Peto MacCallum Ltd.
CONSULTING ENGINEERS

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
11589 HIGHWAY 26
COLLINGWOOD, ONTARIO

for

HILL RIDGE HOMES

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EXECUTIVE SUMMARY

Peto MacCallum Ltd. (PML) was retained by Hill Ridge Homes to conduct a Phase Two Environmental Site Assessment (ESA) for the existing undeveloped property at 11589 Highway 26 in the Town of Collingwood, Ontario. Authorization for this work was provided by Mr. F. Fragal in a signed Engineering Services Agreement dated November 18, 2021. The Phase Two ESA property (referred herein as the 'Site') is situated west of downtown Collingwood, on the south side of Highway 26, and approximately 190 m east of Vacation Inn Drive (Drawing 3-1).

The Phase Two ESA was conducted for the Site to verify the potential sources of contamination identified during a recent Phase One ESA completed by PML. The current assessment was performed in accordance with the Phase Two ESA protocols outlined in the Canadian Standards Association (CSA) Standard Z768-01 (reaffirmed 2016). It is understood that a Record of Site Condition (RSC) is not required for the Site.

The Site covers an approximate plan area of 1.25 ha and is currently undeveloped woodlands. The Site and the Study Area (area within a 250 m radius of the Site) are situated in an area characterized by residential, commercial, and educational land uses.

Based on the information from the chain of title, aerial photographs, interview, and available maps, the Site is currently undeveloped.

Based on the findings of the Phase One ESA completed by PML, Site reconnaissance, and our experience with numerous similar projects in the past, no Potentially Contaminating Activities (PCAs) on the Site and one (1) PCA within the Study Area were identified.

The off-Site PCA resulted from pesticide registrations, indicating potential pesticide use and/or bulk storage, on the east adjacent property identified in a previous Phase One ESA completed by others (PCA 40).

The above-noted PCAs were further evaluated to determine APECs on the Site. Due to the potential pesticide use and/or storage adjacent to the east of the Site, PCA 1 was determined to be contributing to APEC 1 (PCA 40).

Based on the findings of the Phase One ESA conducted by PML, a program of subsurface investigation (Phase Two ESA) was carried out at the Site. The Phase Two ESA program included the advancement of four (4) boreholes and the installation of three (3) monitoring wells for soil and ground water sampling and analyses, and an evaluation of the chemical test results compared to the applicable Site Condition Standards (SCSs) of O.Reg. 153/04, amended, Table 3 SCSs for Residential/Parkland/Institutional/Industrial/Commercial/Community (RPI/ICC) Property Use.

Results of the chemical analyses conducted on selected borehole soil samples indicated that the measured concentrations of Metals, Other Regulated Parameters (ORPs), and Organochlorine (OC) Pesticides were below the O.Reg. 153/04 (as amended) Table 3 SCSs for RPI/ICC Property Use, with the exception of salt related parameters (SAR) for BH3 SS1. However, in accordance with O.Reg. 153/04 (as amended) where a SCS is exceeded solely because a substance has been used for purposes of keeping vehicle or pedestrian traffic safe under conditions of snow and ice, the applicable SCS is deemed to have met the SCS.

Results of the chemical analyses conducted on the ground water samples from the monitoring wells indicated that the measured concentrations of Metals, ORPs, and OC Pesticides were less than the applicable O.Reg. 153/04 (as amended) Table 3 SCSs for All Types of Property Uses in a Non-Potable Ground Water Condition.

Based on the above site background information, the Phase Two ESA field and laboratory data, and the limitations inherent in the scope of the sampling and testing program undertaken to date, the following conclusions and recommendations are made for the Site:

- The soil underlying the Site at the tested sample locations met the applicable O. Reg. 153/04 (amended) Table 3 SCSs for RPI/ICC Property Use, with the exception of salt related parameters (SAR) for BH3 SS1. However, in accordance with O.Reg. 153/04 (as amended) where a SCS is exceeded solely because a substance has been used for purposes of keeping vehicle or pedestrian traffic safe under conditions of snow and ice, the applicable SCS is deemed to have met the SCS.

- The groundwater underlying the Site at the tested sample locations met the applicable O. Reg. 153/04 (amended) Table 3 SCSs for All Types of Property Uses in a Non-Potable Ground Water Condition.

As such, it is our opinion that there is no evidence of the substances of concern present in the soil or ground water at the Site in excess of the applicable SCSs.

It is our opinion that no further environmental assessment work is required at this time.

If practical, the monitoring wells installed during the current investigation should be regularly inspected and maintained to facilitate future environmental monitoring, otherwise they should be decommissioned in accordance with the O. Reg. 903, amended to O. Reg. 128/03 under the Water Resources Act.

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ATTACHMENTS:

1. INTRODUCTION

Peto MacCallum Ltd. (PML) was retained by Hill Ridge Homes to conduct a Phase Two Environmental Site Assessment (ESA) for the existing undeveloped property at 11589 Highway 26 in the Town of Collingwood, Ontario. Authorization for this work was provided by Mr. F. Fragal in a signed Engineering Services Agreement dated November 18, 2021. The Phase Two ESA property (referred herein as the 'Site') is situated west of downtown Collingwood, on the south side of Highway 26, and approximately 190 m east of Vacation Inn Drive (Drawing 3-1).

The Phase Two ESA was conducted to for the Site to verify the potential sources of contamination identified during a recent Phase One ESA completed by PML. The current assessment was performed in accordance with the Phase Two ESA protocols outlined in the Canadian Standards Association (CSA) Standard Z768-01 (reaffirmed 2016). It is understood that a Record of Site Condition (RSC) is not required for the Site.

1.1 Site Description and Land Uses

The Site covers an approximate plan area of 1.25 ha and is currently undeveloped woodlands. The Site and the Study Area (area within a 250 m radius of the Site) are situated in an area characterized by residential, commercial, and educational land uses.

The land use of the properties adjacent to the Site is given below:

TABLE 1
ADJACENT LAND USE OF THE SITE

Direction from Site	Description of Property	Land Use
North	Residential dwellings	Residential
East	Plant nursery property followed by private education institute	Commercial and Educational
South	Undeveloped marshlands	Undeveloped
West	Residential dwellings and Georgian Bay Hotel and Resort	Residential and Commercial

The Site is legally described as Part of Lot 47 and 48, Concession 11, Geographic Township of Nottawasaga. The legal description of the property is CON 11 PT Lots 47 and 48 and RP 51R7182 Part 1 within the Town of Collingwood.

1.2 Current Property Uses

Based on the information from the chain of title, aerial photographs, interview, and available maps, the Site is currently undeveloped.

1.3 Applicable Site Condition Standards

In general, the environmental quality standards applicable to the Site are those presented in the Ontario Ministry of Environment document titled Soil, Ground Water and Sediment Standards for Use under Part XV.1 of the Environmental Protection Act dated April 15, 2011. Within this document, the specific standards applicable to the Site depend on the property use at the Site, the site location including proximity to water bodies or environmentally sensitive areas, the potable or non-potable ground water condition, the depth to bedrock, the pH of the soil and the predominant soil type at the Site.

The Site and the surrounding areas are located in a residential, commercial, and educational setting.

The Site is not within an environmental sensitive area; however, an evaluated wetland lies adjacent to the south of the Site.

The Site is not within a Well Head Protection Area (WHPA) and/or Intake Protection Zone (IPZ).

The analyzed pH values of soil samples from the Site ranged from 7.66 to 7.78. To apply Generic SCSs as per O. Reg. 153/04 (amended), pH values should be in the range of 5 to 9 for surface soils and 5 to 11 for subsurface soils.

Based on the subsurface investigation and review of available maps, it is understood that the Site is not a shallow soil property. The soils on-Site vary between fine/medium texture to coarse texture. Due to the variation, the generally more conservative coarse-textured soil criteria were chosen with respect to the regulatory criteria.

Considering the Site settings, land use and soil grain size, the O. Reg. 153/04 (amended) Table 3 Site Condition Standards (SCSs) for Residential/Parkland/Institutional/Industrial/Commercial/ Community (RPI/ICC) Property Uses in Non-Potable Ground Water Condition for coarse textured soils were conservatively considered applicable for the Site.

2. BACKGROUND INFORMATION

2.1 Physical Setting

The Site is situated within the Simcoe Lowlands physiographic region comprising sand plains ("The Physiography of Southern Ontario", Ministry of Natural Resources, 1984, Chapman, L.J. and Putnam, D.E.).

The surficial geology of the area is primarily comprised of stone-poor, sandy silt to silty sand-textured till on Paleozoic terrain (OGS Earth Map of Surficial Geology of Southern Ontario, Ontario Geological Survey, 2010).

The bedrock underlying the Site comprises limestone, dolostone, shale, arkose and sandstone of the Simcoe Group (Bedrock Geology of Ontario, Ministry of Northern Development and Mines, 1991).

No water bodies were located on-site.

Based on the Ontario Ministry of Natural Resources and Forestry (MNRF), no area of natural significance (ANSI) existed on the Site; however, an evaluated wetland lies adjacent to the south of the Site.

The ground surface elevation at the Site and in the adjacent areas ranges from 177.0 to 181.0 masl. The ground surface of the area is relatively flat with an overall gentle slope down toward the southeast.

2.2 Past Geoenvironmental Investigations

A Phase I Environmental Site Assessment was previously completed by Trinity Consultants Ontario Inc. (Trinity Consultants Ref. 187201.0147 dated June 2018) and details are summarized below:

- Based on the records review and site visit completed by Trinity Consultants, no PCAs were identified and no further environmental investigations were recommended.

A Phase One ESA was completed by PML in accordance with O.Reg.153/04, as amended (PML Ref. 21BF201, Report 1, dated January 10, 2022, Phase One Environmental Site Assessment). The Phase One ESA findings are summarized below:

- No on-Site PCAs were identified.
- The off-Site PCA was identified from pesticide registrations, indicating potential pesticide use and/or bulk storage, on the east adjacent property which was identified during the review of Trinity Consultants' Phase 1 ESA (PCA 40).
- The above-noted PCAs were further evaluated to determine APECs on the Site. Due to the potential pesticide use and/or storage adjacent to the east of the Site, PCA 1 was determined to be contributing to APEC 1 (PCA 40).

3. SCOPE OF INVESTIGATIONS

3.1 Overview of Site Investigation

This Phase Two ESA was conducted to determine the present environmental condition of the soils and ground water underlying the Site, and to determine the remedial or other actions required to mitigate the environmental issues, if any.

To accomplish this task, a Phase Two ESA was undertaken, which involved subsurface investigations of the Site. The Phase Two ESA involved the following tasks:

- Locating, clearing, sampling and logging one (1) borehole to a depth of 3.4 m bgs, and three (3) boreholes to a depth of 3.7m bgs with decontamination procedures and installation of a 50 mm diameter PVC well casing and slotted screen in three (3) of the drilled boreholes to facilitate ground water sampling and ground water level monitoring.

- Collection of representative soil and ground water samples from within the identified APECs and analytical testing for contaminants of potential concern (COPCs) related to the PCAs and resulting APECs.

- Scientific evaluation of the compiled background information, field and laboratory data and preparation of a Phase Two ESA report including the factual data and interpretation together with the pertinent illustrations and recommendations.

3.2 Media Investigated

Sampling and chemical testing of soil and ground water underlying the Site was carried out to check the environmental quality in comparison to the applicable SCSs of Ontario Regulation 153/04 (amended).

3.3 Deviations from Sampling and Analytical Plan

There were no significant deviations from the planned sampling and analytical testing protocols employed during the course of investigation.

3.4 Impediments

Refusal to auger was encountered in all boreholes at a depth of 3.4 to 3.7 m bgs. Refusal to auger could have been due to boulders in the till or shallow bedrock common to the area.

There were no physical impediments encountered during the course of the site visit, monitoring wells installation, and soil and/or ground water sampling.

4. SITE AND SUBSURFACE INVESTIGATIONS

4.1 Subsurface Exploration and Sampling

The field work for this investigation was carried out as follows:

- November 22, 2021: Drilling, logging, and soil sampling of Boreholes 1 through 4, and installation of a monitoring well in three of the four boreholes.
- December 17, 2021: Monitoring well installed in Boreholes 1, 3 and 4 were visited to measure water levels.
- December 21, 2021: Monitoring well installed in Boreholes 1, 3 and 4 were visited to measure water levels and develop monitoring wells.
- December 23, 2021: Ground water samples were obtained from monitoring wells installed in Boreholes 1, 3 and 4 for chemical analyses.

