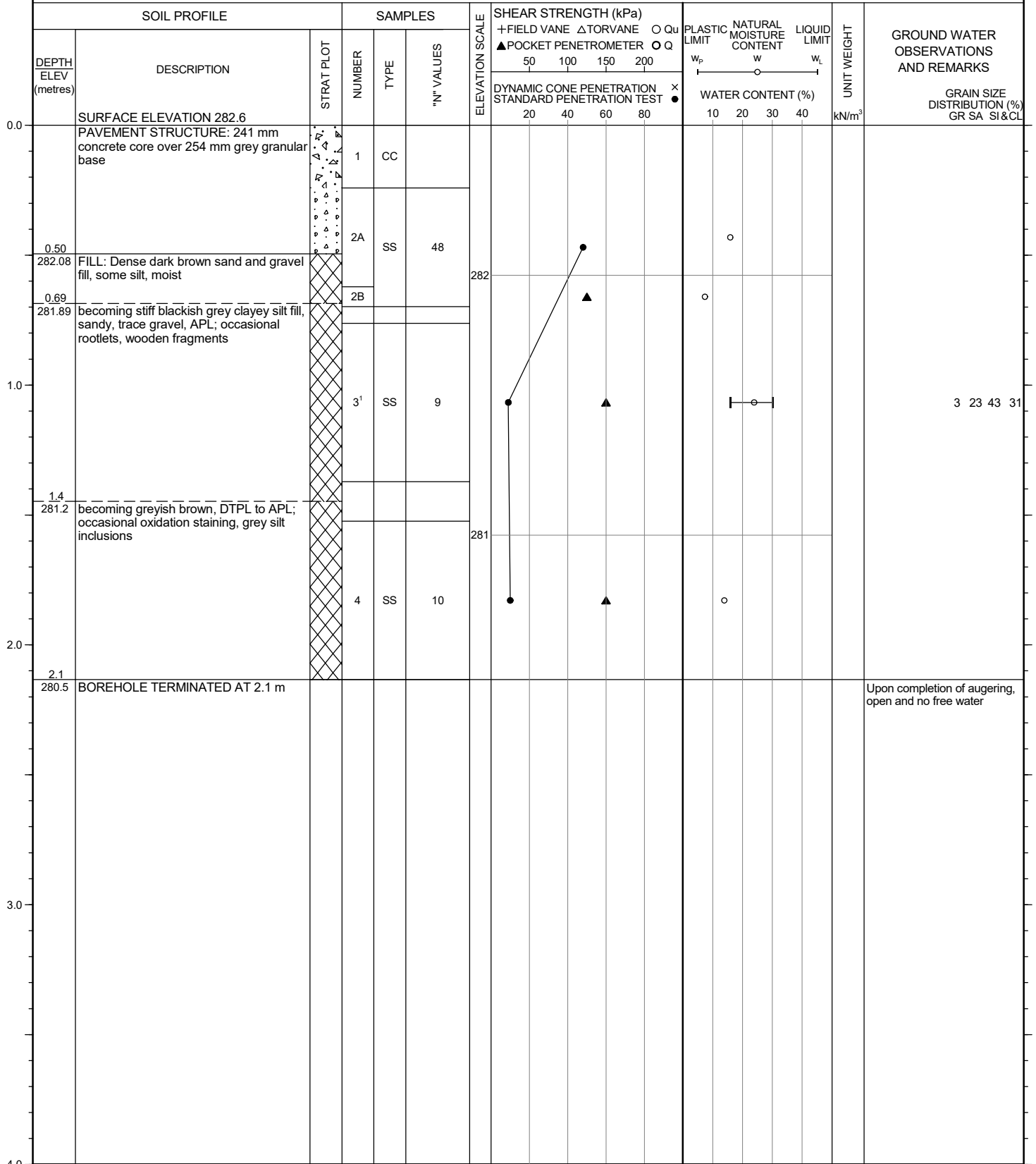
**LOCATION** Brampton-Caledon Airport

**BORING DATE** February 26, 2025

**ENGINEER** SJ

**BORING METHOD** Continuous Flight Solid Stem Augers

**TECHNICIAN** SP



**NOTES** <sup>1</sup> Sample submitted for chemical analysis

## LOG OF BOREHOLE NO. 3

17T 590321.8E 4845446N

**PROJECT** Geotechnical Investigation Peel Regional Police Hangar Apron Expansion/Upgrades

**PML REF.** 25HF003

**LOCATION** Brampton-Caledon Airport

**BORING DATE** February 26, 2025

**ENGINEER** SJ

**BORING METHOD** Continuous Flight Solid Stem Augers

**TECHNICIAN** SP

SOIL PROFILE			SAMPLES			ELEVATION SCALE	SHEAR STRENGTH (kPa)			PLASTIC LIMIT w <sub>p</sub>	NATURAL MOISTURE CONTENT w	LIQUID LIMIT w <sub>L</sub>	UNIT WEIGHT kN/m <sup>3</sup>	GROUND WATER OBSERVATIONS AND REMARKS
DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES		+ FIELD VANE   Δ TORVANE   ○ Qu							
							▲ POCKET PENETROMETER   ○ Q							
							DYNAMIC CONE PENETRATION STANDARD PENETRATION TEST   ●   x							
						50   100   150   200			w <sub>p</sub> w   w <sub>L</sub>					
						20   40   60   80			10   20   30   40					
0.0	SURFACE ELEVATION 282.5													
	PAVEMENT STRUCTURE: 51 mm asphalt over 203 mm granular base/subbase													
0.25														
282.27	FILL: Hard blackish grey clayey silt fill, sandy, some gravel, DTPL to APL; occasional oxidation staining, organic inclusions, brick fragments													
0.69														
281.83	becoming stiff greyish brown													
1.0														
1.4														
281.1	becoming very stiff													
2.0														
2.1														
280.4	BOREHOLE TERMINATED AT 2.13 m													

**NOTES** <sup>1</sup> Sample submitted for chemical analysis



## LOG OF BOREHOLE NO. 4

17T 590323.6E 4845456N

**PROJECT** Geotechnical Investigation Peel Regional Police Hangar Apron Expansion/Upgrades

**PML REF.** 25HF003

**LOCATION** Brampton-Caledon Airport

**BORING DATE** February 26, 2025

**ENGINEER** SJ

**BORING METHOD** Continuous Flight Solid Stem Augers

**TECHNICIAN** SP

SOIL PROFILE			SAMPLES			ELEVATION SCALE	SHEAR STRENGTH (kPa)				PLASTIC LIMIT w <sub>p</sub>	NATURAL MOISTURE CONTENT w	LIQUID LIMIT w <sub>L</sub>	UNIT WEIGHT kN/m <sup>3</sup>	GROUND WATER OBSERVATIONS AND REMARKS
DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES		+ FIELD VANE   Δ TORVANE   ○ Qu								
							▲ POCKET PENETROMETER   ○ Q								
							DYNAMIC CONE PENETRATION STANDARD PENETRATION TEST   ×								
						WATER CONTENT (%)									
0.0	SURFACE ELEVATION 282.6					20	40	60	80	10	20	30	40		
0.69	TOPSOIL: Loose dark brown sandy silt topsoil, some gravel, trace clay, moist; occasional rootlets, oxidation staining		1	SS	14										
281.93	FILL: Firm blackish clayey silt fill, sandy, trace gravel, APL ; oxidation staining, organic inclusions					282									
1.0			2 <sup>1</sup>	SS	6										
1.4															
281.2	becoming loose greyish brown, trace clay and gravel, moist to wet					281									
2.0			3	SS	6										
2.1															
280.5	BOREHOLE TERMINATED AT 2.13 m														Upon completion of augering, open to 2.13 m and water at 1.4 m.
3.0															
4.0															


**NOTES** <sup>1</sup> Sample submitted for chemical analysis





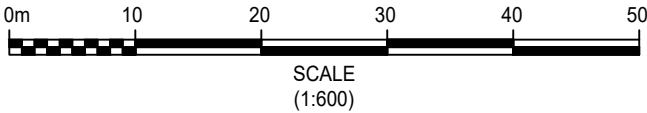
KEY PLAN  
CALEDON, ONTARIO

LEGEND:

-  BH 4  
EL. 282.6
- PETO MACCALLUM LTD. (PML) BOREHOLE (BH)  
LOCATION  
ELEVATION (METRIC, GEODETIC)

REFERENCE:  
PLAN PRODUCED FROM GIS INFORMATION FROM THE PEEL REGION ONLINE  
INTERACTIVE MAPPING SERVICE.

