PHASE TWO ENVIRONMENTAL SITE ASSESSMENT UPDATE
HALTON DISTRICT SCHOOL BOARD SURPLUS LAND ON STONEHAVEN DRIVE
5209 STONEHAVEN DRIVE
BURLINGTON, ONTARIO

for

MANTELLA CORPORATION

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Peto MacCallum Ltd.
CONSULTING ENGINEERS

May 11, 2016

PML Ref.: 17HX001
Report: 2

Mr. Franco Bilotta
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Dear Mr. Bilotta

Phase Two Environmental Site Assessment Update
Halton District School Board Surplus Land on Stonehaven Drive
5209 Stonehaven Drive
Burlington, Ontario

This report presents the results of a Phase Two Environmental Site Assessment (ESA) Update completed for a property located at 5209 Stonehaven Drive in Burlington, Ontario. Authorization to proceed with this project was provided by Mr. Bilotta (the 'Client') in email dated February 13, 2017, with a signed Engineering Services Agreement Change Order 2 dated April 6, 2017.

Included in this report are the findings of the Phase Two ESA Update and our conclusions and recommendations together with the appendices.

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

Sincerely

Peto MacCallum Ltd.

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DD:ld

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List of Abbreviations

Log of Monitoring Well Sheets BH/MW201 through BH/MW203

Log of Borehole Sheets BH301 through BH307

Drawing 2-1 – Site Plan

Drawing 2-2 – Current Land Uses in the Phase One ESA Study Area

Drawing 2-3 – Summary of PCAs and APECs

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Appendix A – Geoenvironmental Sampling & Analysis Plans

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1. EXECUTIVE SUMMARY

Peto MacCallum Ltd. (PML) has completed a Phase Two Environmental Site Assessment (ESA) Update for a property located at 5209 Stonehaven Drive in Burlington, Ontario. The Phase Two ESA Update property (referred to herein as the 'Site') covers an approximate plan area of 0.87 ha (2.1 ac.). The Site comprises the western portion of a larger parcel of land (referred to herein as the 'Property') which comprised surplus lands associated with the construction of John William Boich Public School located to the east at 2474 Sutton Drive in Burlington, Ontario. Authorization to proceed with this project was provided by Mr. Bilotta (the 'Client') in email dated February 13, 2017, with a signed Engineering Services Agreement Change Order 2 dated April 6, 2017.

PML understands that the Client is considering purchasing the Site for residential development. The appended Drawing 2-1 (Site Plan) illustrates the location of the Site involved in the study.

The Site is situated in an area of low density residential developments and has been used for agricultural purposes since at least 1877. The Site has comprised a mix of commercial and residential uses since site development and included a garden centre and hauling/trucking company. Since a change in property use from the most recent use (mixed residential and commercial) to residential use is planned, a Record of Site Condition (RSC) will be required in accordance with O. Reg. 153/04, as amended. In this regard, a Phase Two ESA Update completed in accordance with the O. Reg. 153/04, as amended and Schedule D of the Regulation was required.

Phase One ESA Update

PML completed the required Phase One ESA Update for the Site with the findings presented in our report, PML Ref.: 17HX001, Report 1, dated May 9, 2017.

The Site is situated in a developed area comprising residential, commercial and institutional uses, as shown in Drawing 2-2 (Current Land Uses in the Phase One ESA Study Area).

During the Phase One ESA Update, three on Site and nine off Site potentially contaminating activities (PCAs) were identified as contributing to four areas of potential environmental concern (APECs). Refer to the appended Table 13 for a detailed description of the APECs.

The on Site PCAs resulted from previously documented contamination (petroleum hydrocarbons (PHCs) and electrical conductivity (EC)) in the soil, and the possible presence of fill material and demolition debris from two former buildings.

The off Site PCA contributing to an APEC was an existing Canadian National Railway (CNR) located to the immediate west of the Site.

Contaminants of potential concern associated with these identified APECs include metals and Other Regulated Parameters (ORPs), PHC fractions F1 to F4, volatile organic compounds (VOCs) and/or polycyclic aromatic hydrocarbons (PAHs), which have the potential to impact soil and ground water at the Site.