The boreholes were advanced to depths of 3.4 to 3.7 m bgs at the approximate locations shown on Drawing 3-1.

4.2 Elevation Survey

The borehole locations were marked at the Site by PML. The geodetic elevations were surveyed with a differential Global Positioning System (GPS) by PML. The ground surface elevations at the borehole locations are presented on the Log of Borehole sheets.

4.3 Drilling Excavation

The boreholes were advanced using continuous flight hollow stem augers, powered by a track mounted D-50 drill rig, equipped with an automatic hammer, supplied, and operated by a specialist drilling contractor, working under the full-time supervision of a member of PML's engineering staff.

The drilling contractor pre-cleaned a set of solid stem and hollow stem augers and tools prior to arriving at the Site. The Split Spoon (SS) sampler was decontaminated prior to and between taking samples by scrubbing with a wire brush and washing in a solution of Alconox soap. The sampler was then sprayed with isopropanol and rinsed with distilled water.

Reference is made to the appended Logs of Borehole sheets for details of the field work, including inferred stratigraphy, soil classifications, Standard Penetration Test (SPT) N Values, ground water observations carried out in the open boreholes during and upon completion of auguring, details of monitoring well installations, ground water level readings in the monitoring wells, and moisture content determinations.

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

4.3 Summarized Subsurface Conditions

4.3.1 Stratigraphy

At the surface of all boreholes, a 50 to 200 mm thick topsoil layer was present.

A 650 mm thick layer of silt was beneath the topsoil in Borehole 1, and extended down to 0.7 m (elevation 178.4). The compact silt had an N value of 20. The silt was very moist with a moisture content of 22%.

A 0.5 to 1.3 m thick sand layer was revealed below the topsoil in Boreholes 2 to 4, and extended to 0.7 to 1.4 m (elevation 177.5 to 178.65). The sand was very loose to compact with N values ranging from 3 to 19. The unit contained trace silt and trace organics. The sand was wet and moisture contents ranged from 7 to 28%.

A major till deposit was contacted below the silt or the sand layer and extended to the 3.4 to 3.7 m depth of termination of the boreholes (elevation 175.2 to 176.2). The till density was loose to very dense and N values of 9 to greater than 50 were recorded. The till was typically loose or compact in the first sample (N values of 5, 9 and 28 in Boreholes 2 to 4), becoming very dense below the first sample, locally very dense from the top of the deposit in Borehole 1.

The till matrix varied from a silt and sand with trace gravel and trace clay to a sandy silt with some gravel and trace clay. The soil was wet near the top of the unit becoming moist with depth and moisture contents ranged from 17 to 5% with depth.

4.4 Soil Sampling

Representative samples of the overburden were recovered at regular depth intervals in the drilled boreholes using a conventional split spoon sampler and/or were recovered utilizing hand sampling techniques in the hand dug test pits completed by PML.

The soil samples obtained from the boreholes were immediately placed in glass jars and plastic bags. Any observations of visible foreign materials and odours were recorded during the sampling operations and are indicated on the Log of Borehole/Monitoring Well sheets, where applicable.

The soil samples taken from boreholes as split spoon samples are denoted as SS. The soil samples assigned for Metals, Other Regulated Parameters (ORPs), and Organochlorine (OC) Pesticides analyses were collected at the Site using laboratory supplied methanol vials and/or jars.

Soil samples collected during this investigation were stored at low temperatures and brought to PML's laboratory for detailed visual examination before selecting the analytical protocols.

4.5 Field Screening Measurements

Vapours are often used as a field screening tool to identify PHC impacted soils. Since PHCs were not identified as a COC during the Phase One ESA it was determined that field screening using vapour readings was not necessary when collecting the soil samples.

4.6 Monitoring Well Installation

Upon completion of drilling the boreholes, three (3) monitoring wells were installed in drilled Boreholes 1, 3 and 4. The slotted well screen and solid riser were comprised of 50 mm diameter Schedule 40 PVC pipe. The annular space of the borehole around the screen was backfilled with clean filter sand (up to 0.5 m above the top of the well screen) and the remaining annular space was sealed with bentonite. The monitoring well was installed to allow ground water level measurement and sampling. The ground water conditions in the boreholes were also noted upon completion of drilling. The details of the monitoring well are shown on the appended Log of Borehole/Monitoring Well Sheets.

Water levels were measured in the monitoring well on December 17, 2021 and December 21, 2021 using a Heron™ ground water level meter. Development/purging of the monitoring wells installed in Boreholes 1, 3 and 4 was completed on December 21, 2021 and involved removal of a minimum of three to five well volumes or until the wells were dry in accordance with fixed volume and well evacuation purging procedures as outlined in ASTM D6452-99 (2012).

The times of development of the monitoring wells are summarized below:

TABLE 2
WELL DEVELOPMENT DETAILS

Monitoring Well ID	Time of Purging and Development (December 21, 2021)	Total Volume of Water Removed (L)
1	2:00 pm	18
3	2:45 pm	12
4	3:30 pm	8

In an effect to minimize potential cross contamination dedicated Waterra™ tubing was utilized on the ground water well. The above equipment was used with new nitrile gloves.

The Heron™ ground water level meter was cleaned between uses at each monitoring well location.

4.7 Field Measurement of Water Quality Parameters

Direct field measurement of water quality indicator parameters such as pH, conductivity, turbidity, dissolved oxygen (DO), temperature, and oxidation reduction potential were not part of the scope of work for this stage of the investigation.

4.8 Ground Water Sampling

Three (3) ground water samples were collected from the monitoring wells installed in Boreholes 1, 3 and 4 on December 23, 2021.

The ground water samples were collected using a low flow inertial pump.

4.9 Sediment Sampling

Sediment sampling was not part of the scope of work for this stage of the investigation.

4.10 Analytical Protocols

Representative soil samples collected from the boreholes were selected and delivered to SGS Canada Inc. (SGS) for the chemical analyses. SGS is accredited by the Canadian Association of Environmental Analytical Laboratories (CALA). The soil and ground water sample analytical protocols are listed in the attached Table 1, respectively.

The parameters included in the analysis for soils were selected to address the contaminants of potential concern associated with off-Site PCAs resulted from pesticide registrations, indicating potential pesticide use and/or bulk storage, on the east adjacent property identified in a previous Phase One ESA completed by others.

4.11 Quality Assurance and Quality Control (QA/QC)

Since the quality of data depends upon planning, sampling, analysis and reporting, duplicate soil samples were analyzed for Quality Assurance and Quality Control (QA/QC) purposes.

The field QA/QC procedures were for determining the reproducibility or variability related to analytical procedures and sample homogeneity. The percentage differences between analyzed values for the original and duplicate samples were also calculated.

The laboratory analytical methods consisted of using standard testing methods required by the Ministry of Environment, Conservation and Parks (MECP) and referenced in SGS certificate of analyses (attached in Appendix A). The analytical procedures included the method blank, the spiked method blank, the laboratory spiked and duplicate soil samples, along with analyses of each batch of soil samples.

Appendix A includes the certificates of analyses along with a table of analytical data indicating the parameters analyzed and the estimated quantitation limit.

5. RESULTS AND EVALUATION

5.1 Geology and Drainage

The Site is situated within the Simcoe Lowlands physiographic region comprising sand plains ("The Physiography of Southern Ontario", Ministry of Natural Resources, 1984, Chapman, L.J. and Putnam, D.E.) The surficial geology of the area is primarily comprised of stone-poor, sandy silt to silty sand-textured till on Paleozoic terrain (OGS Earth Map of Surficial Geology of Southern Ontario, Ontario Geological Survey, 2010).

The bedrock underlying the Site comprises limestone, dolostone, shale, arkose and sandstone of the Simcoe Group (Bedrock Geology of Ontario, Ministry of Northern Development and Mines, 1991).

No water bodies were located on-site.

No area of natural significance (ANSI) existed on the Site; however, an evaluated wetland lies adjacent to the south of the Site.

The Site and the Study Area fall under the regulation of the Nottawasaga Valley Conservation Authority (NVCA).

The hydrogeology of the Site and the vicinity is primarily controlled by Cranberry Lake, topographic elevation, glacial geology, and bedrock topography of the region. Locally, shallow ground water is expected to flow towards topographic depressions and regional ground water is expected to flow southeast towards Cranberry Lake.

5.2 Ground Water Conditions

Ground water conditions were noted during and upon completion of drilling. The Log of Borehole/Monitoring Well Sheets completed by PML and/or others include details of ground water observations made during and upon completion of drilling.

On November 22, 2021, ground water was encountered during drilling in Boreholes 2 to 4 at depths of 0.9 to 2.6 m and upon completion of drilling in Boreholes 1, 2 and 4 at depths of 0.9 to 3.4 m.

During the investigations, visual or olfactory evidence of the presence of contaminants and/or deleterious materials was not observed.

On December 17, 2021, the Borehole/Monitoring Wells 1, 3 and 4 were found to have ground water levels at depths ranging from 0.0 to 0.2 m (elevation 178.9 to 179.6). The measured ground water levels in the monitoring wells are presented in attached Table 2.

On December 21, 2021, the Borehole/Monitoring Wells 1, 3 and 4 were found to have ground water levels at depths ranging from 0.1 to 0.3 m (elevation 179.0 to 179.5). The measured ground water levels in the monitoring wells are presented in attached Table 2.

Ground water levels are subject to seasonal fluctuations and variations in precipitation and climate change.

5.3 Soil Texture

As previously indicated, the subsurface stratigraphy in the boreholes typically comprised topsoil underlain by silt and/or sand over sandy silt and/or silt and sand till. The soils on-Site vary between fine/medium texture to coarse texture. Due to the variation, the coarse-textured soil criteria were chosen with respect to the regulatory criteria.

5.4 Field Screening Results

Since PHCs were not identified as a COC during the Phase One ESA it was determined that field screening using vapour readings was not necessary when collecting the soil samples.

5.5 Soil Quality

The laboratory certificates of chemical analyses carried out by SGS in accordance with the analytical protocols (attached Table 1) described in Section 4.10 above and chain-of-custody records are included in Appendix A.

Results of the chemical analyses conducted on borehole soil samples indicated that the measured concentrations of Metals, ORPs, and OC Pesticides were below the O.Reg. 153/04 (amended) Table 3 SCSs for RPI/ICC Property Use with the exception of salt related parameters (SAR), for BH3 SS1.

However, in accordance with O.Reg. 153/04 (as amended) where a SCS is exceeded solely because a substance has been used for purposes of keeping vehicle or pedestrian traffic safe under conditions of snow and ice, the applicable SCS is deemed to have met the SCS.

5.6 Ground Water Quality

The laboratory certificates of chemical analyses carried out by SGS in accordance with the analytical protocols (attached Table 1) described in Section 4.10 above and chain-of-custody records are included in Appendix A.

Results of the chemical analyses conducted on the ground water samples from the monitoring wells indicated that the measured concentrations of Metals, ORPs, and OC Pesticides were less than the applicable O.Reg. 153/04 (as amended) Table 3 SCSs for All Types of Property Uses in a Non-Potable Ground Water Condition.

5.7 Phase Two ESA Conceptual Site Model

A Phase Two ESA Conceptual Site Model (CSM) is prepared for 11589 Highway 26 in the Town of Collingwood, Ontario. The Site is situated west of downtown Collingwood, on the south side of Highway 26, and approximately 190 m east of Vacation Inn Drive (Drawing 3-1).

The Site covers an approximate plan area of 1.25 ha and is currently undeveloped woodlands. The Site and the Study Area (area within a 250 m radius of the Site) are situated in an area characterized by residential, commercial, and educational land uses.

5.7.1 Potentially Contaminating Activity and Areas of Potential Environmental Concern

5.7.1.1 Potentially Contaminating Activity (PCA)

Based on the findings of the Phase One ESA completed by others, Site reconnaissance, and our experience with numerous similar projects in the past, no PCAs on the Site and one (1) PCA within the Study Area were identified.

The identified PCAs are listed in the table below and shown on attached Drawing 3-1.