NOTE:  
1. THE INFERRED STRATIGRAPHY REFERRED TO IN THE REPORT IS  
BASED ON THE DATA FROM THESE BOREHOLES SUPPLEMENTED BY  
GEOLOGICAL EVIDENCE. THE ACTUAL STRATIGRAPHY BETWEEN THE  
BOREHOLES MAY VARY.  
2. GEODETIC GROUND SURFACE ELEVATIONS AND UTM CO-ORDINATES  
AT THE BOREHOLE LOCATIONS WERE DETERMINED BY PML USING A  
GLOBAL NAVIGATION SATELLITE SYSTEM (GNSS). THE SURVEY  
EQUIPMENT COMPRISED A SOKKIA CANADA GCX-3 NETWORK REAL TIME  
KINEMATIC (RTK) ROVER SYSTEM.



AVIA NG AIRPORT CONSULTANTS

GEOTECHNICAL INVESTIGATION  
PEEL REGIONAL POLICE HANGAR APRON EXPANSION/UPGRADES  
BRAMPTON-CALEDON AIRPORT, CALEDON, ONTARIO

DRAFT BOREHOLE LOCATION PLAN



DRAWN	SR	DATE	SCALE	PML REF.	DRAWING NO.
CHECKED	SJ	MARCH 2025	AS SHOWN	25HF003	1
APPROVED	SJ				





## **APPENDIX A**

### Engineered Fill

The information presented in this appendix is intended for general guidance only. Site specific conditions and prevailing weather may require modification of compaction standards, backfill type or procedures. Each site must be discussed, and procedures agreed with Peto MacCallum Ltd. prior to the start of the earthworks and must be subject to ongoing review during construction. This appendix is not intended to apply to embankments. Steeply sloping ravine residential lots require special consideration.

For fill to be classified as engineered fill suitable for supporting structural loads, a number of conditions must be satisfied, including but not necessarily limited to the following:

## 1. Purpose

The site specific purpose of the engineered fill must be recognized. In advance of construction, all parties should discuss the project and its requirements and agree on an appropriate set of standards and procedures.

## 2. Minimum Extent

The engineered fill envelope must extend beyond the footprint of the structure to be supported. The minimum extent of the envelope should be defined from a geotechnical perspective by:

- at founding level, extend a minimum 1.0 m beyond the outer edge of the foundations, greater if adequate layout has not yet been completed as noted below; and
- extend downward and outward at a slope no greater than 45° to meet the subgrade

All fill within the envelope established above must meet the requirements of engineered fill in order to support the structure safely. Other considerations such as survey control, or construction methods may require an envelope that is larger, as noted in the following sections.

Once the minimum envelope has been established, structures must not be moved or extended without consultation with Peto MacCallum Ltd. Similarly, Peto MacCallum Ltd. should be consulted prior to any excavation within the minimum envelope.

## 3. Survey Control

Accurate survey control is essential to the success of an engineered fill project. The boundaries of the engineered fill must be laid out by a surveyor in consultation with engineering staff from Peto MacCallum Ltd. Careful consideration of the maximum building envelope is required.

During construction it is necessary to have a qualified surveyor provide total station control on the three dimensional extent of filling.

## 4. Subsurface Preparation

Prior to placement of fill, the subgrade must be prepared to the satisfaction of Peto MacCallum Ltd. All deleterious material must be removed and in some cases, excavation of native mineral soils may be required.

Particular attention must be paid to wet subgrades and possible additional measures required to achieve sufficient compaction. Where fill is placed against a slope, benching may be necessary and natural drainage paths must not be blocked.

## 5. Suitable Fill Materials

All material to be used as fill must be approved by Peto MacCallum Ltd. Such approval will be influenced by many factors and must be site and project specific. External fill sources must be sampled, tested and approved prior to material being hauled to site.

## 6. Test Section

In advance of the start of construction of the engineered fill pad, the Contractor should conduct a test section. The compaction criterion will be assessed in consultation with Peto MacCallum Ltd. for the various fill material types using different lift thicknesses and number of passes for the compaction equipment proposed by the Contractor.

Additional test sections may be required throughout the course of the project to reflect changes in fill sources, natural moisture content of the material and weather conditions.

The Contractor should be particularly aware of changes in the moisture content of fill material. Site review by Peto MacCallum Ltd. is required to ensure the desired lift thickness is maintained and that each lift is systematically compacted, tested and approved before a subsequent lift is commenced.

## 7. Inspection and Testing

Uniform, thorough compaction is crucial to the performance of the engineered fill and the supported structure. Hence, all subgrade preparation, filling and compacting must be carried out under the full time inspection by Peto MacCallum Ltd.

All founding surfaces for all buildings and residential dwellings or any part thereof (including but not limited to footings and floor slabs) on structural fill or native soils must be inspected and approved by PML engineering personnel prior to placement of the base/subbase granular material and/or concrete. The purpose of the inspection is to ensure the subgrade soils are capable of supporting the building/house foundation and floor slab loads and to confirm the building/house envelope does not extend beyond the limits of any structural fill pads.

## 8. Protection of Fill

Fill is generally more susceptible to the effects of weather than natural soil. Fill placed and approved to the level at which structural support is required must be protected from excessive wetting, drying, erosion or freezing. Where adequate protection has not been provided, it may be necessary to provide deeper footings or to strip and recompact some of the fill.

## 9. Construction Delay Time Considerations

The integrity of the fill pad can deteriorate due to the harsh effects of our Canadian weather. Hence, particular care must be taken if the fill pad is constructed over a long time period.

It is necessary therefore, that all fill sources are tested to ensure the material compactability prior to the soil arriving at site. When there has been a lengthy delay between construction periods of the fill pad, it is necessary to conduct subgrade proof rolling, test pits or boreholes to verify the adequacy of the exposed subgrade to accept new fill material.

When the fill pad will be constructed over a lengthy period of time, a field survey should be completed at the end of each construction season to verify the areal extent and the level at which the compacted fill has been brought up to, tested and approved.

In the following spring, subexcavation may be necessary if the fill pad has been softened attributable to ponded surface water or freeze/thaw cycles.

A new survey is required at the beginning of the next construction season to verify that random dumping and/or spreading of fill has not been carried out at the site.

## 10. Approved Fill Pad Surveillance

It should be appreciated that once the fill pad has been brought to final grade and documented by field survey, there must be ongoing surveillance to ensure that the integrity of the fill pad is not threatened.

Grading operations adjacent to fill pads can often take place several months or years after completion of the fill pad.

It is imperative that all site management and supervision staff, the staff of Contractors and earthwork operators be fully aware of the boundaries of all approved engineered fill pads.

Excavation into an approved engineered fill pad should never be contemplated without the full knowledge, approval and documentation by the geotechnical consultant.

If the fill pad is knowingly built several years in advance of ultimate construction, the areal limits of the fill pad should be substantially overbuilt laterally to allow for changes in possible structure location and elevation and other earthwork operations and competing interests on the site. The overbuilt distance required is project and/or site specified.

Iron bars should be placed at the corner/intermediate points of the fill pad as a permanent record of the approved limits of the work for record keeping purposes.

## 11. Unusual Working Conditions

Construction of fill pads may at times take place at night and/or during periods of freezing weather conditions because of the requirements of the project schedule. It should be appreciated therefore, that both situations present more difficult working conditions. The Owner, Contractor, Design Consultant and Geotechnical Engineer must be willing to work together to revise site construction procedures, enhance field testing and surveillance, and incorporate design modifications as necessary to suit site conditions.

When working at night there must be sufficient artificial light to properly illuminate the fill pad and borrow areas.

Placement of material to form an engineered fill pad during winter and freezing temperatures has its own special conditions that must be addressed. It is imperative that each day prior to placement of new fill, the exposed subgrade must be inspected and any overnight snow or frozen material removed. Particular attention should be given to the borrow source inspection to ensure only nonfrozen fill is brought to the site.

The Contractor must continually assess the work program and have the necessary spreading and compacting equipment to ensure that densification of the fill material takes place in a minimum amount of time. Changes may be required to the spreading methods, lift thickness, and compaction techniques to ensure the desired compaction is achieved uniformly throughout each fill lift.

The Contractor should adequately protect the subgrade at the end of each shift to minimize frost penetration overnight. Since water cannot be added to the fill material to facilitate compaction, it is imperative that densification of the fill be achieved by additional compaction effort and an appropriate reduced lift thickness. Once the fill pad has been completed, it must be properly protected from freezing temperatures and ponding of water during the spring thaw period.

If the pad is unusually thick or if the fill thickness varies dramatically across the width or length of the fill pad, Peto MacCallum Ltd. should be consulted for additional recommendations. In this case, alternative special provisions may be recommended, such as providing a surcharge preload for a limited time or increase the degree of compaction of the fill.