Based on the above findings, a Phase Two ESA Update consisting of a program of soil and ground water sampling and chemical testing was recommended to address the potential for contaminants to exist within the various APECs.

Phase Two ESA Update

A Phase Two ESA Update was undertaken by PML and was completed in two stages.

Stage One involved drilling three (3) boreholes and installing three (3) ground water monitoring wells, soil and ground water sampling and chemical analysis, data compilation, and evaluation of the information.

Stage Two involved vertical and horizontal delineation which included drilling seven (7) additional boreholes, soil sampling and chemical analysis, data compilation, evaluation of the information gathered and preparation of this report.

Based on the findings of this Phase Two ESA Update and previous investigations, the chemical quality of the soil at the Site met the applicable Site Condition Standards (SCSs); namely the Table 2 (T2) residential/parkland/institutional (RPI) SCSs except for two locations. The ground water on Site met the applicable SCSs. A program of site remediation/cleanup will be required before a RSC can be prepared for the Site.

The soil contamination is located within two general areas on Site and includes PHCs as follows:

LOCATION	SAMPLE	PARAMETERS	SOIL TYPE
Area A, Refer to Drawing 2-4			
Borehole/ Monitoring Well 202 (Northeast portion of Site)	BH/MW202 SS2	PHC Fraction F3	Fill
Area B – Refer to Drawing 2-4			
Area 3 J3-2 (South-central portion of Site)	Area 3 J3-2	PHC Fraction F3	Fill

The contaminated soil is located within two areas (Areas A and B as shown on Drawings 2-4) as follows:

- Area A comprises an approximate 1,025 m^2 area of PHC Fraction F3 contamination in the fill material. The contamination extends to a depth of about 1.5 m.
- Area B comprises an approximately 615 m^2 area of PHC Fraction F3 contamination in the fill material. The contamination extends to a depth of 0.5 m.

The total estimated quantity of soil/fill which requires off Site disposal is 1,845 m^3 or 3,690 tonnes. This includes surface treatment such as pavement structures (pulverized asphalt and gravel).

This report is subject to the Statement of Limitations that is included with this report (Appendix C) and which must be read in conjunction with the report.

2. INTRODUCTION

Peto MacCallum Ltd. (PML) was retained by Mantella Corporation (the 'Client') to conduct a Phase Two Environmental Site Assessment (ESA) Update for a property located at 5209 Stonehaven Drive in Burlington, Ontario. The Phase Two ESA Update property (referred to herein as the 'Site') covers an approximate plan area of 0.87 ha (2.1 ac.). The Site comprises the western portion of a larger parcel of land (referred to herein as the 'Property') which comprised surplus lands associated with the construction of John William Boich Public School located to the east at 2474 Sutton Drive in Burlington, Ontario.

The appended Drawing 2-1 (Site Plan) illustrates the location of the Site involved in the study.

PML understands that the Client is considering purchasing the Site for residential development.

A Phase One ESA Update was recently completed for the Site with the findings presented in our report, PML Ref.: 17HX001, Report 1, dated May 9, 2017. Based on the findings of the Phase One ESA Update, a Phase Two ESA Update consisting of a program of soil and ground water sampling and chemical testing was recommended and completed concurrently to address the potential for contaminants to exist within the identified areas of potential environmental concern (APECs).

2.1 Site Description

The Site comprises an irregular shaped parcel covering an approximate plan area of 0.87 ha (2.1 ac.), as shown on Drawing 2-1. The Site is located along Dundas Street West and is currently accessible from Bird Boulevard and Stonehaven Drive. The Site is located on the north side of Stonehaven Drive, being about 110 m at its widest in the east-west direction, having a frontage of about 62 m along Stonehaven Drive and is about 103 m deep. The Site is currently vacant. The Property Identification Numbers (PINs) were provided as 07184-3075 (LT), 07184-2679 (LT), 07184-3074 (LT), 07184-3076 (LT) and 07184-2680 (LT).