TABLE 3
POTENTIALLY CONTAMINATING ACTIVITIES (PCAs)

Potentially Contaminating Activity (PCA) *	Location	PCA Description
IN/ON/UNDER PHASE ONE STUDY AREA		
PCA 40 – Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications	11555 Highway 26	Three (3) pesticide registrations for vendors for Greentree Gardens & Emporium which may indicate bulk storage of pesticides and/or pesticide use for the gardens on the property.

* Reference O.Reg.153/04 Part VI Table 2

5.7.1.2 Areas of Potential Environmental Concern (APEC)

The above-noted PCAs were further evaluated to determine APECs on the Site. Due to the potential pesticide use and/or storage adjacent to the east of the Site, PCA 1 was determined to be contributing to APEC 1 (PCA 40).

The identified APECs are listed in the table below and shown on attached Drawing 3-1.

TABLE 4
TABLE OF AREAS OF POTENTIAL ENVIRONMENTAL CONCERN
(Refer to clause 16(2)(a), Schedule D, O. Reg. 153/04)

Area of Potential Environmental Concern (APEC)[1]	Location of APEC on Phase One Property	Potentially Contaminating Activity (PCA)[2]	Location of PCA (On-Site or Off-Site)	Contaminants of Potential Concern[3]	Media Potentially Impacted (Ground water, soil and/or sediment)
APEC-1	The Entire Site	PCA 40 – Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications	Off-Site	Metals, ORPs, OCs	Soil/ground water

Notes:

1 - Area of Potential Environmental Concern means the area on, in or under a phase one property where one or more contaminants are potentially present, as determined through the phase one environmental site assessment, including through,

(a) identification of past or present uses on, in or under the phase one property, and

(b) identification of potentially contaminating activity.

2 - Potentially Contaminating Activity means a use or activity set out in Column A of Table 2 of Schedule D that is occurring or has occurred in a phase one study area.

3 - When completing this column, identity all contaminants of potential concern using the Method Groups as identified in the "Protocol for in the Assessment of Properties under Part XV.1 of the Environmental Protection Act, March 9, 2004, amended as of July 1, 2011, as specified below:

List of Method Groups:

ABNs	PCBs	Metals	Electrical Conductivity
CPs	PAHs	As, Sb, Se	Cr (VI)
1,4-Dioxane	THMs	Na	Hg
Dioxins/Furans, PCDDs/PCDFs	VOCs	B-HWS	Methyl Mercury
OCs	BTEX	Cl-	Low or high pH
PHCs	Ca, Mg	CN-	SAR

4- When submitting a record of site condition for filing, a copy of this table must be attached.

5.7.1.3 Subsurface Structures and Utilities

No structures or utilities were noted throughout the Site.

5.7.2 Physical Setting of the Phase Two Property

The Phase Two ESA property is situated west of downtown Collingwood, on the south side of Highway 26, and approximately 190 m east of Vacation Inn Drive (Drawing 3-1).

The Site is situated west of downtown Collingwood, on the south side of Highway 26, and approximately 190 m east of Vacation Inn Drive (Drawing 3-1). The Site covers an approximate plan area of 1.25 ha and is currently undeveloped woodlands. The Site and the Study Area (area within a 250 m radius of the Site) are situated in an area characterized by residential, commercial, and educational land uses.

Based on the information from the chain of title, aerial photographs, interview, and available maps, the Site is currently undeveloped.

5.7.2.1 Geology, Hydrogeology and Soil Stratigraphy

The Site is situated within the Simcoe Lowlands physiographic region comprising sand plains ("The Physiography of Southern Ontario", Ministry of Natural Resources, 1984, Chapman, L.J. and Putnam, D.E.) The surficial geology of the area is primarily comprised of stone-poor, sandy silt to silty sand-textured till on Paleozoic terrain (OGS Earth Map of Surficial Geology of Southern Ontario, Ontario Geological Survey, 2010).

No water bodies were located on-site.

No area of natural significance (ANSI) existed on the Site; however, an evaluated wetland lies adjacent to the south of the Site.

The Site and the Study Area fall under the regulation of the NVCA.

The ground surface elevation at the Site and in the adjacent areas ranges from 177.0 to 181.0 masl. The ground surface of the area is relatively flat with an overall gentle slope down towards the southeast.

The hydrogeology of the Site and the vicinity is primarily controlled by Cranberry Lake, topographic elevation, glacial geology, and bedrock topography of the region. Locally, shallow ground water is expected to flow towards topographic depressions and regional ground water is expected to flow southeast toward Cranberry Lake.

In general, the soil stratigraphy, as encountered in the boreholes, consisted of topsoil underlain by silt and/or sand over sandy silt and/or silt and sand till.

Based on the Ministry of Natural Resources and Forestry, no Areas of Natural and Scientific Interest existed on the Site; however, an evaluated wetland lies adjacent to the south of the Site.

5.7.2.2 Bedrock

The bedrock underlying the Site comprises limestone, dolostone, shale, arkose and sandstone of the Simcoe Group (Bedrock Geology of Ontario, Ministry of Northern Development and Mines, 1991).

5.7.2.3 Ground Water Conditions

The ground water conditions were noted during and upon completion of drilling. The Log of Borehole sheets include details of ground water observations made during and upon completion of drilling.

On December 17, 2021, the Borehole/Monitoring Wells 1, 3 and 4 were found to have ground water levels at depths ranging from 0.0 to 0.2 m (elevation 178.9 to 179.6). The measured ground water levels in the monitoring wells are presented in attached Table 2.

On December 21, 2021, the Borehole/Monitoring Wells 1, 3 and 4 were found to have ground water levels at depths ranging from 0.1 to 0.3 m (elevation 179.0 to 179.5). The measured ground water levels in the monitoring wells are presented in attached Table 2.

During the investigations, no indications of questionable materials or evidence of presence of contaminants and/or deleterious materials were observed.

Ground water levels are subject to seasonal fluctuations and variations in precipitation and climate change.

5.7.3 Soils Brought from Off-Site to On-Site

Soil has not been imported to the Site since the completion of the Phase Two ESA.

5.7.4 Soil and Ground Water Quality

Based on the findings of the Phase One ESA conducted by PML, a program of subsurface investigation (Phase Two ESA) was carried out at the Site. The Phase Two ESA program included advancement of four (4) boreholes and installation of three (3) monitoring wells for soil and ground water sampling and analyses, and an evaluation of the chemical test results in terms of the applicable SCSs (O. Reg. 153/04, amended, Table 3 SCSs for RPI/ICC Property Uses).

5.7.4.1 Soil Quality

Results of the chemical analyses conducted on borehole soil samples indicated that the measured concentrations of Metals, ORPs, and OC Pesticides were below the O.Reg. 153/04 (amended) Table 3 SCSs for RPI/ICC Property Use with the exception of salt related parameters (SAR), for BH3 SS1.

However, in accordance with O.Reg. 153/04 (as amended) where a SCS is exceeded solely because a substance has been used for purposes of keeping vehicle or pedestrian traffic safe under conditions of snow and ice, the applicable SCS is deemed to have met the SCS.

5.7.4.2 Groundwater Quality

Results of the chemical analyses conducted on the ground water samples from the monitoring wells indicated that the measured concentrations of Metals, ORPs, and OC Pesticides were less than the applicable O.Reg. 153/04 (as amended) Table 3 SCSs for All Types of Property Uses in a Non-Potable Ground Water Condition.

5.7.4.3 Field Screening Results

Since PHCs were not identified as a COC during the Phase One ESA it was determined that field screening using vapour readings was not necessary when collecting the soil samples.

5.8 QA/QC Results

For sample reproducibility calculations, relative percentage differences (RPD) were calculated for metals with analytical values greater than 3 X LOQ (Limit of Quantification, namely, the lowest concentration that a parameter can be identified with confidence by an analytical laboratory).

Relative percentage differences (RPD) were determined using the following formula:

$$\text{RPD Value of Analyte A} = \frac{(\text{Analyte A in test 1} - \text{Analyte A in test 2}) \times 100\ \%}{(\text{Analyte A in test 1} + \text{Analyte A in test 2}) / 2}$$

Attached Tables 3 shows the calculated RPD between the duplicate and original soil samples analyzed for the Site. The maximum RPD for the duplicate samples were within the acceptable statistical variation of 30 to 40%.

6. CONCLUDING REMARKS

Based on the site background information, field investigation data and laboratory test results compiled to date and presented above, the following conclusions are made on the site setting, soil stratigraphy and ground water conditions and existing geoenvironmental conditions in comparison with the O.Reg. 153/04 (amended).

- The Site covers an approximate plan area of 1.25 ha and is currently undeveloped woodlands. The Site and the Study Area (area within a 250 m radius of the Site) are situated in an area characterized by residential, commercial, and educational land uses.

- Based on the information from the chain of title, aerial photographs, interview, and available maps, the Site is currently undeveloped.

- The Site is situated within the Simcoe Lowlands physiographic region comprising sand plains and the surficial geology of the area is primarily comprised of stone-poor, sandy silt to silty sand-textured till on Paleozoic terrain.

- No water bodies were located on-site; however, an evaluated wetland lies adjacent to the Site to the east.

- Based on the findings of the Phase One ESA conducted by PML, a program of subsurface investigation (Phase Two ESA) was carried out at the Site. The Phase Two ESA program included the advancement of four (4) boreholes and the installation of three (3) monitoring wells for soil and ground water sampling and analyses.

- In general, the soil stratigraphy, as encountered in the boreholes, consisted of topsoil underlain by silt and/or sand over sandy silt and/or silt and sand till (Log of Borehole sheets). A description of the distribution of the subsurface conditions encountered is provided below.

- During the investigations, no visual or olfactory evidence of contamination and/or deleterious materials was observed.

- On December 17, 2021, the Borehole/Monitoring Wells 1, 3 and 4 were found to have ground water levels at depths ranging from 0.0 to 0.2 m (elevation 178.9 to 179.6). On December 21, 2021, the Borehole/Monitoring Wells 1, 3, and 4 were found to have a ground water levels at depths ranging from 0.1 to 0.3 m (elevation 179.0 to 179.5).

- Results of the chemical analyses conducted on borehole soil samples indicated that the measured concentrations of Metals, ORPs, and OC Pesticides were below the O.Reg. 153/04 (amended) Table 3 SCSs for RPI/ICC Property Use with the exception of salt related parameters (SAR), for BH3 SS1. However, in accordance with O.Reg. 153/04 (as amended) where a SCS is exceeded solely because a substance has been used for purposes of keeping vehicle or pedestrian traffic safe under conditions of snow and ice, the applicable SCS is deemed to have met the SCS.

- Results of the chemical analyses conducted on the ground water samples from the monitoring wells indicated that the measured concentrations of Metals, ORPs, and OC Pesticides were less than the applicable O.Reg. 153/04 (as amended) Table 3 SCSs for All Types of Property Uses in a Non-Potable Ground Water Condition.

7. RECOMMENDATIONS

Based on the above site background information, the Phase Two ESA field and laboratory data, and the limitations inherent in the scope of the sampling and testing program undertaken to date, the following conclusions and recommendations are made for the Site:

- The soil underlying the Site at the tested sample locations met the applicable O. Reg. 153/04 (amended) Table 3 SCSs for RPI/ICC Property Use with the exception of salt related parameters (SAR), for BH3 SS1. However, in accordance with O.Reg. 153/04 (as amended) where a SCS is exceeded solely because a substance has been used for purposes of keeping vehicle or pedestrian traffic safe under conditions of snow and ice, the applicable SCS is deemed to have met the SCS.

- The groundwater underlying the Site at the tested sample locations met the applicable O. Reg. 153/04 (amended) Table 3 SCSs for All Types of Property Uses in a Non-Potable Ground Water Condition.

As such, it is our opinion that there is no evidence of the substances of concern present in soil or ground water at the Site in excess of the applicable SCSs.

It is our opinion that no further environmental assessment work is required at this time.

If practical, the monitoring wells installed during the current investigations should be regularly inspected and maintained to facilitate future environmental monitoring, otherwise they should be decommissioned in accordance with the O. Reg. 903, amended to O. Reg. 128/03 under the Water Resources Act.

8. STATEMENT OF LIMITATIONS

A Statement of Limitation is included in the attached Appendix B that should be read in conjunction with this report.