## **APPENDIX B**

Limited Chemical Testing Program SGS Canada Inc., Certificates of Analysis

Table B1 – Soil Samples Submitted for Geoenvironmental Testing

Appendix B1 – Routine Sampling Analysis

Appendix B2 – mSPLP Analysis





**TABLE B1**

Summary of Samples Submitted for Geoenvironmental Chemical Testing

Location	Sample ID	Approx. Depth (m)	Description
Borehole 1	BH 1 SS 2	0.76 – 1.4	Sand Fill
Borehole 2	BH 2 SS 2	0.76 – 1.4	Clayey Silt Fill
Borehole 3	BH 3 SS 1	0 – 0.70	Clayey Silt Fill
Borehole 4	BH 4 SS 2	0.76 – 1.4	Clayey Silt Fill
Borehole 1	Duplicate -1 (BH 1 SS 2)	0.76 – 1.4	Sand Fill

**Note:**

All samples submitted for O. Reg. 153/04, as amended for Metals and Inorganic parameters (M&I); Polycyclic Aromatic Hydrocarbons (PAHs); Petroleum Hydrocarbons (PHCs) fractions F1 to F4 Volatile Organic Compounds (VOCs). Four samples were submitted for modified Synthetic Precipitate Leaching Procedure (mSPLP) analysis for metals and Volatile Organic Compounds (VOCs)



## FINAL REPORT

CA40017-MAR25 R

25HF003

Prepared for

**Peto MacCallum Ltd**

## First Page

## CLIENT DETAILS

Client Peto MacCallum Ltd

Address 45 Burford Road  
Hamilton, ON  
L8E 3C6, Canada

Contact Shiyam Prakash/Scott Jeffrey

Telephone (905) 546-7487

Facsimile (905) 561-6366

Email sprakash@petomacallum.com; sjeffrey@petomacallum.com

Project 25HF003

Order Number

Samples Soil (5)

## LABORATORY DETAILS

Project Specialist Maarit Wolfe, Hon.B.Sc

Laboratory SGS Canada Inc.

Address 185 Concession St., Lakefield ON, K0L 2H0

Telephone 705-652-2000

Facsimile 705-652-6365

Email Maarit.Wolfe@sgs.com

SGS Reference CA40017-MAR25

Received 03/03/2025

Approved 03/07/2025

Report Number CA40017-MAR25 R

Date Reported 03/07/2025

## COMMENTS

CCME Method Compliance: Analyses were conducted using analytical procedures that comply with the Reference Method for the CWS for Petroleum Hydrocarbons in Soil and have been validated for use at the SGS laboratory, Lakefield, ON site.

Quality Compliance: Instrument performance / calibration quality criteria were met and extraction and analysis limits for holding times were met.

nC6 and nC10 response factors within 30% of response factor for toluene: YES

nC10, nC16 and nC34 response factors within 10% of the average response for the three compounds: YES

C50 response factors within 70% of nC10 + nC16 + nC34 average: YES

Linearity is within 15%: YES

F4G - gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.

The results for F4 and F4G are both reported and the greater of the two values is to be used in application to the CWS PHC.

Hydrocarbon results are expressed on a dry weight basis.

Benzo(b)fluoranthene results for comparison to the standard are reported as benzo(b+j)fluoranthene. Benzo(b)fluoranthene and benzo(j)fluoranthene co-elute and cannot be reported individually by the analytical method used.

Temperature of Sample upon Receipt: 7 degrees C

Cooling Agent Present: yes

Custody Seal Present: yes

Chain of Custody Number: 041876

QCBatchID: GCM0033-MAR25 Dichlorodifluoromethane LCS and Matrix Spike; recovery for this parameter is outside of control limits; the overall quality control for this analysis has been assessed and was determined to be acceptable.

## SIGNATORIES

Maarit Wolfe, Hon.B.Sc







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FINAL REPORT

CA40017-MAR25 R

Client: Peto MacCallum Ltd  
Project: 25HF003  
Project Manager: Shiyam Prakash/Scott Jeffrey  
Samplers: S. Prakash

MATRIX: SOIL

L1 = REG153 / SOIL / COARSE - TABLE 1 -  
Residential/Parkland/Institutional/Industrial/Commercial/Community - UNDEFINED  
L2 = REG153 / SOIL / COARSE - TABLE 3 - Industrial/Commercial - UNDEFINED

Sample Number	14	15	16	17	18
Sample Name	BH1 SS2	BH2 SS2	BH3 SS1	BH4 SS2	DUP-1
Sample Matrix	Soil	Soil	Soil	Soil	Soil
Sample Date	26/02/2025	26/02/2025	26/02/2025	26/02/2025	26/02/2025

Parameter	Units	RL	L1	L2	Result	Result	Result	Result	Result
BTEX									
Benzene	µg/g	0.02	0.02	0.32	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Ethylbenzene	µg/g	0.05	0.05	9.5	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Toluene	µg/g	0.05	0.2	68	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Xylene (total)	µg/g	0.05	0.05	26	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
m/p-xylene	µg/g	0.05			< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
o-xylene	µg/g	0.05			< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Hydrides

Antimony	µg/g	0.8	1.3	40	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8
Arsenic	µg/g	0.5	18	18	1.6	2.4	3.1	3.1	3.0
Selenium	µg/g	0.1	1.5	5.5	< 0.1	0.3	0.2	0.3	0.4

Metals and Inorganics

Moisture Content	%	no			16.5	18.3	12.9	16.0	17.4
Barium	µg/g	0.1	220	670	16	72	66	79	83
Beryllium	µg/g	0.02	2.5	8	0.09	0.59	0.46	0.58	0.63
Boron	µg/g	1	36	120	2	3	4	4	4
Cadmium	µg/g	0.05	1.2	1.9	< 0.05	0.21	0.17	0.16	0.21
Chromium	µg/g	0.5	70	160	5.5	16	15	17	18
Cobalt	µg/g	0.01	21	80	1.7	8.5	7.1	8.7	9.3
Copper	µg/g	0.1	92	230	6.5	17	24	24	21
Lead	µg/g	0.1	120	120	2.5	15	14	13	15
Molybdenum	µg/g	0.1	2	40	0.2	0.5	0.5	0.3	0.5



# FINAL REPORT

CA40017-MAR25 R

**Client:** Peto MacCallum Ltd

**Project:** 25HF003

**Project Manager:** Shiyam Prakash/Scott Jeffrey

**Samplers:** S. Prakash

MATRIX: SOIL

L1 = REG153 / SOIL / COARSE - TABLE 1 -

Residential/Parkland/Institutional/Industrial/Commercial/Community - UNDEFINED

L2 = REG153 / SOIL / COARSE - TABLE 3 - Industrial/Commercial - UNDEFINED

Sample Number	14	15	16	17	18
Sample Name	BH1 SS2	BH2 SS2	BH3 SS1	BH4 SS2	DUP-1
Sample Matrix	Soil	Soil	Soil	Soil	Soil
Sample Date	26/02/2025	26/02/2025	26/02/2025	26/02/2025	26/02/2025

Parameter	Units	RL	L1	L2	Result	Result	Result	Result	Result
-----------	-------	----	----	----	--------	--------	--------	--------	--------

## Metals and Inorganics (continued)

Nickel	µg/g	0.5	82	270	3.4	15	16	18	18
Silver	µg/g	0.05	0.5	40	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Thallium	µg/g	0.02	1	3.3	0.02	0.12	0.10	0.12	0.13
Uranium	µg/g	0.002	2.5	33	0.25	0.64	0.53	0.59	0.77
Vanadium	µg/g	3	86	86	11	24	19	23	26
Zinc	µg/g	0.7	290	340	13	51	60	54	57
Water Soluble Boron	µg/g	0.5		2	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5

## Other (ORP)

Mercury	ug/g	0.05	0.27	3.9	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Sodium Adsorption Ratio	No unit	0.2	2.4	12	0.4	0.5	0.8	0.6	0.7
SAR Calcium	mg/L	0.2			14.5	34.3	31.2	28.2	31.9
SAR Magnesium	mg/L	0.3			1.4	4.1	4.8	4.4	5.0
SAR Sodium	mg/L	0.1			5.8	11.5	19.0	13.4	15.6
Conductivity	mS/cm	0.002	0.57	1.4	0.13	0.30	0.32	0.27	0.31
pH	pH Units	0.05			7.77	7.11	7.73	7.51	7.49
Chromium VI	µg/g	0.2	0.66	8	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Free Cyanide	µg/g	0.05	0.051	0.051	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05



# FINAL REPORT

CA40017-MAR25 R

**Client:** Peto MacCallum Ltd

**Project:** 25HF003

**Project Manager:** Shiyam Prakash/Scott Jeffrey

**Samplers:** S. Prakash

MATRIX: SOIL

L1 = REG153 / SOIL / COARSE - TABLE 1 -

Residential/Parkland/Institutional/Industrial/Commercial/Community - UNDEFINED

L2 = REG153 / SOIL / COARSE - TABLE 3 - Industrial/Commercial - UNDEFINED

Sample Number	14	15	16	17	18
Sample Name	BH1 SS2	BH2 SS2	BH3 SS1	BH4 SS2	DUP-1
Sample Matrix	Soil	Soil	Soil	Soil	Soil
Sample Date	26/02/2025	26/02/2025	26/02/2025	26/02/2025	26/02/2025