The Site is situated within a recently developed portion of Burlington which is a primarily residential and commercial land use area with some institutional land uses as shown in Drawing 2-2 (Current Land Uses in the Phase One ESA Study Area).

2.2 Property Ownership

PML's contact information for the Site owner is as follows:

Mr. Domenico Renzella
Halton District School Board
J.W. Singleton Education Centre
2050 Guelph Line
Burlington, Ontario
L7R 3Z2
Email: renzellad@hdsb.ca

2.3 Current and Proposed Future Uses

Ontario Regulation 153/04 (O. Reg. 153/04), as amended is a provincial regulation enacted to provide detailed requirements that property owners must meet in order to file a Record of Site Condition (RSC). A RSC is a legal document filed on the Environmental Site Registry that certifies the environmental condition of the property meets the regulatory standards applicable for the proposed land use and contains information relating to the environmental status or condition of the property. The RSC Regulation details the requirements related to environmental site assessment, report contents, and Site remediation/clean up measures with or without Risk Assessment (RA) and Risk Management Measures. RSCs may be requested under a number of circumstances, such as a condition of financing or as a condition by the Municipality for the proposed development. A RSC is required as a condition of O. Reg. 153/04, as amended, when changing from a less sensitive land use to a more sensitive land use.

The Site has comprised a mix of commercial and residential uses since site development and included a garden centre and hauling/trucking company. Since a change in property use from the most recent use (mixed residential and commercial) to residential use is planned, a Record of Site Condition (RSC) will be required in accordance with O. Reg. 153/04, as amended. In this regard, a Phase Two ESA Update completed in accordance with the O. Reg. 153/04, as amended and Schedule E of the Regulation was required.

In accordance with the current regulatory requirements, all environmental site assessment work was carried out under the supervision of a Qualified Person as defined in O. Reg. 153/04, as amended.

2.4 Applicable Site Condition Standard

In order to determine the Site Sensitivity, Sections 41 and 43.1 of O. Reg. 153/04, as amended were evaluated by PML as described in Tables 1A and 1B, appended. The Site is not considered a Shallow Soil property nor within 30 m of a water body.

The Site is not serviced however surrounding properties are serviced by a municipal water supply. Potable water for the City of Burlington is supplied via a piped municipal distribution system from Lake Ontario surface water. According to the Ministry of the Environment and Climate Change (MOECC) online water well records, there were no drinking water wells identified on Site and eight drinking water wells identified within the Study Area.

The soil on Site generally comprised fill, sandy silt, silty clay/clayey silt till and/or sandy silt till.

Based on the above factors, PML selected the Generic Criteria of the O. Reg. 153/04, Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act dated April 15, 2011. In particular, the Table 2 (T2) Full Depth Generic SCSs in a Potable Ground Water condition for residential/parkland/intuitional (RPI) property use were considered applicable.

3. BACKGROUND INFORMATION

3.1 Physical Setting

The Site was not part of, or located adjacent to any water bodies or areas of natural significance.

According to the Ontario Base Map (OBM) data published in 2004, the topographic elevation of the Site was about 155.0 (metric, geodetic). The closest water body was Bronte Creek located about 350 m east of the Site, and Sheldon Creek located about 1 km southwest of the Site. The Site grades generally match the grades of adjacent properties to the east and south. To the west of the Site, the grade slopes down toward the CNR and to the north of Site, the grade slopes up towards Dundas Street West. Based on Bedrock Topography Map 2034 and MOECC water well records, bedrock comprising red shale of the Queenston Formation was encountered at depths of 0.3 to 12.0 m below grade in the area. Regional ground water flow is expected to be generally toward the south towards Lake Ontario. Surface drainage at the Site comprises overland flow into municipal storm sewers on Orchard Road and Stonehaven Drive, which eventually drain into

tributaries of Bronte Creek and Sheldon Creek which eventually drain into Lake Ontario. Local variations in ground water flow patterns however can be expected due to buried utility infrastructures.