We trust this report is adequate for your present purposes. Should you have any questions or require further information, please do not hesitate to contact our office.

Sincerely

Peto MacCallum Ltd.

Curtis Moorhouse, B.Sc.
Project Supervisor, Geotechnical and Geoenvironmental Services

PROFESSIONAL GEOSCIENTISTS
MAHABOOB ALAM
PRACTISING MEMBER
0692
Jan 31, 2022
ONTARIO

Mahaboob Alam, MSc, PhD, P.Geo.
Director
Discipline Head, Geoenvironmental and Hydrogeological Services

CM/MA:tc

TABLE 1

Summary of Samples Submitted for Chemical Analysis

Borehole	Sample No.	Approx. Depth (m)	Soil Description	Type of Chemical Analysis				Rationale
				Metals	ORPs	OCPs	pH, EC, SAR	
SOIL								
BH/MW 1	SS1	0.0 to 0.60	Silt	✓	✓	✓		To address APECs 1 – PCA Item No. 40 – Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications
BH/MW 1	SS4	2.30 to 2.90	Till	✓				
BH 2	SS2	0.80 to 1.40	Sand	✓		✓	✓	
BH 2	SS4	2.30 to 2.90	Till	✓				
BH/MW 3	SS1	0.0 to 0.60	Sand	✓	✓	✓		
BH/MW 3	SS2	0.80 to 1.40	Sand	✓			✓	
BH/MW 4	SS1	0.0 to 0.60	Sand			✓		
BH/MW 4	SS2	0.80 to 1.40	Till	✓	✓	✓		
BH/MW 4	SS4			✓			✓	
Dup 1	Duplicate of BH/MW 1 SS4			✓				QA/QC

Notes:
OCPs – Organochlorine Pesticides
ORPs – Other Regulated Parameters
EC – Electric Conductivity
SAR – Sodium Adsorption Ratio

TABLE 1

Summary of Samples Submitted for Chemical Analysis

Borehole	Screened Depth	Ground Water Description	Type of Chemical Analysis			Rationale
			Metals	ORPs	OCPs	
GROUND WATER						
BH/MW 1	Screened from 3.2 to 3.7 m	No sheen or odour noted	✓	✓	✓	To address APECs 1 – PCA Item No. 40 – Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications
BH/MW 3	Screened from 2.9 to 3.4 m	No sheen or odour noted	✓	✓	✓	
BH/MW 4	Screened from 3.2 to 3.7 m	No sheen or odour noted	✓	✓	✓	
TRIP BLANK	NA	NA	✓			---
FIELD BLANK	NA	NA	✓			---

Notes:
OCPs – Organochlorine Pesticides
ORPs – Other Regulated Parameters

TABLE 2

Summary of Ground Water Data

Location	Elevation of Ground Surface (m)	Screened Interval (m) (Elevations)	Lithology Screened	Depth to Ground Water (meters below ground surface/ elevation)	
				2021-Dec-17	2021-Dec-21
BH/MW 1	179.10	3.2 to 3.7 m 175.4 to 175.9	Sand and Silt Till	0.2 / 178.9	0.1 / 179.0
BH/MW 3	179.60	2.9 to 3.4 m 176.2 to 176.7	Sandy Silt Till	0.0 / 179.6	0.1 / 179.5
BH/MW 4	179.35	3.2 to 3.7 m 175.65 to 176.15	Sandy Silt Till	0.0 / 179.4	0.3 / 179.1

TABLE 3

Tabulated Percentage Differences Between the Original and Duplicate Soil Sample

Parameter	Limit of Quantitation (µg/g)	BH 1 SS4	BH 1 SS4 Duplicate	Percentage Differences (%)
		Analyte A in Test 1 (µg/g)	Analyte A in Test 2 (µg/g)	
SOIL				
Antimony	7.5	< 0.8	< 0.8	0
Arsenic	18	1.2	1.5	22.2
Barium	390	11	14	24
Beryllium	4	0.12	0.32	90.9
Boron (total)	120	5	5	0
Cadmium	1.2	< 0.05	0.27	137.5
Chromium Total	160	6.2	7.4	17.6
Cobalt	22	1.5	1.7	12.5
Copper	140	3.8	4.1	7.6
Lead	120	2.3	2.6	12.2
Molybdenum	6.9	0.2	0.2	0
Nickel	100	4.3	4.8	11.0
Selenium	2.4	< 0.7	< 0.7	0
Silver	20	< 0.05	< 0.05	0
Thallium	1	0.03	0.18	142.9
Uranium	23	0.4	0.44	9.5
Vanadium	86	7	7	0
Zinc	340	11	11	0

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:

CONSISTENCY	N (blows/0.3 m)	c (kPa)	DENSENESS	N (blows/0.3 m)
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		

WTLL	Wetter Than Liquid Limit
WTPL	Wetter Than Plastic Limit
APL	About Plastic Limit
DTPL	Drier Than Plastic Limit

TYPE OF SAMPLE

SS	Split Spoon	ST	Slotted Tube Sample
WS	Washed Sample	TW	Thinwall Open
SB	Scraper Bucket Sample	TP	Thinwall Piston
AS	Auger Sample	OS	Oesterberg Sample
CS	Chunk Sample	FS	Foil Sample
GS	Grab Sample	RC	Rock Core

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		

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE/MONITORING WELL NO. 1

17T 558774E 4929625N

PROJECT Proposed Townhouse Development - Cranberry Marsh Estates
LOCATION 11589 Highway 26, Collingwood, ON
BORING METHOD Continuous Flight Hollow Stem Augers
BORING DATE November 22, 2021
PML REF. 21BF201
ENGINEER GW
TECHNICIAN CM

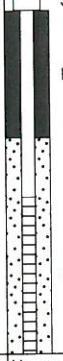
DEPTH (metres)	ELEV	DESCRIPTION	STRAT PLOT	SAMPLES NUMBER	TYPE	"N" VALUES	ELEVATION SCALE
0.05		SURFACE ELEVATION 179.10					
0.0	179.05	TOPSOIL: Dark brown, sand, trace silt, wet		1[1]	GS	20	179
0.70	178.40	SILT: Compact, brown, silt, some sand, very moist					
1.0		SAND AND SILT TILL: Very dense, brown to grey, sand and silt, trace clay, trace gravel, cobbles and boulders, wet to moist		2[1]	SS	54	178
2.0				3	SS	91/250 mm	177
				4[1]	SS	54	
3.0				5	SS	81/200 mm	176
3.7	175.4	BOREHOLE TERMINATED AT 3.7 m UPON REFUSAL TO AUGER					
4.0							
5.0							
6.0							
7.0							
8.0							
9.0							
10.0							
11.0							
12.0							
13.0							
14.0							
15.0							

SHEAR STRENGTH (kPa)
+FIELD VANE △TORVANE ○ Qu
▲POCKET PENETROMETER ● Q
50 100 150 200
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
20 40 60 80

PLASTIC LIMIT w_P | NATURAL MOISTURE CONTENT w | LIQUID LIMIT w_L
WATER CONTENT (%)
10 20 30 40

UNIT WEIGHT kN/m³

GROUND WATER OBSERVATIONS AND REMARKS
GRAIN SIZE DISTRIBUTION (%) GR SA SI&CL



Upon completion of augering
Water at 3.4 m
No cave
Water Level Readings:

Date	Depth(m)	Elev.
2021-12-17	0.2	178.9
2021-12-21	0.1	179.0

NOTES 1 - Sample submitted for chemical testing

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 2

17T 558800E 4929439N

PROJECT Proposed Townhouse Development - Cranberry Marsh Estates
PML REF. 21BF201
LOCATION 11589 Highway 26, Collingwood, ON
BORING DATE November 22, 2021
ENGINEER GW
BORING METHOD Continuous Flight Hollow Stem Augers
TECHNICIAN CM

DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES "N" VALUES	ELEVATION SCALE	SHEAR STRENGTH (kPa) +FIELD VANE △TORVANE ○ Qu ▲POCKET PENETROMETER ● Q / DYNAMIC CONE PENETRATION × STANDARD PENETRATION TEST ●	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L / WATER CONTENT (%)	UNIT WEIGHT kN/m³	GROUND WATER OBSERVATIONS AND REMARKS / GRAIN SIZE DISTRIBUTION (%) GR SA SI&CL
0.08	SURFACE ELEVATION 178.85						50 100 150 200 / 20 40 60 80	10 20 30 40		
178.77	TOPSOIL: Dark brown, sand, trace silt, wet		1[1]	GS	3					
	SAND: Very loose to loose, brown, sand to silty sand, trace organics, wet		2[1]	SS	9	178				First water strike at 0.9 m
1.4										
177.5	SANDY SILT TILL: Loose to very dense, grey, sandy silt, trace clay, trace to some gravel, cobbles and boulders, wet to moist		3	SS	5	177				
			4[1]	SS	53					
			5	SS	64	176				
3.7										
175.2	BOREHOLE TERMINATED AT 3.7 m UPON REFUSAL TO AUGER									Upon completion of augering Wet cave at 0.9 m

NOTES 1 - Sample submitted for chemical testing

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE/MONITORING WELL NO. 3

17T 558802E 4929441N

PROJECT Proposed Townhouse Development - Cranberry Marsh Estates
PML REF. 21BF201
LOCATION 11589 Highway 26, Collingwood, ON
BORING DATE November 22, 2021
ENGINEER GW
BORING METHOD Continuous Flight Hollow Stem Augers
TECHNICIAN CM

DEPTH / ELEV (metres)	DESCRIPTION	STRAT PLOT	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES "N" VALUES
0.08	SURFACE ELEVATION 179.60				
179.52	TOPSOIL: Dark brown, sand, trace silt, wet		1[1]	GS	6
	SAND: Loose to compact, brown, sand, trace silt, trace organics, wet		2[1]	SS	19
1.4					
178.2	SANDY SILT TILL: Compact to very dense, brown to grey, sandy silt, trace gravel, trace clay, cobbles and boulders, wet to moist		3	SS	28
			4[1]	SS	96/240 mm
			5	SS	50/130 mm
3.4					
176.2	BOREHOLE TERMINATED AT 3.4 m UPON REFUSAL TO AUGER				

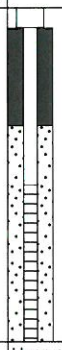
ELEVATION SCALE: 179, 178, 177

SHEAR STRENGTH (kPa)
+FIELD VANE △TORVANE ○ Qu
▲POCKET PENETROMETER ○ Q
50 100 150 200
DYNAMIC CONE PENETRATION ×
STANDARD PENETRATION TEST ●
20 40 60 80

PLASTIC LIMIT w_P | NATURAL MOISTURE CONTENT w | LIQUID LIMIT w_L
WATER CONTENT (%)
10 20 30 40

UNIT WEIGHT kN/m³

GROUND WATER OBSERVATIONS AND REMARKS
GRAIN SIZE DISTRIBUTION (%) GR SA SI&CL



Upon completion of augering
No water
No cave
Water Level Readings:

Date	Depth(m)	Elev.
2021-12-17	0.0	179.6
2021-12-21	0.1	179.5

NOTES 1 - Sample submitted for chemical testing

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE/MONITORING WELL NO. 4

17T 558810E 4929422N

PROJECT Proposed Townhouse Development - Cranberry Marsh Estates
PML REF. 21BF201
LOCATION 11589 Highway 26, Collingwood, ON
BORING DATE November 22, 2021
ENGINEER GW
BORING METHOD Continuous Flight Hollow Stem Augers
TECHNICIAN CM

DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES "N" VALUES	ELEVATION SCALE	SHEAR STRENGTH (kPa) / DYNAMIC CONE PENETRATION / STANDARD PENETRATION TEST	PLASTIC LIMIT / NATURAL MOISTURE CONTENT / LIQUID LIMIT / WATER CONTENT (%)	UNIT WEIGHT kN/m³	GROUND WATER OBSERVATIONS AND REMARKS / GRAIN SIZE DISTRIBUTION (%) GR SA SI&CL
	SURFACE ELEVATION 179.35									
0.20 / 179.15	TOPSOIL: Dark brown, sand, trace silt, wet		1[1]	GS	5	179				Stick-up casing Concrete
0.70 / 178.65	SAND: Loose, black, sand, trace silt, trace organics, wet									
	SANDY SILT TILL: Loose to very dense, brown to grey, sandy silt, trace clay, trace organics, cobbles and boulders, wet to moist		2[1]	SS	9	178				Bentonite seal
			3	SS	65					
			4[1]	SS	74	177				First water strike at 2.6 m 50 mm slotted pipe Filter sand
			5	SS	50/90 mm	176				
3.7 / 175.7	BOREHOLE TERMINATED AT 3.7 m UPON REFUSAL TO AUGER									Upon completion of augering Wet cave at 3.0 m

Water Level Readings:

Date	Depth(m)	Elev.
2021-12-17	0.0	179.4
2021-12-21	0.3	179.1

NOTES 1 - Sample submitted for chemical testing

HIGHWAY 26

BH/MW 1
EL. 179.10
▼ 179.0

BH 2
EL. 178.85

APEC 1 (PCA 40)

179.3

179.05

BH/MW 3
EL. 179.60
▼ 179.5

BH/MW 4
EL. 179.35
▼ 179.1

PCA 40 - Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications.