Parameter	Units	RL	L1	L2	Result	Result	Result	Result	Result
PAHs									
Acenaphthene	µg/g	0.05	0.072	96	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	µg/g	0.05	0.093	0.15	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	µg/g	0.05	0.16	0.67	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	µg/g	0.05	0.36	0.96	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	µg/g	0.05	0.3	0.3	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b+j)fluoranthene	µg/g	0.05	0.47	0.96	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	µg/g	0.1	0.68	9.6	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	µg/g	0.05	0.48	0.96	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	µg/g	0.05	2.8	9.6	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenzo(a,h)anthracene	µg/g	0.06	0.1	0.1	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Fluoranthene	µg/g	0.05	0.56	9.6	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	µg/g	0.05	0.12	62	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	µg/g	0.1	0.23	0.76	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1-Methylnaphthalene	µg/g	0.05			< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Methylnaphthalene	µg/g	0.05			< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Methylnaphthalene, 2-(1-)	µg/g	0.05	0.59	76	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Naphthalene	µg/g	0.05	0.09	9.6	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	µg/g	0.05	0.69	12	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Pyrene	µg/g	0.05	1	96	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05





FINAL REPORT

CA40017-MAR25 R

Client: Peto MacCallum Ltd  
Project: 25HF003  
Project Manager: Shiyam Prakash/Scott Jeffrey  
Samplers: S. Prakash

MATRIX: SOIL

L1 = REG153 / SOIL / COARSE - TABLE 1 -  
Residential/Parkland/Institutional/Industrial/Commercial/Community - UNDEFINED  
L2 = REG153 / SOIL / COARSE - TABLE 3 - Industrial/Commercial - UNDEFINED

			Sample Number		14	15	16	17	18
			Sample Name		BH1 SS2	BH2 SS2	BH3 SS1	BH4 SS2	DUP-1
			Sample Matrix		Soil	Soil	Soil	Soil	Soil
			Sample Date		26/02/2025	26/02/2025	26/02/2025	26/02/2025	26/02/2025

Parameter	Units	RL	L1	L2	Result	Result	Result	Result	Result
PCBs									
Polychlorinated Biphenyls (PCBs) - Total	µg/g	0.3	0.3	1.1	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3

PHCs									
F1 (C6-C10)	µg/g	10	25	55	< 10	< 10	< 10	< 10	< 10
F1-BTEX (C6-C10)	µg/g	10	25	55	< 10	< 10	< 10	< 10	< 10
F2 (C10-C16)	µg/g	10	10	230	< 10	< 10	< 10	< 10	< 10
F3 (C16-C34)	µg/g	50	240	1700	< 50	< 50	< 50	< 50	< 50
F4 (C34-C50)	µg/g	50	120	3300	< 50	< 50	65	< 50	< 50
Chromatogram returned to baseline at nC50	Yes / No	no			YES	YES	YES	YES	YES

SVOC Surrogates									
Surr 2-Fluorobiphenyl	Surr Rec %	no			86	86	84	87	86
Surr 4-Terphenyl-d14	Surr Rec %	no			79	78	76	79	79
Surr 2-Methylnaphthalene-D10	Surr Rec %	no			78	77	75	78	76
Surr Fluoranthene-D10	Surr Rec %	no			70	69	67	69	69



FINAL REPORT

CA40017-MAR25 R

Client: Peto MacCallum Ltd  
Project: 25HF003  
Project Manager: Shiyam Prakash/Scott Jeffrey  
Samplers: S. Prakash

MATRIX: SOIL

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Residential/Parkland/Institutional/Industrial/Commercial/Community - UNDEFINED  
L2 = REG153 / SOIL / COARSE - TABLE 3 - Industrial/Commercial - UNDEFINED

Sample Number	14	15	16	17	18
Sample Name	BH1 SS2	BH2 SS2	BH3 SS1	BH4 SS2	DUP-1
Sample Matrix	Soil	Soil	Soil	Soil	Soil
Sample Date	26/02/2025	26/02/2025	26/02/2025	26/02/2025	26/02/2025

Parameter	Units	RL	L1	L2	Result	Result	Result	Result	Result
THMs (VOC)									
Bromodichloromethane	µg/g	0.05	0.05	18	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bromoform	µg/g	0.05	0.05	0.61	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibromochloromethane	µg/g	0.05	0.05	13	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

VOC Surrogates

Surr 1,2-Dichloroethane-d4	Surr Rec %	no		106	106	107	106	107
Surr 4-Bromofluorobenzene	Surr Rec %	no		92	92	93	93	91
Surr 2-Bromo-1-Chloropropane	Surr Rec %	no		90	89	89	90	89

VOCs

Acetone	µg/g	0.5	0.5	16	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Bromomethane	µg/g	0.05	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Carbon tetrachloride	µg/g	0.05	0.05	0.21	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Chlorobenzene	µg/g	0.05	0.05	2.4	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,2-Dichlorobenzene	µg/g	0.05	0.05	6.8	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,3-Dichlorobenzene	µg/g	0.05	0.05	9.6	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,4-Dichlorobenzene	µg/g	0.05	0.05	0.2	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dichlorodifluoromethane	µg/g	0.05	0.05	16	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,1-Dichloroethane	µg/g	0.05	0.05	17	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,2-Dichloroethane	µg/g	0.05	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,1-Dichloroethylene	µg/g	0.05	0.05	0.064	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
trans-1,2-Dichloroethylene	µg/g	0.05	0.05	1.3	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
cis-1,2-Dichloroethylene	µg/g	0.05	0.05	55	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05



# FINAL REPORT

CA40017-MAR25 R

**Client:** Peto MacCallum Ltd

**Project:** 25HF003

**Project Manager:** Shiyam Prakash/Scott Jeffrey

**Samplers:** S. Prakash

MATRIX: SOIL

L1 = REG153 / SOIL / COARSE - TABLE 1 -

Residential/Parkland/Institutional/Industrial/Commercial/Community - UNDEFINED

L2 = REG153 / SOIL / COARSE - TABLE 3 - Industrial/Commercial - UNDEFINED

Sample Number	14	15	16	17	18
Sample Name	BH1 SS2	BH2 SS2	BH3 SS1	BH4 SS2	DUP-1
Sample Matrix	Soil	Soil	Soil	Soil	Soil
Sample Date	26/02/2025	26/02/2025	26/02/2025	26/02/2025	26/02/2025

Parameter	Units	RL	L1	L2	Result	Result	Result	Result	Result
VOCs (continued)									
1,2-Dichloropropane	µg/g	0.05	0.05	0.16	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
cis-1,3-dichloropropene	µg/g	0.03			< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
trans-1,3-dichloropropene	µg/g	0.03			< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
1,3-dichloropropene (total)	µg/g	0.05	0.05	0.18	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Ethylenedibromide	µg/g	0.05	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
n-Hexane	µg/g	0.05	0.05	46	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Methyl ethyl ketone	µg/g	0.5	0.5	70	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl isobutyl ketone	µg/g	0.5	0.5	31	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Methyl-t-butyl Ether	µg/g	0.05	0.05	11	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Methylene Chloride	µg/g	0.05	0.05	1.6	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Styrene	µg/g	0.05	0.05	34	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Tetrachloroethylene	µg/g	0.05	0.05	4.5	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,1,1,2-Tetrachloroethane	µg/g	0.05	0.05	0.087	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,1,2,2-Tetrachloroethane	µg/g	0.05	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,1,1-Trichloroethane	µg/g	0.05	0.05	6.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,1,2-Trichloroethane	µg/g	0.05	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Trichloroethylene	µg/g	0.05	0.05	0.91	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Trichlorofluoromethane	µg/g	0.05	0.25	4	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Vinyl Chloride	µg/g	0.02	0.02	0.032	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Chloroform	µg/g	0.05	0.05	0.47	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

## EXCEEDANCE SUMMARY

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No exceedances are present above the regulatory limit(s) indicated



FINAL REPORT

CA40017-MAR25 R

QC SUMMARY

Conductivity  
Method: EPA 6010/SM 2510 | Internal ref.: ME-CA-IENVIEWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Conductivity	EWL0126-MAR25	mS/cm	0.002	<0.002	0	10	98	90	110	NA		

Cyanide by SFA  
Method: SM 4500 | Internal ref.: ME-CA-IENVISFA-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Free Cyanide	SKA5008-MAR25	µg/g	0.05	<0.05	ND	20	102	80	120	101	75	125

Hexavalent Chromium by SFA  
Method: EPA218.6/EPA3060A | Internal ref.: ME-CA-IENVISKA-LAK-AN-012

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chromium VI	SKA5004-MAR25	ug/g	0.2	<0.2	ND	20	96	80	120	76	75	125



FINAL REPORT

CA40017-MAR25 R

QC SUMMARY

Mercury by CVAAS

Method: EPA 7471A/EPA 245 | Internal ref.: ME-CA-IENVISPE-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury	EMS0027-MAR25	ug/g	0.05	<0.05	ND	20	102	80	120	107	70	130