3.2 Past Investigations

Historical use of the Site comprised agricultural use transitioning to residential use and culminating in the most recent mixed residential and commercial use as a garden centre and hauling/trucking company. The Site was acquired by the HDSB in 2006 and has been vacant since that time.

Previous ESA work at the Site was undertaken by PML and others from 1999 through to Site remediation activities completed under the supervision of PML in 2014. ESA work was generally completed for the Property as a whole and did not focus specifically on the Site. Previous environmental investigation reports for the Site and surrounding properties were made available for this assignment by the Halton District School Board (HDSB), or obtained from PML's archived files. Refer to the Phase One ESA Update for a list of the previous ESA reports.

Based on the results of the Phase One and Two ESA, the 2014 remediation activities at the Site comprised excavation and off Site disposal of soil which did not meet the applicable O. Reg. 153/04, as amended Ministry of the Environment and Climate Change (MOECC) Site Condition Standards (SCSs). Following Site remediation activities samples from two areas of the Site continued to show exceedances of the SCSs. One of these areas, located below a former topsoil stockpile exhibited elevated levels of electrical conductivity (EC) and the other exhibited exceedances of petroleum hydrocarbons (PHCs).

It was PML's opinion that the elevated EC levels were a result of runoff and overspray of de-icing salt used along the roadway (Dundas Street/Highway 5). Under O. Reg. 153/04, as amended, where a SCS is exceeded solely because a substance has been used on a highway for purposes of keeping traffic safe under conditions of snow and ice, the applicable site condition standard is deemed not to be exceeded. Reference is made to O. Reg. 153/04 (as amended), s. 48 (3) and O. Reg. 339 s. 2 for a full outline of the regulations regarding soils impacted by de-icing salt. In this regard, it was PML's opinion that no further action to address this matter is required for RSC filing.

During the course of ESA work at the Site, widespread use of pulverized asphalt/road millings was noted as having been used on Site for roadways. The material was noted both at the ground surface and in some areas buried beneath soil fill. The upper layers of soil underlying the asphalt contained sporadic inclusions of asphalt. It was PML's opinion the elevated PHC concentrations were due to the presence of asphalt material within the soil/fill material samples. In this regard, the asphalt material would require excavation and off site recycling/disposal, including disposal of some of the underlying soils which contain asphalt inclusions.

4. SCOPE OF INVESTIGATION

4.1 Overview of Site Investigation

The Phase Two ESA Update, consisting of a soil and ground water sampling and chemical testing program, was conducted for the Site in order to check for surface and/or subsurface impacts as a result of APEC 1 to APEC 4.

The Phase Two ESA Update was completed in two stages.

Stage One involved drilling three (3) boreholes and installing three (3) ground water monitoring wells, soil and ground water sampling and chemical analysis, data compilation, and evaluation of the information gathered.

Stage Two involved vertical and horizontal delineation which included hand augering seven (7) additional boreholes soil sampling and chemical analysis, and data compilation.

The scope of work for this assignment included:

- Drilling boreholes,
- Installing ground water monitoring wells,
- Ground water level monitoring,
- Soil and ground water sampling,
- Chemical analysis of soil and ground water samples,
- Data compilation and evaluation of the information gathered, and
- Preparation of this report, discussing the information compiled and the corresponding conclusions and recommendations.

4.2 Media Investigated

Based on the Phase One ESA, the media potentially impacted at the Site included soil and ground water which were investigated as part of this Phase Two ESA Update through ten (10) boreholes, and three (3) monitoring wells. No sediment was present.

4.3 Phase One Conceptual Site Model

Based on the review, interpretation and evaluation of the data compiled, a Phase One Conceptual Site Model (CSM) of the Phase One ESA property was prepared and included in the Phase One ESA report. The additional information acquired as part of the Phase Two ESA Update was used to update the CSM, which is revised and provided in Section 6.10 of this report.

4.4 Deviations from Sampling and Analysis Plan

A copy of the Geoenvironmental Sampling and Analysis Plan for Stages One and Two are included in Appendix A.

There were no deviations from the sampling and analysis plan.

4.5 Impediments

At the location of BH301, BH302 and BH304 during Stage Two, PML moved the original borehole locations further north, west and south, respectively due to difficult hand augering conditions.