KEY PLAN
COLLINGWOOD, ONTARIO

LEGEND:

SITE LIMITS

BH/MW 1
EL. 179.10
179.0
BOREHOLE / MONITORING WELL LOCATION
SURFACE ELEVATION

BH 2
EL. 178.85
BOREHOLE LOCATION
SURFACE ELEVATION

INTERPRETED HYDROSATIC GROUND WATER LEVEL CONTOUR

INTERPRETED GROUND WATER FLOW DIRECTION

REFERENCE:

BASE PLAN PRODUCED USING
MINISTRY OF NATURAL RESOURCES AND FORESTRY
INTERACTIVE MAPPING

0m 20 40 60 80 100

BOREHOLE / MONITORING WELL LOCATION

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

11589 HIGHWAY 26

COLLINGWOOD, ONTARIO

Peto MacCallum Ltd.
CONSULTING ENGINEERS

		DATE	SCALE	PML REF.	DRAWING NO.
DRAWN	CM	JAN 2022	AS SHOWN	21BF201	3-1
CHECKED	MA				
APPROVED	MA				

APPENDIX A

Certificates of Chemical Analyses and Chain of Custody Records

FINAL REPORT

CA14389-NOV21 R

21BF201, Collingwood

Prepared for

Peto MacCallum Ltd

FINAL REPORT

CA14389-NOV21 R

First Page

CLIENT DETAILS		LABORATORY DETAILS	
Client	Peto MacCallum Ltd	Project Specialist	Brad Moore Hon. B.Sc
		Laboratory	SGS Canada Inc.
Address	165 Cartwright Ave Toronto, ON M6A 1V5. Canada	Address	185 Concession St., Lakefield ON, K0L 2H0
Contact	M. Alam	Telephone	705-652-2143
Telephone	416-785-5110	Facsimile	705-652-6365
Facsimile	416-785-5120	Email	brad.moore@sgs.com
Email	starafder@petomaccallum.com; malam@petomaccallum.com	SGS Reference	CA14389-NOV21
Project	21BF201, Collingwood	Received	11/24/2021
Order Number		Approved	11/30/2021
Samples	Soil (10)	Report Number	CA14389-NOV21 R
		Date Reported	11/30/2021

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: 022911

SIGNATORIES

Brad Moore Hon. B.Sc

TABLE OF CONTENTS

Client: Peto MacCallum Ltd
Project: 21BF201, Collingwood
Project Manager: M. Alam
Samplers: C Moorhouse

PACKAGE: **REG153 - Hydrides** (SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 3 - Residential/Parkland - UNDEFINED

				Sample Number	8	9	10	11	12	13	14	16
				Sample Name	BH1 SS1	BH1 SS4	BH1 SS4 Dup	BH2 SS2	BH2 SS4	BH3 SS1	BH3 SS2	BH4 SS2
				Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
				Sample Date	22/11/2021	22/11/2021	22/11/2021	22/11/2021	22/11/2021	22/11/2021	22/11/2021	22/11/2021
Parameter	**Units**	**RL**	**L1**		**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Hydrides												
Antimony	µg/g	0.8	7.5		< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8
Arsenic	µg/g	0.5	18		3.2	1.2	1.5	1.0	1.3	1.3	2.0	1.5
Selenium	µg/g	0.7	2.4		< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7

PACKAGE: **REG153 - Hydrides** (SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 3 - Residential/Parkland - UNDEFINED

				Sample Number	17
				Sample Name	BH4 SS4
				Sample Matrix	Soil
				Sample Date	22/11/2021
Parameter	**Units**	**RL**	**L1**		**Result**
Hydrides					
Antimony	µg/g	0.8	7.5		< 0.8
Arsenic	µg/g	0.5	18		1.6
Selenium	µg/g	0.7	2.4		< 0.7

PACKAGE: **REG153 - Metals and Inorganics** (SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 3 - Residential/Parkland - UNDEFINED

				Sample Number	8	9	10	11	12	13	14	15
				Sample Name	BH1 SS1	BH1 SS4	BH1 SS4 Dup	BH2 SS2	BH2 SS4	BH3 SS1	BH3 SS2	BH4 SS1
				Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
				Sample Date	22/11/2021	22/11/2021	22/11/2021	22/11/2021	22/11/2021	22/11/2021	22/11/2021	22/11/2021
Parameter	**Units**	**RL**	**L1**		**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Metals and Inorganics												
Moisture Content	%	-			11.9	5.8	5.8	21.0	14.5	20.9	15.5	22.2
Barium	µg/g	0.1	390		22	11	14	6.3	9.2	6.4	7.7	
Beryllium	µg/g	0.02	4		0.25	0.12	0.32	0.14	0.11	0.10	0.11	

Client: Peto MacCallum Ltd
Project: 21BF201, Collingwood
Project Manager: M. Alam
Samplers: C Moorhouse

PACKAGE: **REG153 - Metals and Inorganics**
(SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 3 - Residential/Parkland - UNDEFINED

	Sample Number	8	9	10	11	12	13	14	15	
	Sample Name	BH1 SS1	BH1 SS4	BH1 SS4 Dup	BH2 SS2	BH2 SS4	BH3 SS1	BH3 SS2	BH4 SS1	
	Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	
	Sample Date	22/11/2021	22/11/2021	22/11/2021	22/11/2021	22/11/2021	22/11/2021	22/11/2021	22/11/2021	
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Metals and Inorganics (continued)										
Boron	µg/g	1	120	6	5	5	3	4	3	3	
Cadmium	µg/g	0.05	1.2	< 0.05	< 0.05	0.27	0.07	< 0.05	< 0.05	< 0.05	
Chromium	µg/g	0.5	160	11	6.2	7.4	4.7	4.9	5.2	5.6	
Cobalt	µg/g	0.01	22	5.7	1.5	1.7	2.7	1.9	3.2	3.3	
Copper	µg/g	0.1	140	18	3.8	4.1	2.5	3.9	5.7	4.2	
Lead	µg/g	0.1	120	4.7	2.3	2.6	2.2	2.2	2.2	2.4	
Molybdenum	µg/g	0.1	6.9	0.2	0.2	0.2	0.1	0.1	0.1	0.1	
Nickel	µg/g	0.5	100	13	4.3	4.8	4.3	4.1	4.8	5.5	
Silver	µg/g	0.05	20	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
Thallium	µg/g	0.02	1	0.07	0.03	0.18	0.05	0.03	< 0.02	0.02	
Uranium	µg/g	0.002	23	0.37	0.40	0.44	0.18	0.33	0.18	0.41	
Vanadium	µg/g	3	86	13	7	7	6	6	7	8	
Zinc	µg/g	0.7	340	24	11	11	14	9.9	15	15	
Water Soluble Boron	µg/g	0.5	1.5	< 0.5					< 0.5		

Client: Peto MacCallum Ltd
Project: 21BF201, Collingwood
Project Manager: M. Alam
Samplers: C Moorhouse

PACKAGE: **REG153 - Metals and Inorganics**
(SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 3 - Residential/Parkland - UNDEFINED

			Sample Number	16	17
			Sample Name	BH4 SS2	BH4 SS4
			Sample Matrix	Soil	Soil
			Sample Date	22/11/2021	22/11/2021
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**
Metals and Inorganics					
Moisture Content	%	-		13.3	13.1
Barium	µg/g	0.1	390	11	11
Beryllium	µg/g	0.02	4	0.12	0.14
Boron	µg/g	1	120	4	4
Cadmium	µg/g	0.05	1.2	< 0.05	0.06
Chromium	µg/g	0.5	160	6.0	6.6
Cobalt	µg/g	0.01	22	3.1	2.3
Copper	µg/g	0.1	140	5.3	6.7
Lead	µg/g	0.1	120	2.6	2.4
Molybdenum	µg/g	0.1	6.9	0.1	0.2
Nickel	µg/g	0.5	100	5.9	5.3
Silver	µg/g	0.05	20	< 0.05	< 0.05
Thallium	µg/g	0.02	1	0.03	0.04
Uranium	µg/g	0.002	23	0.41	0.42
Vanadium	µg/g	3	86	9	10
Zinc	µg/g	0.7	340	14	14
Water Soluble Boron	µg/g	0.5	1.5	< 0.5	

Client: Peto MacCallum Ltd
Project: 21BF201, Collingwood
Project Manager: M. Alam
Samplers: C Moorhouse

PACKAGE: **REG153 - Organochlorine Pests (OCs)** (SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 3 - Residential/Parkland - UNDEFINED

	Sample Number	8	11	13	15	16		
	Sample Name	BH1 SS1	BH2 SS2	BH3 SS1	BH4 SS1	BH4 SS2		
	Sample Matrix	Soil	Soil	Soil	Soil	Soil		
	Sample Date	22/11/2021	22/11/2021	22/11/2021	22/11/2021	22/11/2021		
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**
Organochlorine Pests (OCs)								
Aldrin	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
alpha-Chlordane	µg/g	0.02		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
gamma-Chlordane	µg/g	0.02		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Chlordane (total)	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
o,p-DDD	µg/g	0.02		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
pp-DDD	µg/g	0.02		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
DDD (total)	µg/g	0.05	3.3	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
o,p-DDE	µg/g	0.02		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
pp-DDE	µg/g	0.02		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
DDE (total)	µg/g	0.05	0.26	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
op-DDT	µg/g	0.02		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
pp-DDT	µg/g	0.02		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
DDT (total)	µg/g	0.05	1.4	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
gamma-BHC	µg/g	0.01	0.056	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Endosulfan I	µg/g	0.02		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Endosulfan II	µg/g	0.02		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Endosulfan (total)	µg/g	0.04	0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Endrin	µg/g	0.04	0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Heptachlor	µg/g	0.01	0.15	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Heptachlor epoxide	µg/g	0.01	0.05	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Hexachlorobenzene	µg/g	0.01	0.52	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

Client: Peto MacCallum Ltd
Project: 21BF201, Collingwood
Project Manager: M. Alam
Samplers: C Moorhouse

PACKAGE: **REG153 - Organochlorine Pests (OCs)** (SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 3 - Residential/Parkland - UNDEFINED

Parameter	Units	RL	L1	Sample Number 8	11	13	15	16
				Sample Name: BH1 SS1	BH2 SS2	BH3 SS1	BH4 SS1	BH4 SS2
				Sample Matrix: Soil	Soil	Soil	Soil	Soil
				Sample Date: 22/11/2021	22/11/2021	22/11/2021	22/11/2021	22/11/2021
Organochlorine Pests (OCs) (continued)								
Hexachlorobutadiene	µg/g	0.01	0.012	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Hexachloroethane	µg/g	0.01	0.089	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Methoxychlor	µg/g	0.05	0.13	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

PACKAGE: **REG153 - Other (ORP)** (SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 3 - Residential/Parkland - UNDEFINED