Metals in aqueous samples - ICP-OES

Method: MOE 4696e01/EPA 6010 | Internal ref.: ME-CA-IENVISPE-LAK-AN-003

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
SAR Calcium	ESG0010-MAR25	mg/L	0.2	<0.2	6	20	92	80	120	93	70	130
SAR Magnesium	ESG0010-MAR25	mg/L	0.3	<0.3	7	20	93	80	120	94	70	130
SAR Sodium	ESG0010-MAR25	mg/L	0.1	<0.1	3	20	98	80	120	91	70	130



FINAL REPORT

CA40017-MAR25 R

QC SUMMARY

Metals in Soil - Aqua-regia/ICP-MS  
Method: EPA 3050/EPA 200.8 | Internal ref.: ME-CA-IENVISPE-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver	EMS0027-MAR25	ug/g	0.05	<0.05	9	20	109	70	130	79	70	130
Arsenic	EMS0027-MAR25	µg/g	0.5	<0.5	0	20	94	70	130	99	70	130
Barium	EMS0027-MAR25	ug/g	0.1	<0.1	3	20	102	70	130	115	70	130
Beryllium	EMS0027-MAR25	µg/g	0.02	<0.02	2	20	92	70	130	90	70	130
Boron	EMS0027-MAR25	µg/g	1	<1	3	20	99	70	130	84	70	130
Cadmium	EMS0027-MAR25	ug/g	0.05	<0.05	5	20	101	70	130	99	70	130
Cobalt	EMS0027-MAR25	µg/g	0.01	<0.01	4	20	101	70	130	90	70	130
Chromium	EMS0027-MAR25	µg/g	0.5	<0.5	3	20	102	70	130	114	70	130
Copper	EMS0027-MAR25	µg/g	0.1	<0.1	6	20	104	70	130	104	70	130
Molybdenum	EMS0027-MAR25	µg/g	0.1	<0.1	1	20	104	70	130	99	70	130
Nickel	EMS0027-MAR25	ug/g	0.5	<0.5	1	20	105	70	130	102	70	130
Lead	EMS0027-MAR25	ug/g	0.1	<0.1	3	20	98	70	130	113	70	130
Antimony	EMS0027-MAR25	µg/g	0.8	<0.8	ND	20	101	70	130	NV	70	130
Selenium	EMS0027-MAR25	ug/g	0.1	<0.1	0	20	104	70	130	NV	70	130
Thallium	EMS0027-MAR25	µg/g	0.02	<0.02	9	20	NV	70	130	100	70	130
Uranium	EMS0027-MAR25	µg/g	0.002	<0.002	0	20	99	70	130	106	70	130
Vanadium	EMS0027-MAR25	µg/g	3	<3	4	20	103	70	130	91	70	130
Zinc	EMS0027-MAR25	µg/g	0.7	<0.7	0	20	105	70	130	114	70	130



FINAL REPORT

CA40017-MAR25 R

QC SUMMARY

Petroleum Hydrocarbons (F1)

Method: CCME Tier 1 | Internal ref.: ME-CA-IENVIGC-LAK-AN-010

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
F1 (C6-C10)	GCM0034-MAR25	µg/g	10	<10	ND	30	89	80	120	84	60	140

Petroleum Hydrocarbons (F2-F4)

Method: CCME Tier 1 | Internal ref.: ME-CA-IENVIGC-LAK-AN-010

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
F2 (C10-C16)	GCM0032-MAR25	µg/g	10	<10	ND	30	111	80	120	135	60	140
F3 (C16-C34)	GCM0032-MAR25	µg/g	50	<50	ND	30	111	80	120	135	60	140
F4 (C34-C50)	GCM0032-MAR25	µg/g	50	<50	ND	30	111	80	120	135	60	140





FINAL REPORT

CA40017-MAR25 R

QC SUMMARY

pH  
Method: SM 4500 | Internal ref.: ME-CA-IENVIEWL-LAK-AN-001

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
pH	ARD0036-MAR25	pH Units	0.05		0	20	100	80	120			

Polychlorinated Biphenyls  
Method: EPA 3570/8082A/8270C | Internal ref.: ME-CA-IENVIGC-LAK-AN-001

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Polychlorinated Biphenyls (PCBs) - Total	GCM0050-MAR25	µg/g	0.3	< 0.3	ND	40	76	60	140	66	60	140
Polychlorinated Biphenyls (PCBs) - Total	GCM0059-MAR25	µg/g	0.3	< 0.3	ND	40	91	60	140	89	60	140



FINAL REPORT

CA40017-MAR25 R

QC SUMMARY

Semi-Volatile Organics

Method: EPA 3541/8270D | Internal ref.: ME-CA-IENVIGC-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1-Methylnaphthalene	GCM0037-MAR25	µg/g	0.05	< 0.05	ND	40	86	50	140	82	50	140
2-Methylnaphthalene	GCM0037-MAR25	µg/g	0.05	< 0.05	ND	40	84	50	140	81	50	140
Acenaphthene	GCM0037-MAR25	µg/g	0.05	< 0.05	ND	40	84	50	140	79	50	140
Acenaphthylene	GCM0037-MAR25	µg/g	0.05	< 0.05	ND	40	79	50	140	74	50	140
Anthracene	GCM0037-MAR25	µg/g	0.05	< 0.05	ND	40	87	50	140	81	50	140
Benzo(a)anthracene	GCM0037-MAR25	µg/g	0.05	< 0.05	ND	40	81	50	140	78	50	140
Benzo(a)pyrene	GCM0037-MAR25	µg/g	0.05	< 0.05	ND	40	77	50	140	72	50	140
Benzo(b+j)fluoranthene	GCM0037-MAR25	µg/g	0.05	< 0.05	ND	40	82	50	140	76	50	140
Benzo(ghi)perylene	GCM0037-MAR25	µg/g	0.1	< 0.1	ND	40	82	50	140	75	50	140
Benzo(k)fluoranthene	GCM0037-MAR25	µg/g	0.05	< 0.05	ND	40	80	50	140	75	50	140
Chrysene	GCM0037-MAR25	µg/g	0.05	< 0.05	ND	40	80	50	140	77	50	140
Dibenzo(a,h)anthracene	GCM0037-MAR25	µg/g	0.06	< 0.06	ND	40	79	50	140	74	50	140
Fluoranthene	GCM0037-MAR25	µg/g	0.05	< 0.05	ND	40	82	50	140	78	50	140
Fluorene	GCM0037-MAR25	µg/g	0.05	< 0.05	ND	40	88	50	140	84	50	140
Indeno(1,2,3-cd)pyrene	GCM0037-MAR25	µg/g	0.1	< 0.1	ND	40	78	50	140	72	50	140
Naphthalene	GCM0037-MAR25	µg/g	0.05	< 0.05	ND	40	91	50	140	90	50	140
Phenanthrene	GCM0037-MAR25	µg/g	0.05	< 0.05	ND	40	88	50	140	84	50	140
Pyrene	GCM0037-MAR25	µg/g	0.05	< 0.05	ND	40	92	50	140	92	50	140



FINAL REPORT

CA40017-MAR25 R

QC SUMMARY

Volatile Organics

Method: EPA 5035A/5030B/8260C | Internal ref.: ME-CA-IENVIGC-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1,1,1,2-Tetrachloroethane	GCM0033-MAR25	µg/g	0.05	< 0.05	ND	50	91	60	130	91	50	140
1,1,1-Trichloroethane	GCM0033-MAR25	µg/g	0.05	< 0.05	ND	50	91	60	130	105	50	140
1,1,2,2-Tetrachloroethane	GCM0033-MAR25	µg/g	0.05	< 0.05	ND	50	89	60	130	78	50	140
1,1,2-Trichloroethane	GCM0033-MAR25	µg/g	0.05	< 0.05	ND	50	90	60	130	95	50	140
1,1-Dichloroethane	GCM0033-MAR25	µg/g	0.05	< 0.05	ND	50	91	60	130	101	50	140
1,1-Dichloroethylene	GCM0033-MAR25	µg/g	0.05	< 0.05	ND	50	93	60	130	107	50	140
1,2-Dichlorobenzene	GCM0033-MAR25	µg/g	0.05	< 0.05	ND	50	90	60	130	90	50	140
1,2-Dichloroethane	GCM0033-MAR25	µg/g	0.05	< 0.05	ND	50	90	60	130	106	50	140
1,2-Dichloropropane	GCM0033-MAR25	µg/g	0.05	< 0.05	ND	50	91	60	130	93	50	140
1,3-Dichlorobenzene	GCM0033-MAR25	µg/g	0.05	< 0.05	ND	50	91	60	130	90	50	140
1,4-Dichlorobenzene	GCM0033-MAR25	µg/g	0.05	< 0.05	ND	50	89	60	130	89	50	140
Acetone	GCM0033-MAR25	µg/g	0.5	< 0.5	ND	50	97	50	140	107	50	140
Benzene	GCM0033-MAR25	µg/g	0.02	< 0.02	ND	50	90	60	130	99	50	140
Bromodichloromethane	GCM0033-MAR25	µg/g	0.05	< 0.05	ND	50	92	60	130	96	50	140
Bromoform	GCM0033-MAR25	µg/g	0.05	< 0.05	ND	50	89	60	130	89	50	140
Bromomethane	GCM0033-MAR25	µg/g	0.05	< 0.05	ND	50	106	50	140	114	50	140
Carbon tetrachloride	GCM0033-MAR25	µg/g	0.05	< 0.05	ND	50	90	60	130	103	50	140
Chlorobenzene	GCM0033-MAR25	µg/g	0.05	< 0.05	ND	50	89	60	130	88	50	140
Chloroform	GCM0033-MAR25	µg/g	0.05	< 0.05	ND	50	91	60	130	104	50	140
cis-1,2-Dichloroethylene	GCM0033-MAR25	µg/g	0.05	< 0.05	ND	50	92	60	130	97	50	140