5. INVESTIGATION METHOD

5.1 General

The field work for this assessment included borehole drilling, monitoring well installation, and soil and ground water sampling.

The field work for Stage One of the Phase Two ESA Update comprised 3 boreholes (BH) and the installation of three (3) monitoring wells (BH/MW201 to BH/MW203), completed on February 23, 2017 and drilled to depths of 5.4 to 6.2 m below grade. The boreholes were strategically located on Site in relation to the APECs identified during the Phase One ESA Update.

The field work for Stage Two of the Phase Two ESA Update comprised seven (7) boreholes (BH301 to BH307), completed on March 28 and 30, 2017 and drilled to depths of 0.8 to 1.8 m below grade. The boreholes were strategically located to attempt to vertically and horizontally delineate soil contamination which was identified during Stage One of the Phase Two ESA Update and during a previous 2014 remediation program.

Refer to Drawing 2-3 for the Summary of potentially contaminating activities (PCAs) and areas of potential environmental concern (APECs).

The borehole and monitoring well locations (BH/MW201 through BH/MW203, BH301 to BH307) were established in the field by PML as shown on Drawing 2-4, appended.

5.2 Drilling

The boreholes and monitoring wells for Stage One of the Phase Two ESA Update were advanced using continuous flight solid stem augers powered by a track mounted CME 55 drill rig, supplied and operated by a specialist drilling contractor (Davis Drilling), working under the full time supervision of a PML technical staff member.

The boreholes for Stage Two of the Phase Two ESA Update were completed using a hand auger and operated by a PML technical staff member.

Appropriate precautions were taken and equipment and sampling tools decontamination was carried out during field work to minimize potential cross-contamination between samples and boreholes.

PML understands the drilling contractor (Davis Drilling) precleaned a set of solid stem augers and tools prior to arriving on Site. The drilling contractor cleaned the split spoon samplers prior to and between taking samples by scrubbing with a wire brush and washing in a solution of Alconox soap. The sample spoons were then rinsed with distilled water. PML cleaned the hand auger with Alconox soap and water between each borehole location.

During the field work for Stage One and Two of the Phase Two ESA Update, soil samples in the boreholes and/or monitoring wells completed by Davis Drilling were generally collected at near continuous depth intervals of every 0.8 m (2.5 ft.). Soil samples in the boreholes completed by PML were collected at continuous depth intervals.

5.3 Soil: Sampling

During the field work, soil samples in the boreholes were collected in split spoon samplers or from the augers. The soil samples were field logged and examined for geoenvironmental classification, placed in laboratory provided airtight amber glass containers and/or vials containing methanol preservative and stored in an insulated cooler with ice for transportation to our laboratory for additional examination. As well, a portion of each sample was placed in a sealed plastic bag for vapour screening. Particular attention was applied to visual and olfactory evidence of potential contamination such as odours and staining during the course of the field work.

The soil sampling and sample handling procedures were carried out according to the supporting documents of O. Reg. 153/04, as amended and established standards.

5.3.1 Summarized Subsurface Conditions

Reference is made to the appended Drawing 2-4, Drawing 2-5, Log of Monitoring Well Sheets BH/MW201 through BH/MW203, and Log of Borehole Sheets BH301 to BH307 for details of the field work including sampling locations, visual soil classification, standard penetration test N values (where applicable), dynamic penetration test values (where applicable), inferred stratigraphy, soil vapour concentrations, ground water observations and monitoring well installation details.

Due to 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. As well, topsoil thicknesses reported herein should not be relied upon for quantity estimations.

The pavement structure at grade on the road at Bird Boulevard and Stonehaven Drive comprised asphalt overlying crushed limestone granular base. The remainder of the boreholes and monitoring wells generally comprised topsoil overlying fill (sandy silt, sand, silty clay, clayey silt), underlain by native clay and/or silt till.

5.3.1.1 Pavement Structure

At the location of BH/MW203, was 150 mm of asphalt. Grey crushed limestone fill was encountered below the asphalt and was penetrated at a depth of 650 mm.