Parameter	Units	RL	L1	Sample Number 8	11	13	14	16	17
				Sample Name: BH1 SS1	BH2 SS2	BH3 SS1	BH3 SS2	BH4 SS2	BH4 SS4
				Sample Matrix: Soil	Soil	Soil	Soil	Soil	Soil
				Sample Date: 22/11/2021	22/11/2021	22/11/2021	22/11/2021	22/11/2021	22/11/2021
Other (ORP)									
Mercury	ug/g	0.05	0.27	< 0.05		< 0.05		< 0.05	
Sodium Adsorption Ratio	No unit	0.2	5	< 0.2	< 0.2	6.5	0.4	0.6	0.3
SAR Calcium	mg/L	0.2		18.7	12.8	3.6	17.9	39.3	36.8
SAR Magnesium	mg/L	0.3		5.8	1.7	2.8	2.3	7.9	9.6
SAR Sodium	mg/L	0.1		3.4	2.6	67.2	7.3	15.5	7.4
Conductivity	mS/cm	0.002	0.7	0.17	0.10	0.44	0.15	0.38	0.34
pH	pH Units	0.05		7.72	7.66	7.74	7.65	7.78	7.73
Chromium VI	µg/g	0.2	8	< 0.2		< 0.2		< 0.2	
Free Cyanide	µg/g	0.05	0.051	< 0.05		< 0.05		< 0.05	

Client: Peto MacCallum Ltd
Project: 21BF201, Collingwood
Project Manager: M. Alam
Samplers: C Moorhouse

PACKAGE: **REG153 - Pesticides Surrogate** (SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 3 - Residential/Parkland - UNDEFINED

			Sample Number	8	11	13	15	16
			Sample Name	BH1 SS1	BH2 SS2	BH3 SS1	BH4 SS1	BH4 SS2
			Sample Matrix	Soil	Soil	Soil	Soil	Soil
			Sample Date	22/11/2021	22/11/2021	22/11/2021	22/11/2021	22/11/2021
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**
Pesticides Surrogate								
Surr Decachlorobiphenyl	Surr Rec %	-		121	110	113	113	117

PACKAGE: **REG153 - VOC Surrogates** (SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 3 - Residential/Parkland - UNDEFINED

			Sample Number	8	11	13	15	16
			Sample Name	BH1 SS1	BH2 SS2	BH3 SS1	BH4 SS1	BH4 SS2
			Sample Matrix	Soil	Soil	Soil	Soil	Soil
			Sample Date	22/11/2021	22/11/2021	22/11/2021	22/11/2021	22/11/2021
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**
VOC Surrogates								
Surr TCMX	Surr Rec %	-		111	108	107	103	115

EXCEEDANCE SUMMARY

Parameter	Method	Units	Result	REG153 / SOIL / COARSE - TABLE 3 - Residential/Parkland - UNDEFINED L1
BH3 SS1				
Sodium Adsorption Ratio	MOE 4696e01/EPA 6010	No unit	6.5	5

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	EWL0547-NOV21	mS/cm	0.002	<0.002	0	10	99	90	110	NA		
Conductivity	EWL0604-NOV21	mS/cm	0.002	<0.002	0	10	100	90	110	NA		
Conductivity	EWL0615-NOV21	mS/cm	0.002	<0.002	4	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	SKA5091-NOV21	µg/g	0.05	<0.05	ND	20	104	80	120	97	75	125

QC SUMMARY

Hexavalent Chromium by SFA

Method: EPA218.6/EPA3060A | Internal ref.: ME-CA-[ENVISKA-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	SKA5092-NOV21	ug/g	0.2	<0.2	ND	20	99	80	120	90	75	125

Mercury by CVAAS

Method: EPA 7471A/EPA 245 | Internal ref.: ME-CA-[ENVISPE-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	EMS0194-NOV21	ug/g	0.05	<0.05	ND	20	94	80	120	83	70	130

QC SUMMARY

Metals in aqueous samples - ICP-OES

Method: MOE 4696e01/EPA 6010 | Internal ref.: ME-CA-[ENV]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
SAR Calcium	ESG0081-NOV21	mg/L	0.2	<0.09	1	20	97	80	120	92	70	130
SAR Magnesium	ESG0081-NOV21	mg/L	0.3	<0.02	1	20	96	80	120	92	70	130
SAR Sodium	ESG0081-NOV21	mg/L	0.1	<0.15	7	20	97	80	120	88	70	130
SAR Calcium	ESG0092-NOV21	mg/L	0.2	<0.09	1	20	94	80	120	93	70	130
SAR Magnesium	ESG0092-NOV21	mg/L	0.3	<0.02	1	20	93	80	120	93	70	130
SAR Sodium	ESG0092-NOV21	mg/L	0.1	<0.15	2	20	94	80	120	93	70	130

QC SUMMARY

Metals in Soil - Aqua-regia/ICP-MS

Method: EPA 3050/EPA 200.8 | Internal ref.: ME-CA-[ENVISPE-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	EMS0194-NOV21	ug/g	0.05	<0.05	ND	20	94	70	130	112	70	130
Arsenic	EMS0194-NOV21	µg/g	0.5	<0.5	8	20	97	70	130	111	70	130
Barium	EMS0194-NOV21	ug/g	0.1	<0.1	8	20	93	70	130	82	70	130
Beryllium	EMS0194-NOV21	µg/g	0.02	<0.02	9	20	97	70	130	88	70	130
Boron	EMS0194-NOV21	µg/g	1	<1	14	20	93	70	130	79	70	130
Cadmium	EMS0194-NOV21	ug/g	0.05	<0.05	16	20	91	70	130	107	70	130
Cobalt	EMS0194-NOV21	µg/g	0.01	<0.01	9	20	95	70	130	111	70	130
Chromium	EMS0194-NOV21	µg/g	0.5	<0.5	9	20	97	70	130	116	70	130
Copper	EMS0194-NOV21	µg/g	0.1	<0.1	7	20	94	70	130	110	70	130
Molybdenum	EMS0194-NOV21	µg/g	0.1	<0.1	15	20	91	70	130	102	70	130
Nickel	EMS0194-NOV21	ug/g	0.5	<0.5	7	20	91	70	130	111	70	130
Lead	EMS0194-NOV21	µg/g	0.1	<0.1	9	20	102	70	130	97	70	130
Antimony	EMS0194-NOV21	µg/g	0.8	<0.8	ND	20	94	70	130	106	70	130
Selenium	EMS0194-NOV21	µg/g	0.7	<0.7	ND	20	95	70	130	96	70	130
Thallium	EMS0194-NOV21	µg/g	0.02	<0.02	13	20	94	70	130	92	70	130
Uranium	EMS0194-NOV21	µg/g	0.002	<0.002	11	20	95	70	130	NV	70	130
Vanadium	EMS0194-NOV21	µg/g	3	<3	10	20	97	70	130	114	70	130
Zinc	EMS0194-NOV21	µg/g	0.7	<0.7	6	20	92	70	130	110	70	130

QC SUMMARY

Pesticides

Method: EPA 3541/8270D | Internal ref.: ME-CA-[ENVIGC-LAK-AN-018

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
Aldrin	GCM0476-NOV21	µg/g	0.05	< 0.05	ND	40	107	50	140	94	50	140
alpha-Chlordane	GCM0476-NOV21	µg/g	0.02	< 0.02	ND	40	107	50	140	94	50	140
Dieldrin	GCM0476-NOV21	µg/g	0.05	< 0.05	ND	40	107	50	140	100	50	140
Endosulfan I	GCM0476-NOV21	µg/g	0.02	< 0.02	ND	40	110	50	140	100	50	140
Endosulfan II	GCM0476-NOV21	µg/g	0.02	< 0.02	ND	40	103	50	140	94	50	140
Endrin	GCM0476-NOV21	µg/g	0.04	< 0.04	ND	40	106	50	140	101	50	140
gamma-BHC	GCM0476-NOV21	µg/g	0.01	< 0.01	ND	40	109	50	140	96	50	140
gamma-Chlordane	GCM0476-NOV21	µg/g	0.02	< 0.02	ND	40	106	50	140	94	50	140
Heptachlor epoxide	GCM0476-NOV21	µg/g	0.01	< 0.01	ND	40	107	50	140	95	50	140
Heptachlor	GCM0476-NOV21	µg/g	0.01	< 0.01	ND	40	106	50	140	98	50	140
Hexachlorobenzene	GCM0476-NOV21	µg/g	0.01	< 0.01	ND	40	111	50	140	93	50	140
Hexachlorobutadiene	GCM0476-NOV21	µg/g	0.01	< 0.01	ND	40	105	50	140	77	50	140
Hexachloroethane	GCM0476-NOV21	µg/g	0.01	< 0.01	ND	40	97	50	140	65	50	140
Methoxychlor	GCM0476-NOV21	µg/g	0.05	< 0.05	ND	40	105	50	140	102	50	140
o,p-DDD	GCM0476-NOV21	µg/g	0.02	< 0.02	ND	40	106	50	140	95	50	140
o,p-DDE	GCM0476-NOV21	µg/g	0.02	< 0.02	ND	40	107	50	140	95	50	140
op-DDT	GCM0476-NOV21	µg/g	0.02	< 0.02	ND	40	102	50	140	92	50	140
pp-DDD	GCM0476-NOV21	µg/g	0.02	< 0.02	ND	40	103	50	140	96	50	140
pp-DDE	GCM0476-NOV21	µg/g	0.02	< 0.02	ND	40	107	50	140	94	50	140
pp-DDT	GCM0476-NOV21	µg/g	0.02	< 0.02	ND	40	98	50	140	94	50	140

QC SUMMARY

pH

Method: SM 4500 I Internal ref.: ME-CA-[ENV]EWL-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	ARD0123-NOV21	pH Units	0.05		0	20	100	80	120			

Water Soluble Boron

Method: O.Reg. 15 3/04 I Internal ref.: ME-CA-[ENV] 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	ESG0080-NOV21	µg/g	0.5	<0.5	ND	20	99	80	120	84	70	130

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

Samples analysed as received. 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" published by the Ministry and dated March 9, 2004 as amended.

-- End of Analytical Report --

Request for Laboratory Services and CHAIN OF CUSTODY

SGS Environment, Health & Safety - 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: 022911 Page ____ of ____

Laboratory Information Section - Lab use only

Received By: Majeed Almanlaw | Received By (signature): Majeed Almanlaw | Cooling Agent Present: Yes ☑ No ☐ Type: Ice packs
Received Date: NOV 24 2021 (mm/dd/yy) | Custody Seal Present: Yes ☐ No ☐ | Temperature Upon Receipt (°C): 7.8
Received Time: 10:55 (hr : min) | Custody Seal Intact: Yes ☐ No ☐ | LAB LIMS #: CA14389-Nov21

REPORT INFORMATION

Company: PETO MACCALLUM
Contact: C. MOORHOUSE/M. ALAM
Address: 19 CHURCHILL DR. BARRIE, ONT.
Phone: (705) 734-3900
Fax:
Email: CMoorhouse@petomaccallum.com

INVOICE INFORMATION

☐ (same as Report Information)
Company:
Contact:
Address:
Phone:
E-mail:

Quotation #: PML RATE
Project #: 21BF201
P.O. #:
Site Location/ID: Collingwood

TURNAROUND TIME (TAT) REQUIRED

☐ 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
RUSH TAT (Additional Charges May Apply): ☐ 1 Day ☐ 2 Days ☐ 3 Days ☑ 4 Days
PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION

Specify Due Date:
*NOTE: DRINKING (POTABLE) WATER SAMPLES FOR HUMAN CONSUMPTION MUST BE SUBMITTED WITH SGS DRINKING WATER CHAIN OF CUSTODY

REGULATIONS

☑ O.Reg 153/04 ☐ O.Reg 406/19
☐ Table 1 ☑ Res/Park Soil Texture: ☐ Coarse
☐ Table 2 ☐ Ind/Com ☐ Medium/Fine
☑ Table 3 ☐ Agri/Other
☐ Table ____ Appx. ____
Soil Volume ☐ <350m3 ☐ >350m3

Other Regulations: ☐ Reg 347/558 (3 Day min TAT) ☐ PWQO ☐ MMER ☐ CCME ☐ Other ☐ MISA ☐ ODWS Not Reportable *See note

Sewer By-Law: ☐ Sanitary ☐ Storm Municipality:

RECORD OF SITE CONDITION (RSC) ☐ YES ☐ NO

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX
1	BH1 SS1			2	Soil
2	BH1 SS4			1	
3	BH1 SS4 DUP			1	
4	BH2 SS2			2	
5	BH2 SS4			1	
6	BH3, SS1			2	
7	BH3, SS2			1	
8	BH4, SS1			1	
9	BH4, SS2			2	
10	BH4, ~~SS3~~ SS4			1	
11					
12					