FINAL REPORT

CA40017-MAR25 R

QC SUMMARY

Volatile Organics (continued)

Method: EPA 5035A/5030B/8260C | Internal ref.: ME-CA-IENVIGC-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
cis-1,3-dichloropropene	GCM0033-MAR25	µg/g	0.03	< 0.03	ND	50	95	60	130	91	50	140
Dibromochloromethane	GCM0033-MAR25	µg/g	0.05	< 0.05	ND	50	91	60	130	95	50	140
Dichlorodifluoromethane	GCM0033-MAR25	µg/g	0.05	< 0.05	ND	50	211	50	140	215	50	140
Ethylbenzene	GCM0033-MAR25	µg/g	0.05	< 0.05	ND	50	91	60	130	91	50	140
Ethylenedibromide	GCM0033-MAR25	µg/g	0.05	< 0.05	ND	50	90	60	130	94	50	140
n-Hexane	GCM0033-MAR25	µg/g	0.05	< 0.05	ND	50	85	60	130	75	50	140
m/p-xylene	GCM0033-MAR25	µg/g	0.05	< 0.05	ND	50	91	60	130	90	50	140
Methyl ethyl ketone	GCM0033-MAR25	µg/g	0.5	< 0.5	ND	50	99	50	140	101	50	140
Methyl isobutyl ketone	GCM0033-MAR25	µg/g	0.5	< 0.5	ND	50	102	50	140	98	50	140
Methyl-t-butyl Ether	GCM0033-MAR25	µg/g	0.05	< 0.05	ND	50	95	60	130	93	50	140
Methylene Chloride	GCM0033-MAR25	µg/g	0.05	< 0.05	ND	50	90	60	130	104	50	140
o-xylene	GCM0033-MAR25	µg/g	0.05	< 0.05	ND	50	92	60	130	90	50	140
Styrene	GCM0033-MAR25	µg/g	0.05	< 0.05	ND	50	91	60	130	90	50	140
Tetrachloroethylene	GCM0033-MAR25	µg/g	0.05	< 0.05	ND	50	89	60	130	89	50	140
Toluene	GCM0033-MAR25	µg/g	0.05	< 0.05	ND	50	88	60	130	91	50	140
trans-1,2-Dichloroethylene	GCM0033-MAR25	µg/g	0.05	< 0.05	ND	50	88	60	130	101	50	140
trans-1,3-dichloropropene	GCM0033-MAR25	µg/g	0.03	< 0.03	ND	50	93	60	130	90	50	140
Trichloroethylene	GCM0033-MAR25	µg/g	0.05	< 0.05	ND	50	90	60	130	102	50	140
Trichlorofluoromethane	GCM0033-MAR25	µg/g	0.05	< 0.05	ND	50	95	50	140	123	50	140
Vinyl Chloride	GCM0033-MAR25	µg/g	0.02	< 0.02	ND	50	118	50	140	125	50	140



FINAL REPORT

CA40017-MAR25 R

QC SUMMARY

Water Soluble Boron

Method: O.Reg. 15 3/04 | Internal ref.: ME-CA-IENVI SPE-LAK-AN-003

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Water Soluble Boron	ESG0007-MAR25	µg/g	0.5	<0.5	ND	20	97	80	120	93	70	130

Method Blank: a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.

Duplicate: Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.

LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.

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

Reference Material: a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

**Multielement Scan Qualifier:** as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.

**Duplicate Qualifier:** for duplicates as the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.

**Matrix Spike Qualifier:** for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

## LEGEND

## FOOTNOTES

**NSS** Insufficient sample for analysis.

**RL** Reporting Limit.

↑ Reporting limit raised.

↓ Reporting limit lowered.

**NA** The sample was not analysed for this analyte

**ND** Non Detect

Results relate only to the sample tested.

Data reported represent the sample as submitted to SGS. Solid samples expressed on a dry weight basis.

"Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.

Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act and Excess Soil Quality" published by the Ministry and dated March 9, 2004 as amended.

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated.

SGS Canada Inc. statement of conformity decision rule does not consider uncertainty when analytical results are compared to a specified standard or regulation.

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This report supersedes all previous versions.

-- End of Analytical Report --

(SLP) CA40018 Mar 25  
LAB LIMS #: CA40017 Mar 25

Quotation #: <u>PML RATE</u>		P.O. #: _____
Project #: <u>25HF003</u>		Site Location/ID: _____
<b>TURNAROUND TIME (TAT) REQUIRED</b>		
<input type="checkbox"/> Client Regular TAT	<input checked="" type="checkbox"/> Regular TAT (5-7days)	TAT's are quoted in business days (exclude statutory holidays & weekends). Samples received after 6pm or on weekends: TAT begins next business day
<b>RUSH TAT (Additional Charges May Apply):</b>		
<input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Days <input type="checkbox"/> 3 Days <input type="checkbox"/> 4 Days		
<b>PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION</b>		
Specify Due Date: _____		<b>*NOTE: DRINKING (POTABLE) WATER SAMPLES FOR HUMAN CONSUMPTION MUST BE SUBMITTED WITH SGS DRINKING WATER CHAIN OF CUSTODY</b>

[illegible][illegible][illegible]

Observations/Comments/Special Instructions			
Sampled By (NAME): <u>S. Poarkash</u>	Signature: <u>[Signature]</u>	Date: <u>2 / 26 / 25</u> (mm/dd/yy)	Pink Copy - Client Yellow & White Copy - SGS
Relinquished by (NAME): <u>S. Regi</u>	Signature: <u>[Signature]</u>	Date: <u>3 / 4 / 25</u> (mm/dd/yy)	
Revision #: 1.8 Date of Issue: 06 SEP 2024	<b>Note:</b> Submission of samples to SGS is acknowledgement that you have been provided direction on sample collection/handling and transportation of samples. (2) Submission of samples to SGS is considered authorization for completion of work. Signatures may appear on this form or be retained on file in the contract, or in an alternative format (e.g. shipping documents). (3) Results may be sent by email to an unlimited number of addresses for no additional cost. Fax is available upon request. This document is issued by the Company under its General Conditions of Service accessible at <a href="http://www.sgs.com/terms_and_conditions.htm">http://www.sgs.com/terms_and_conditions.htm</a> . (Printed copies are available upon request.) Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.		





## FINAL REPORT

CA40018-MAR25 R

25HF003

Prepared for

**Peto MacCallum Ltd**



## First Page

### CLIENT DETAILS

Client Peto MacCallum Ltd

Address 45 Burford Road  
Hamilton, ON  
L8E 3C6, Canada

Contact Shiyam Prakash/Scott Jeffrey

Telephone (905) 546-7487

Facsimile (905) 561-6366

Email sprakash@petomacallum.com; sjeffrey@petomacallum.com

Project 25HF003

Order Number

Samples Leachate (4)

### LABORATORY DETAILS

Project Specialist Maarit Wolfe, Hon.B.Sc

Laboratory SGS Canada Inc.

Address 185 Concession St., Lakefield ON, K0L 2H0

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Facsimile 705-652-6365

Email Maarit.Wolfe@sgs.com

SGS Reference CA40018-MAR25

Received 03/04/2025

Approved 03/10/2025

Report Number CA40018-MAR25 R

Date Reported 03/10/2025

### COMMENTS

Temperature of Sample upon Receipt: 7 degrees C

Cooling Agent Present: Yes

Custody Seal Present: Yes

Chain of Custody Number: 041876

### SIGNATORIES

Maarit Wolfe, Hon.B.Sc





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FINAL REPORT

CA40018-MAR25 R

Client: Peto MacCallum Ltd  
Project: 25HF003  
Project Manager: Shiyam Prakash/Scott Jeffrey  
Samplers: S. Prakash

MATRIX: LEACHATE

L1 = REG406 / LEACHATE / - - Appendix 2 Table 1 -  
Residential/Parkland/Institutional/Industrial/Commercial/Community - UNDEFINED

				Sample Number	10	11	12	13
				Sample Name	BH1 SS2	BH2 SS2	BH3 SS1	BH4 SS2
				Sample Matrix	Leachate	Leachate	Leachate	Leachate
				Sample Date	26/02/2025	26/02/2025	26/02/2025	26/02/2025
Parameter	Units	RL	L1	Result	Result	Result	Result	Result
Acid rock Drainage								
Final pH	no unit	0.01		9.27	8.04	9.08	7.96	
Hydrides								
Antimony	µg/L	0.9		< 0.9	< 0.9	1.7	1.6	
Arsenic	µg/L	0.2		7.8	8.1	15.4	15.1	
Selenium	µg/L	0.04		0.11	0.51	0.38	0.34	
Metals and Inorganics								
Sample weight	g	0.001		100	100	100	100	
Ext Fluid	#1 or #2	0.01		2	2	2	2	
Ext Volume	mL	0.01		2008	1991	2004	2001	
Barium	µg/L	0.08		6.16	8.72	10.3	10.5	
Beryllium	µg/L	0.007		0.032	0.014	0.018	0.015	
Boron	µg/L	2		21	45	41	42	
Cadmium	µg/L	0.003		0.005	0.012	0.007	0.003	
Chromium	µg/L	0.08		0.98	0.54	0.52	0.51	
Cobalt	µg/L	0.004		0.177	0.192	0.169	0.168	
Copper	µg/L	2		3	3	3	3	
Lead	µg/L	0.09		2.07	0.77	0.50	0.50	
Molybdenum	µg/L	0.4	23	1.0	2.3	3.5	3.3	
Nickel	µg/L	0.1		0.6	0.8	0.8	0.8	
Silver	µg/L	0.05	0.3	< 0.05	< 0.05	< 0.05	< 0.05	
Thallium	µg/L	0.005	2	0.010	0.021	0.016	0.017	



FINAL REPORT

CA40018-MAR25 R

Client: Peto MacCallum Ltd  
Project: 25HF003  
Project Manager: Shiyam Prakash/Scott Jeffrey  
Samplers: S. Prakash

MATRIX: LEACHATE

L1 = REG406 / LEACHATE / - - Appendix 2 Table 1 -  
Residential/Parkland/Institutional/Industrial/Commercial/Community - UNDEFINED

				Sample Number	10	11	12	13
				Sample Name	BH1 SS2	BH2 SS2	BH3 SS1	BH4 SS2
				Sample Matrix	Leachate	Leachate	Leachate	Leachate
				Sample Date	26/02/2025	26/02/2025	26/02/2025	26/02/2025
Parameter	Units	RL	L1	Result	Result	Result	Result	Result
Metals and Inorganics (continued)								
Uranium	µg/L	0.002		0.196	0.808	1.04	1.01	
Vanadium	µg/L	0.01		3.25	2.82	1.93	1.94	
Zinc	µg/L	2		2	< 2	< 2	2	
VOCs								
Bromomethane	µg/L	0.5	0.5	< 0.5	< 0.5	< 0.5	< 0.5	
Carbon tetrachloride	µg/L	0.2	0.2	< 0.2	< 0.2	< 0.2	< 0.2	
Chloroform	µg/L	0.5	1	< 0.5	< 0.5	< 0.5	< 0.5	
1,2-Dichlorobenzene	µg/L	0.5	0.55	< 0.5	< 0.5	< 0.5	< 0.5	
1,4-Dichlorobenzene	µg/L	0.5	0.5	< 0.5	< 0.5	< 0.5	< 0.5	
1,1-Dichloroethane	µg/L	0.5	0.5	< 0.5	< 0.5	< 0.5	< 0.5	
1,2-Dichloroethane	µg/L	0.5	0.5	< 0.5	< 0.5	< 0.5	< 0.5	
1,1-Dichloroethylene	µg/L	0.5	0.5	< 0.5	< 0.5	< 0.5	< 0.5	
cis-1,2-Dichloroethylene	µg/L	0.5	0.5	< 0.5	< 0.5	< 0.5	< 0.5	
trans-1,2-Dichloroethylene	µg/L	0.5	0.5	< 0.5	< 0.5	< 0.5	< 0.5	
1,2-Dichloropropane	µg/L	0.5	0.5	< 0.5	< 0.5	< 0.5	< 0.5	
1,3-dichloropropene (total)	µg/L	0.5	0.5	< 0.5	< 0.5	< 0.5	< 0.5	
Ethylenedibromide	µg/L	0.2	0.2	< 0.2	< 0.2	< 0.2	< 0.2	
1,1,1,2-Tetrachloroethane	µg/L	0.5	0.5	< 0.5	< 0.5	< 0.5	< 0.5	
1,1,2,2-Tetrachloroethane	µg/L	0.5	0.5	< 0.5	< 0.5	< 0.5	< 0.5	
Tetrachloroethylene	µg/L	0.5	0.5	< 0.5	< 0.5	< 0.5	< 0.5	
1,1,2-Trichloroethane	µg/L	0.5	0.5	< 0.5	< 0.5	< 0.5	< 0.5	



FINAL REPORT

CA40018-MAR25 R

**Client:** Peto MacCallum Ltd  
**Project:** 25HF003  
**Project Manager:** Shiyam Prakash/Scott Jeffrey  
**Samplers:** S. Prakash

MATRIX: LEACHATE

L1 = REG406 / LEACHATE / - - Appendix 2 Table 1 -  
Residential/Parkland/Institutional/Industrial/Commercial/Community - UNDEFINED

				Sample Number	10	11	12	13
				Sample Name	BH1 SS2	BH2 SS2	BH3 SS1	BH4 SS2
				Sample Matrix	Leachate	Leachate	Leachate	Leachate
				Sample Date	26/02/2025	26/02/2025	26/02/2025	26/02/2025
Parameter	Units	RL	L1	Result	Result	Result	Result	Result
VOCs (continued)								
Trichloroethylene	µg/L	0.5	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5

## EXCEEDANCE SUMMARY

---

No exceedances are present above the regulatory limit(s) indicated



FINAL REPORT

CA40018-MAR25 R

QC SUMMARY

Metals in aqueous samples - ICP-MS  
Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-ENVISPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver	EMS0047-MAR25	ug/L	0.05	<0.05	ND	20	94	90	110	76	70	130
Arsenic	EMS0047-MAR25	ug/L	0.2	<0.2	4	20	100	90	110	102	70	130
Barium	EMS0047-MAR25	ug/L	0.08	<0.08	2	20	97	90	110	91	70	130
Beryllium	EMS0047-MAR25	ug/L	0.007	<0.007	ND	20	102	90	110	92	70	130
Boron	EMS0047-MAR25	ug/L	2	<2	4	20	106	90	110	109	70	130
Cadmium	EMS0047-MAR25	ug/L	0.003	<0.003	3	20	101	90	110	96	70	130
Cobalt	EMS0047-MAR25	ug/L	0.004	<0.004	1	20	94	90	110	81	70	130
Chromium	EMS0047-MAR25	ug/L	0.08	<0.08	6	20	98	90	110	93	70	130
Copper	EMS0047-MAR25	ug/L	2	<2	2	20	96	90	110	101	70	130
Molybdenum	EMS0047-MAR25	ug/L	0.4	<0.4	ND	20	95	90	110	90	70	130
Nickel	EMS0047-MAR25	ug/L	0.1	<0.1	3	20	99	90	110	82	70	130
Lead	EMS0047-MAR25	ug/L	0.09	<0.09	0	20	97	90	110	85	70	130
Antimony	EMS0047-MAR25	ug/L	0.9	<0.9	2	20	105	90	110	90	70	130
Selenium	EMS0047-MAR25	ug/L	0.04	<0.04	ND	20	97	90	110	94	70	130
Thallium	EMS0047-MAR25	ug/L	0.005	<0.005	ND	20	102	90	110	89	70	130
Uranium	EMS0047-MAR25	ug/L	0.002	<0.002	6	20	101	90	110	93	70	130
Vanadium	EMS0047-MAR25	ug/L	0.01	<0.01	13	20	96	90	110	89	70	130
Zinc	EMS0047-MAR25	ug/L	2	<2	2	20	97	90	110	100	70	130