	Field Filtered (Y/N)	M & I: Metals & Inorganics (incl CrVI, CN, Hg; pH, (B(HWS), EC, SAR-soil) (CL, Na-water))	M & I: Full Metals Suite (ICP metals plus B(HWS-soil only), Hg, CrVI)	M & I: ICP Metals only (Sb, As, Ba, Be, B, Cd, Cr, Co, Cu, Pb, Mo, Ni,	SVOC: PAHs only	SVOC: SVOCs (all incl PAHs; ABNs, CPs	PCB: PCBs Total ☐ Aroclor ☐	PHC: F1-F4 + BTEX	PHC: F1-F4 only (no BTEX	VOC: VOCs all incl BTEX	VOC: BTEX only	Pest: Pesticides (OC) Organochlorine or specify other	Other (please specify): PH, EC, SAR				Sewer Use: Specify pkg:	Water Characterization Pkg ☐ General ☐ Extended	SPLP: Specify tests ☐ Metals ☐ VOC ☐ 1,4-Dioxane ☐ OCP ☐ ABN	TCLP: Specify tests ☐ M&I ☐ VOC ☐ PCB ☐ B(a)P ☐ ABN ☐ Ignit.
1		✓		✓								✓							
2				✓															
3				✓															
4				✓								✓	✓						
5				✓															
6		✓										✓							
7				✓									✓						
8												✓							
9		✓										✓							
10				✓								✓	✓						
11																			
12																			

COMMENTS:

Observations/Comments/Special Instructions

Sampled By (NAME): C. Moorhouse | Signature: C. Moorhouse | Date: 11, 24, 21 (mm/dd/yy)
Relinquished by (NAME): C. Moorhouse | Signature: C. Moorhouse | Date: 11, 24, 21 (mm/dd/yy)

Pink Copy - Client
Yellow & White Copy - SGS

Revision # 13
Date of issue: 11 June 2021

FINAL REPORT

CA40651-DEC21 R

21BF201, Collingwood

Prepared for

Peto MacCallum Ltd

FINAL REPORT

CA40651-DEC21 R

First Page

CLIENT DETAILS		LABORATORY DETAILS	
Client	Peto MacCallum Ltd	Project Specialist	Jill Campbell, B.Sc.,GISAS
		Laboratory	SGS Canada Inc.
Address	19 Churchill Drive Barrie, ON L4N 8Z5. Canada	Address	185 Concession St., Lakefield ON, K0L 2H0
Contact	C. Moorhouse	Telephone	2165
Telephone	(705) 734-3900	Facsimile	705-652-6365
Facsimile	(705) 734-9911	Email	jill.campbell@sgs.com
Email	cmoorhouse@petomaccallum.com; malam@petomaccallum.cc	SGS Reference	CA40651-DEC21
Project	21BF201, Collingwood	Received	12/23/2021
Order Number		Approved	01/04/2022
Samples	Ground Water (5)	Report Number	CA40651-DEC21 R
		Date Reported	01/04/2022

COMMENTS

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

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: 015055

Endosulfan II, Endrin, Methoxychlor, op-DDD, op-DDT, pp-DDD, and pp-DDT LCS; Recovery is outside control limits; the overall quality control for this analysis has been assessed and was determined to be acceptable.

pp-DDT matrix spike; Recovery is outside control limits; the overall quality control for this analysis has been assessed and was determined to be acceptable.

SIGNATORIES

Jill Campbell, B.Sc.,GISAS

TABLE OF CONTENTS

Client: Peto MacCallum Ltd
Project: 21BF201, Collingwood
Project Manager: C. Moorhouse
Samplers: C Moorhouse

MATRIX: WATER

L1 = REG153 / GROUND WATER / COARSE - TABLE 3 - All Types of Property Uses - UNDEFINED

	Sample Number			7	8	9	10	11
	Sample Name			MW1	MW3	MW4	Field Blank	Trip Blank
	Sample Matrix			Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
	Sample Date			23/12/2021	23/12/2021	23/12/2021	23/12/2021	23/12/2021
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**
Hydrides								
Antimony	µg/L	0.9	20000	< 0.9	< 0.9	< 0.9	< 0.9	< 0.9
Arsenic	µg/L	0.2	1900	< 0.2	0.8	0.5	< 0.2	< 0.2
Selenium	µg/L	0.04	63	0.09	0.06	0.07	< 0.04	< 0.04
Metals and Inorganics								
Barium	µg/L	0.02	29000	100	79.1	39.3	9.03	7.98
Beryllium	µg/L	0.007	67	< 0.007	< 0.007	< 0.007	0.040	0.039
Boron	µg/L	2	45000	222	27	37	3	< 2
Cadmium	µg/L	0.003	2.7	0.013	0.014	0.031	< 0.003	< 0.003
Chromium	µg/L	0.08	810	0.12	0.16	0.17	0.11	< 0.08
Cobalt	µg/L	0.004	66	1.24	2.32	2.48	0.039	0.030
Copper	µg/L	0.2	87	1.3	1.1	1.0	1.7	0.6
Lead	µg/L	0.09	25	< 0.09	< 0.09	< 0.09	< 0.09	< 0.09
Molybdenum	µg/L	0.04	9200	1.09	0.68	0.72	0.11	< 0.04
Nickel	µg/L	0.1	490	2.8	6.9	6.3	0.2	< 0.1
Silver	µg/L	0.05	1.5	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Thallium	µg/L	0.005	510	0.017	0.009	0.008	< 0.005	< 0.005
Uranium	µg/L	0.002	420	1.38	2.68	1.72	< 0.002	0.002
Vanadium	µg/L	0.01	250	0.09	0.17	0.10	0.02	0.03
Zinc	µg/L	2	1100	6	5	6	3	< 2

Client: Peto MacCallum Ltd
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MATRIX: WATER

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	Sample Number		7	8	9	10	11
	Sample Name		MW1	MW3	MW4	Field Blank	Trip Blank
	Sample Matrix		Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
	Sample Date		23/12/2021	23/12/2021	23/12/2021	23/12/2021	23/12/2021
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**
Na								
Sodium	µg/L	10	2300000	39351	82647	125203	< 10	< 10
Organochlorine Pests (OCs)								
Aldrin	µg/L	0.01	8.5	< 0.01	< 0.01	< 0.01	---	---
a-chlordane	µg/L	0.01		< 0.01	< 0.01	< 0.01	---	---
g-chlordane	µg/L	0.01		< 0.01	< 0.01	< 0.01	---	---
Chlordane (total)	µg/L	0.02	28	< 0.02	< 0.02	< 0.02	---	---
o,p-DDD	µg/L	0.05		< 0.05	< 0.05	< 0.05	---	---
pp-DDD	µg/L	0.01		< 0.01	< 0.01	< 0.01	---	---
DDD (total)	µg/L	0.05	45	< 0.05	< 0.05	< 0.05	---	---
o,p-DDE	µg/L	0.01		< 0.01	< 0.01	< 0.01	---	---
pp-DDE	µg/L	0.01		< 0.01	< 0.01	< 0.01	---	---
DDE (total)	µg/L	0.01	20	< 0.01	< 0.01	< 0.01	---	---
op-DDT	µg/L	0.01		< 0.01	< 0.01	< 0.01	---	---
pp-DDT	µg/L	0.01		< 0.01	< 0.01	< 0.01	---	---
DDT (total)	µg/L	0.05	2.8	< 0.05	< 0.05	< 0.05	---	---
Dieldrin	µg/L	0.01	0.75	< 0.01	< 0.01	< 0.01	---	---
gamma-BHC	µg/L	0.01	1.2	< 0.01	< 0.01	< 0.01	---	---
Endosulfan I	µg/L	0.02		< 0.02	< 0.02	< 0.02	---	---
Endosulfan II	µg/L	0.05		< 0.05	< 0.05	< 0.05	---	---
Endosulfan (total)	µg/L	0.05	1.5	< 0.05	< 0.05	< 0.05	---	---
Endrin	µg/L	0.05	0.48	< 0.05	< 0.05	< 0.05	---	---
Heptachlor	µg/L	0.01	2.5	< 0.01	< 0.01	< 0.01	---	---

Client: Peto MacCallum Ltd
Project: 21BF201, Collingwood
Project Manager: C. Moorhouse
Samplers: C Moorhouse

MATRIX: WATER

L1 = REG153 / GROUND WATER / COARSE - TABLE 3 - All Types of Property Uses - UNDEFINED

	Sample Number			7	8	9	10	11
	Sample Name			MW1	MW3	MW4	Field Blank	Trip Blank
	Sample Matrix			Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
	Sample Date			23/12/2021	23/12/2021	23/12/2021	23/12/2021	23/12/2021
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**
Organochlorine Pests (OCs) (continued)								
Heptachlor epoxide	µg/L	0.01	0.048	< 0.01	< 0.01	< 0.01	---	---
Hexachlorobenzene	µg/L	0.01	3.1	< 0.01	< 0.01	< 0.01	---	---
Hexachlorobutadiene	µg/L	0.01	0.44	< 0.01	< 0.01	< 0.01	---	---
Hexachloroethane	µg/L	0.01	94	< 0.01	< 0.01	< 0.01	---	---
Methoxychlor	µg/L	0.01	6.5	< 0.01	< 0.01	< 0.01	---	---
Other (ORP)								
Mercury (total)	µg/L	0.01	0.29	< 0.01	< 0.01	< 0.01	---	---
pH	No unit	0.05		7.20	7.30	6.89	---	---
Chloride	µg/L	1000	2300000	76000	150000	450000	---	---
Chromium VI	µg/L	0.2	140	< 0.2	< 0.2	< 0.2	---	---
Cyanide (free)	µg/L	2	66	< 2	< 2	< 2	---	---
Pesticides Surrogate								
Surr Decachlorobiphenyl	Surr Rec %			88	84	89	---	---

Client: Peto MacCallum Ltd
Project: 21BF201, Collingwood
Project Manager: C. Moorhouse
Samplers: C Moorhouse

MATRIX: WATER

L1 = REG153 / GROUND WATER / COARSE - TABLE 3 - All Types of Property Uses - UNDEFINED

			Sample Number	7	8	9	10	11
			Sample Name	MW1	MW3	MW4	Field Blank	Trip Blank
			Sample Matrix	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
			Sample Date	23/12/2021	23/12/2021	23/12/2021	23/12/2021	23/12/2021
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**	**Result**	**Result**	**Result**
VOC Surrogates								
Surr TCMX	Surr Rec %	no		61	95	65	---	---

EXCEEDANCE SUMMARY

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

QC SUMMARY

Anions by discrete analyzer

Method: US EPA 325.2 I Internal ref.: ME-CA-IENVIEWL-LAK-AN-026

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
Chloride	DIO5067-DEC21	ug/L	1000	<1000	0	20	110	80	120	NV	75	125

Cyanide by SFA

Method: SM 4500 I 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
Cyanide (free)	SKA0274-DEC21	µg/L	2	<2	ND	10	93	90	110	89	75	125

Hexavalent Chromium by SFA

Method: EPA218.6/EPA3060A I 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	SKA0263-DEC21	ug/L	0.2	<0.2	ND	20	101	80	120	97	75	125

QC SUMMARY

Mercury by CVAAS

Method: SM 3112/SM 3112B | Internal ref.: ME-CA-[ENV]SPE-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 (total)	EHG0039-DEC21	ug/L	0.01	< 0.01	ND	20	94	80	120	105	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-IENVISPE-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	EMS0173-DEC21	ug/L	0.05	<0.05	ND	20	107	90	110	99	70	130
Arsenic	EMS0173-DEC21	µg/L	0.2	<0.2	6	20	103	90	110	109	70	130
Barium	EMS0173-DEC21	µg/L	0.02	<0.02	6	20	98	90	110	105	70	130
Beryllium	EMS0173-DEC21	µg/L	0.007	<0.007	15	20	100	90	110	107	70	130
Boron	EMS0173-DEC21	µg/L	2	<2	4	20	108	90	110	114	70	130
Cadmium	EMS0173-DEC21	µg/L	0.003	<0.003	6	20	106	90	110	115	70	130
Cobalt	EMS0173-DEC21	µg/L	0.004	<0.004	4	20	105	90	110	105	70	130
Chromium	EMS0173-DEC21	ug/L	0.08	<0.08	1	20	106	90	110	114	70	130
Copper	EMS0173-DEC21	ug/L	0.2	<0.2	4	20	105	90	110	107	70	130
Molybdenum	EMS0173-DEC21	ug/L	0.04	<0.04	3	20	105	90	110	109	70	130
Sodium	EMS0173-DEC21	ug/L	10	<0.01	4	20	106	90	110	107	70	130
Nickel	EMS0173-DEC21	µg/L	0.1	<0.1	1	20	105	90	110	99	70	130
Lead	EMS0173-DEC21	ug/L	0.09	<0.01	4	20	97	90	110	110	70	130
Antimony	EMS0173-DEC21	ug/L	0.9	<0.9	ND	20	103	90	110	119	70	130
Selenium	EMS0173-DEC21	µg/L	0.04	<0.04	1	20	105	90	110	113	70	130
Thallium	EMS0173-DEC21	µg/L	0.005	<0.005	3	20	96	90	110	110	70	130
Uranium	EMS0173-DEC21	µg/L	0.002	<0.002	2	20	95	90	110	125	70	130
Vanadium	EMS0173-DEC21	µg/L	0.01	0.001	5	20	103	90	110	121	70	130
Zinc	EMS0173-DEC21	µg/L	2	<0.002	4	20	106	90	110	NV	70	130

QC SUMMARY

Pesticides

Method: EPA 3510C/8270D | Internal ref.: ME-CA-[ENV]GC-LAK-AN-018

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
a-chlordane	GCM0488-DEC21	µg/L	0.01	< 0.01	ND	30	109	50	140	127	50	140
Aldrin	GCM0488-DEC21	µg/L	0.01	< 0.01	ND	30	99	50	140	102	50	140
Dieldrin	GCM0488-DEC21	µg/L	0.01	< 0.01	ND	30	113	50	140	131	50	140
Endosulfan I	GCM0488-DEC21	ug/L	0.02	< 0.02	ND	30	109	50	140	132	50	140
Endosulfan II	GCM0488-DEC21	ug/L	0.05	< 0.05	ND	30	118	50	140	143	50	140
Endrin	GCM0488-DEC21	ug/L	0.05	< 0.05	ND	30	124	50	140	153	50	140
g-chlordane	GCM0488-DEC21	µg/L	0.01	< 0.01	ND	30	109	50	140	126	50	140
gamma-BHC	GCM0488-DEC21	µg/L	0.01	< 0.01	ND	30	95	50	140	97	50	140
Heptachlor	GCM0488-DEC21	µg/L	0.01	< 0.01	ND	30	96	50	140	102	50	140
Heptachlor epoxide	GCM0488-DEC21	µg/L	0.01	< 0.01	ND	30	107	50	140	123	50	140
Hexachlorobenzene	GCM0488-DEC21	µg/L	0.01	< 0.01	ND	30	84	50	140	84	50	140
Hexachlorobutadiene	GCM0488-DEC21	µg/L	0.01	< 0.01	ND	30	76	50	140	75	50	140
Hexachloroethane	GCM0488-DEC21	µg/L	0.01	< 0.01	ND	30	76	50	140	75	50	140
Methoxychlor	GCM0488-DEC21	µg/L	0.01	< 0.01	ND	30	140	50	140	162	50	140
o,p-DDD	GCM0488-DEC21	µg/L	0.05	< 0.05	ND	30	119	50	140	143	50	140
o,p-DDE	GCM0488-DEC21	ug/L	0.01	< 0.01	ND	30	115	50	140	129	50	140
op-DDT	GCM0488-DEC21	µg/L	0.01	< 0.01	ND	30	126	50	140	146	50	140
pp-DDD	GCM0488-DEC21	µg/L	0.01	< 0.01	ND	30	125	50	140	148	50	140
pp-DDE	GCM0488-DEC21	µg/L	0.01	< 0.01	ND	30	114	50	140	132	50	140
pp-DDT	GCM0488-DEC21	µg/L	0.01	< 0.01	ND	30	142	50	140	171	50	140

QC SUMMARY

pH

Method: SM 4500 I Internal ref.: ME-CA-[ENV]EWL-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
pH	EWL0460-DEC21	No unit	0.05	NA	1		100			NA		
pH	EWL0491-DEC21	No unit	0.05	NA	0		100			NA		

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

Samples analysed as received. 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” published by the Ministry and dated March 9, 2004 as amended.

-- End of Analytical Report --

Request for Laboratory Services and CHAIN OF CUSTODY

SGS Environment, Health & Safety - 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: 015055 Page 1 of 1

Laboratory Information Section - Lab use only

Received By: B Cannon
Received Date: 12/22/21 (mm/dd/yy)
Received Time: 14:05 (hr : min)
Received By (signature):
Custody Seal Present: Yes ☐ No ☐
Custody Seal Intact: Yes ☐ No ☐
Cooling Agent Present: Yes ☑ No ☐ Type:
Temperature Upon Receipt (°C): 7.7.7
LAB LIMS #: CA40057-Dec21

REPORT INFORMATION

Company: Peto MacCallum Ltd.
Contact: C. Moorhouse / M. Alam
Address: 19 Churchill Dr. Barrie, ON
Phone: (705) 734-3900
Fax:
Email: C. moorhouse@petomaccallum.com

INVOICE INFORMATION

☒ (same as Report Information)
Company:
Contact:
Address:
Phone:
Email: m.alam@petomaccallum.com

Quotation #:
P.O. #:
Project #: 21BF201
Site Location/ID: Collingwood

TURNAROUND TIME (TAT) REQUIRED

☒ 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

RUSH TAT (Additional Charges May Apply): ☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 4 Days
PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION

Specify Due Date:

NOTE: DRINKING (POTABLE) WATER SAMPLES FOR HUMAN CONSUMPTION MUST BE SUBMITTED WITH SGS DRINKING WATER CHAIN OF CUSTODY

REGULATIONS

Regulation 153/04: ☐ Table 1 ☒ Res/Park ☐ Table 2 ☐ Ind/Com ☒ Table 3 ☐ Agri/Other ☐ Table ____ Soil Texture: ☐ Coarse ☐ Medium ☐ Fine

Other Regulations: ☐ Reg 347/558 (3 Day min TAT) ☐ PWQO ☐ MMER ☐ CCME ☐ Other: ☐ MISA

Sewer By-Law: ☐ Sanitary ☐ Storm Municipality:

RECORD OF SITE CONDITION (RSC) ☐ YES ☐ NO

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX	M&I: Field Filtered (Y/N)	M&I: Metals & Inorganics incl CrVI, CN,Hg pH,(B(HWS),EC,SAR–soil) (Cl, Na-water)	M&I: Full Metals Suite ICP metals plus B(HWS-soil only), Hg, CrVI	M&I: ICP Metals only Sb,As,Ba,Be,B,Cd,Cr,Co,Cu,Pb,Mo,Ni, Se,Ag,Tl,Li,V,Zn	SVOC: PAHs only	SVOC: SVOCs all incl PAHs, ABNs, CPs	PCB: PCBs Total ☐ Aroclor ☐	PHC: F1-F4 + BTEX	PHC: F1-F4 only no BTEX	VOC: VOCs all incl BTEX	VOC: BTEX only	Pest: Pesticides Organochlorine or specify other	Other (please specify)	Other (please specify)	Other (please specify)	Other (please specify)	Other (please specify)	Other (please specify)	Sewer Use: Specify pkg:	Water Characterization Pkg General ☐ Extended ☐	TCLP: Specify TCLP tests ☐M&I ☐VOC ☐PCB ☐B(a)P ☐ABN ☐Ignit.	COMMENTS:
1	MW1	Dec 23, 21	10:20am	7	GW	Y	X										X									
2	MW3	〃	9:50am	7	〃	Y	X										X									
3	MW4	〃	9:20am	7	〃	Y	X										X									
4	FIELD BLANK	〃	10:30am	1		Y			X																	
5	TRIP BLANK	〃	–	1		N			X																	
6																										
7																										
8																										
9																										
10																										
11																										
12																										

Observations/Comments/Special Instructions

Sampled By (NAME): C. Moorhouse Signature: Date: / / (mm/dd/yy)
Relinquished by (NAME): C. Moorhouse Signature: C Moorhouse Date: 12/23/21 (mm/dd/yy)

Pink Copy - Client
Yellow & White Copy - SGS

Revision #: 1.2
Date of Issue: 09 Sept, 2019

APPENDIX B

Statement of Limitations

STATEMENT OF LIMITATIONS

This report is prepared for and made available for the sole use of the client named. Peto MacCallum Ltd. (PML) hereby disclaims any liability or responsibility to any person or entity, other than those for whom this report is specifically issued, for any loss, damage, expenses, or penalties that may arise or result from the use of any information or recommendations contained in this report. The contents of this report may not be used or relied upon by any other person without the express written consent and authorization of PML.

This report shall not be relied upon for any purpose other than as agreed with the client named without the written consent of PML. It shall not be used to express or imply warranty as to the fitness of the property for a particular purpose. A portion of this report may not be used as a separate entity: that is to say the report is to be read in its entirety at all times.

The report is based solely on the scope of services which are specifically referred to in this report. No physical or intrusive testing has been performed, except as specifically referenced in this report. This report is not a certification of compliance with past or present regulations, codes, guidelines and policies.

The scope of services carried out by PML is based on details of the proposed development and land use to address certain issues, purposes and objectives with respect to the specific site as identified by the client. Services not expressly set forth in writing are expressly excluded from the services provided by PML. In other words, PML has not performed any observations, investigations, study analysis, engineering evaluation or testing that is not specifically listed in the scope of services in this report. PML assumes no responsibility or duty to the client for any such services and shall not be liable for failing to discover any condition, whose discovery would require the performance of services not specifically referred to in this report.

The findings and comments made by PML in this report are based on the conditions observed at the time of PML's site reconnaissance. No assurances can be made and no assurances are given with respect to any potential changes in site conditions following the time of completion of PML's field work. Furthermore, regulations, codes and guidelines may change at any time subsequent to the date of this report and these changes may effect the validity of the findings and recommendations given in this report.

The results and conclusions with respect to site conditions are therefore in no way intended to be taken as a guarantee or representation, expressed or implied, that the Site is free from any contaminants from past or current land use activities or that the conditions in all areas of the Site and beneath or within structures are the same as those areas specifically sampled.

Any investigation, examination, measurements or sampling explorations at a particular location may not be representative of conditions between sampled locations. Soil, ground water, surface water, or building material conditions between and beyond the sampled locations may differ from those encountered at the sampling locations and conditions may become apparent during construction which could not be detected or anticipated at the time of the intrusive sampling investigation.

STATEMENT OF LIMITATIONS

Budget estimates contained in this report are to be viewed as an engineering estimate of probable costs and provided solely for the purposes of assisting the client in its budgeting process. It is understood and agreed that PML will not in any way be held liable as a result of any budget figures provided by it.

The Client expressly waives its right to withhold PML's fees, either in whole or in part, or to make any claim or commence an action or bring any other proceedings, whether in contract, tort, or otherwise against PML in any way connected with advice or information given by PML relating to the cost estimate or Environmental Remediation/Cleanup and Restoration or Soil and Ground Water Management Plan Cost Estimate.

Environmental site assessment studies are performed in different phases by the application of different levels of effort and expense. The phase or phases in this report and the level of effort proposed for this assignment were based solely on PML's understanding of the client's needs as described in the scope of services contained in this report.

This assessment does not wholly eliminate uncertainty regarding the potential for existing or future costs, hazards or losses in connection with the subject property and must be viewed as a mechanism to reduce risk rather than eliminate the risk of contamination concerns.

The parties agree that PML cannot and does not warrant or represent that bids or negotiated prices will not vary from the Environmental Remediation/Cleanup and Restoration or Soil and Ground Water Management Plan Cost Estimate. The parties further agree that nothing in their agreement shall be deemed to be a cost condition or representation that the project cleanup can be completed for the amount of the Environmental Remediation/Cleanup and Restoration or Soil and Ground Water Management Plan Cost Estimate or any other amount.