FINAL REPORT

CA40018-MAR25 R

QC SUMMARY

Volatile Organics

Method: EPA 5030B/8260C | Internal ref.: ME-CA-1ENVIGC-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1,1,1,2-Tetrachloroethane	GCM0078-MAR25	ug/L	0.5	<0.5	ND	30	98	60	130	96	50	140
1,1,2,2-Tetrachloroethane	GCM0078-MAR25	ug/L	0.5	<0.5	ND	30	105	60	130	112	50	140
1,1,2-Trichloroethane	GCM0078-MAR25	ug/L	0.5	<0.5	ND	30	98	60	130	100	50	140
1,1-Dichloroethane	GCM0078-MAR25	ug/L	0.5	<0.5	ND	30	97	60	130	94	50	140
1,1-Dichloroethylene	GCM0078-MAR25	ug/L	0.5	<0.5	ND	30	97	60	130	93	50	140
1,2-Dichlorobenzene	GCM0078-MAR25	ug/L	0.5	<0.5	ND	30	100	60	130	98	50	140
1,2-Dichloroethane	GCM0078-MAR25	ug/L	0.5	<0.5	ND	30	99	60	130	97	50	140
1,2-Dichloropropane	GCM0078-MAR25	ug/L	0.5	<0.5	ND	30	98	60	130	95	50	140
1,4-Dichlorobenzene	GCM0078-MAR25	ug/L	0.5	<0.5	ND	30	97	60	130	95	50	140
Bromomethane	GCM0078-MAR25	ug/L	0.5	<0.5	ND	30	105	50	140	103	50	140
Carbon tetrachloride	GCM0078-MAR25	ug/L	0.2	<0.2	ND	30	96	60	130	91	50	140
Chloroform	GCM0078-MAR25	ug/L	0.5	<0.5	ND	30	98	60	130	95	50	140
cis-1,2-Dichloroethylene	GCM0078-MAR25	ug/L	0.5	<0.5	ND	30	98	60	130	96	50	140
Ethylenedibromide	GCM0078-MAR25	ug/L	0.2	<0.2	ND	30	98	60	130	99	50	140
Tetrachloroethylene	GCM0078-MAR25	ug/L	0.5	<0.5	ND	30	95	60	130	89	50	140
trans-1,2-Dichloroethylene	GCM0078-MAR25	ug/L	0.5	<0.5	ND	30	94	60	130	91	50	140
Trichloroethylene	GCM0078-MAR25	ug/L	0.5	<0.5	ND	30	93	60	130	86	50	140



## QC SUMMARY

---

**Method Blank:** a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.

**Duplicate:** Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.

**LCS/Spike Blank:** Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.

**Matrix Spike:** A sample to which a known amount of the analyte of interest has been added. Used to evaluate laboratory accuracy with sample matrix effects.

**Reference Material:** a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.

**RL:** Reporting limit

**RPD:** Relative percent difference

**AC:** Acceptance criteria

**Multielement Scan Qualifier:** as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.

**Duplicate Qualifier:** for duplicates as the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.

**Matrix Spike Qualifier:** for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

## LEGEND

### FOOTNOTES

**NSS** Insufficient sample for analysis.

**RL** Reporting Limit.

↑ Reporting limit raised.

↓ Reporting limit lowered.

**NA** The sample was not analysed for this analyte

**ND** Non Detect

Results relate only to the sample tested.

Data reported represent the sample as submitted to SGS. Solid samples expressed on a dry weight basis.

"Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.

Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act and Excess Soil Quality" published by the Ministry and dated March 9, 2004 as amended.

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated.

SGS Canada Inc. statement of conformity decision rule does not consider uncertainty when analytical results are compared to a specified standard or regulation.

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This report supersedes all previous versions.

-- End of Analytical Report --



## Request for Laboratory Services and CHAIN OF CUSTODY

Industries &amp; Environment - Lakefield: 185 Concession St., Lakefield, ON K0L 2H0 Phone: 705-652-2000 Fax: 705-652-6365 Web: www.sgs.com/environment

- London: 657 Consortium Court, London, ON, N6E 2S8 Phone: 519-672-4500 Toll Free: 877-848-8060 Fax: 519-672-0361

No: 041876

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## Laboratory Information Section - Lab use only

Received By: LPD Received By (signature): [Signature]  
Received Date: 2/3/25 (mm/dd/yy) Custody Seal Present: Yes ☒ No ☐ Cooling Agent Present: Yes ☒ No ☐ Type: PACV  
Received Time: 10:22 (hr : min) Custody Seal Intact: Yes ☒ No ☐ Temperature Upon Receipt (°C): 7.43 LAB LIMS #: (SLP) CA40018 Mar 25  
CA40017 Mar 25

REPORT INFORMATION		INVOICE INFORMATION	
Company: <u>Peto Macellum</u>	<input type="checkbox"/> (same as Report Information)	Quotation #: <u>PINK RATE</u>	P.O. #:
Contact: <u>S. Prakash/S. Jeffrey</u>	Company:	Project #: <u>25HF003</u>	Site Location/ID:
Address: <u>45 Bedford Rd</u>	Contact:	TURNAROUND TIME (TAT) REQUIRED	
<u>Hamilton</u>	Address:	<input type="checkbox"/> Client Regular TAT <input checked="" type="checkbox"/> Regular TAT (5-7 days) TAT's are quoted in business days (exclude statutory holidays & weekends). Samples received after 6pm or on weekends: TAT begins next business day	
Phone: <u>826-977-6323</u>	Phone:	RUSH TAT (Additional Charges May Apply): <input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Days <input type="checkbox"/> 3 Days <input type="checkbox"/> 4 Days	
Fax: <u>sprakash@petomacellum.com</u>	Fax:	PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION	
Email: <u>jeffrey@petomacellum.com</u>	Email:	Specify Due Date: <u>                    </u> *NOTE: DRINKING (POTABLE) WATER SAMPLES FOR HUMAN CONSUMPTION MUST BE SUBMITTED WITH SGS DRINKING WATER CHAIN OF CUSTODY	

REGULATIONS					ANALYSIS REQUESTED															
<input checked="" type="checkbox"/> O.Reg 153/04 <input checked="" type="checkbox"/> O.Reg 406/19		Other Regulations:		Sewer By-Law:	M & I			SVOC	PCB	PHC	VOC	Pest	Other (please specify)			SPLP	TCLP	COMMENTS:		
<input checked="" type="checkbox"/> Table 1 <input checked="" type="checkbox"/> Table 2 <input checked="" type="checkbox"/> Table 3	<input checked="" type="checkbox"/> Res/Park <input checked="" type="checkbox"/> Ind/Com <input type="checkbox"/> Agri/Other	Soil Texture: <input checked="" type="checkbox"/> Coarse <input type="checkbox"/> Medium/Fine	<input type="checkbox"/> Reg 347/558 (3 Day min TAT) <input type="checkbox"/> PWQO <input type="checkbox"/> CCME <input type="checkbox"/> MISA	<input type="checkbox"/> Sanitary <input type="checkbox"/> Storm <input type="checkbox"/> Municipality:	Field Filtered (Y/N)	Metals & Inorganics <small>(ICP: Cu, Ni, Hg, Pb, B, As, Ba, Cd, Cr, Co, Cu, Pb, Mo, Ni, Se, Ag, Tl, U, V, Zn)</small>	Full Metals Suite <small>(ICP metals plus B) (HWS-soil only)</small>	ICP Metals only <small>(ICP metals plus B, As, Ba, Cd, Cr, Co, Cu, Pb, Mo, Ni, Se, Ag, Tl, U, V, Zn)</small>	PAHs only	SVOCs <small>(all incl PAHs, ABNs, CPs)</small>	PCBs <small>(Total)</small>	F1-F4 + BTEX <small>(F1-F4 only no BTEX)</small>	VOCs <small>(all incl BTEX)</small>	BTEX only	Pesticides <small>(Organochlorine or specify other)</small>	Sewer Use: <small>Specify pkg. General</small>	Water Characterization Pkg <small>Extended</small>		Specify tests	Specify tests
RECORD OF SITE CONDITION (RSC) <input type="checkbox"/> YES <input type="checkbox"/> NO																				
SAMPLE IDENTIFICATION																				
1	BH1 SS2	2/26/25	AM	3+2	801K		✓		✓	✓	✓							✓		
2	BH2 SS2	"	"	2+2	"		✓		✓	✓	✓							✓		
3	BH3 SS1	"	"	2+2	"		✓		✓	✓	✓							✓		
4	BH4 SS2	"	"	2+2	"		✓		✓	✓	✓							✓		
5	DUP-1	"	"	2+2	"		✓		✓	✓	✓									
6																				
7																				
8																				
9																				
10																				
11																				
12																				

Observations/Comments/Special Instructions	
Sampled By (NAME): <u>S. Prakash</u>	Signature: <u>[Signature]</u>
Relinquished by (NAME): <u>S. Regi</u>	Signature: <u>[Signature]</u>
Revision #: 1.8 Date of Issue: 06 SEP 2024	Note: Submission of samples to SGS is acknowledgement that you have been provided direction on sample collection/handling and transportation of samples. (2) Submission of samples to SGS is considered authorization for completion of work. Signatures may appear on this form or be retained on file in the contract, or in an alternative format (e.g. shipping documents). (3) Results may be sent by email to an unlimited number of addresses for no additional cost. Fax is available upon request. This document is issued by the Company under its General Conditions of Service accessible at <a href="http://www.sgs.com/terms_and_conditions.htm">http://www.sgs.com/terms_and_conditions.htm</a> . (Printed copies are available upon request.) Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.