5.3.1.2 Topsoil

At the location of BH/MW201, was dark brown clayey silt topsoil up to a depth of 0.20 m below grade. At the location of BH/MW202 and BH301 to BH307, was a dark brown sandy silt/clayey silt/silty clay topsoil fill that was encountered up to depths of 0.1 to 0.6 m below grade.

At the location of BH301 and BH303, occasional to numerous red brick fragments were encountered

5.3.1.3 Fill

Fill was noted at the location of BH/MW202 and BH301 to BH307 and was penetrated at depths of 0.4 to 1.4 m and comprised sandy silt, sand and/or clayey silt.

At the location of BH/MW202 the fill comprised occasional black asphalt fragments and at the location of BH301 were numerous red brick fragments. At the location of BH303 and BH307 were occasional asphalt and red brick fragments.

5.3.1.4 Clay and Silt Till

Below the fill and topsoil were layers of clay till and silt till with occasional layers of sandy silt and clayey silt in some of the boreholes. The native soil was contacted at depths of 0.2 to 1.4 m below grade and extended to the termination depth of the boreholes (0.8 to 6.2 m).

5.4 Field Screening Measurements

Soil samples were not screened in the field, however following completion of the field work, the soil samples were transported back to the PML laboratory where soil vapour concentrations (SVCs) were measured in the headspace of those samples that had sufficient recovery. The bagged soil samples were screened using a RKI Eagle Portable Gas Detector. The RKI Eagle detects a combination of combustible gases in parts per million (ppm) and was utilized with the methane response in the off position (to exclude methane). The accuracy of the RKI Eagle Portable Gas Detector is +/- 2% and the equipment is regularly calibrated using hexane by Argus-Hazco.

There are no regulatory criteria for soil vapours; however, soil vapours are often used as a screening tool to identify PHC impacted soils. Elevated SVCs, typically in the percent of lower explosive limit (LEL) range, are generally indicative of the presence of volatile products, such as gasoline or chlorinated degreasing solvents, and to a lesser extent diesel and fuel oil.

The correlation between combustible vapour concentrations and PHCs in soil is highly dependent on the soil type, moisture content and characteristics of the contaminant of concern. The results of the screening are used as a tool in establishing relative SVCs among samples and borehole locations.

5.5 Ground Water: Monitoring Well Installation

Upon completion of the drilling, ground water monitoring well BH/MW201, BH/MW202 and BH/MW203 were installed using clean 50 mm diameter screened and solid PVC Schedule 40 pipe. All wells were installed with well gravel, bentonite, caps, j-plugs, well points and flush mount or stick-up well protectors. The wells were installed to depths of 5.3 to 6.0 m, and were screened at the bottom over a length of 3.0 m. 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) followed by a bentonite seal and well protector set in concrete. The details of the monitoring well construction are shown on the appended Log of Borehole and Monitoring Well sheets. A well record was provided by the licensed well contractor and will be kept on file for future reference in accordance with O. Reg. 903/90, amended to O. Reg. 372/07.

Water levels were measured on February 23 and 24, 2017 using a Solinst™ ground water level reader. Development/purging of the wells was completed on February 24, 2017 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 is summarized below:

Monitoring Well ID	Time of Purging and Development	Total Volume of Water Removed (L)
February 24, 2017		
BH/MW201	10:10 a.m. – 10:20 a.m.	19
BH/MW202	9:50 a.m. – 10:05 a.m.	17
BH/MW203	9:15 a.m. – 9:40 a.m.	30

In an effort to minimize potential cross-contamination dedicated Waterra™ bailers or Waterra™ tubing was used on the ground water wells. The above equipment was used with new nitrile gloves for each well. Waterra™ filters were used only when sampling for metals, hexavalent chromium and mercury.

The Solinst™ water level meter (P2/20m) was cleaned between uses at each monitoring well location.

The presence of LNAPL and DNAPL was not visually observed at the monitoring well locations.

5.6 Ground Water: Field Measurements of Water Quality Parameters

Measuring of water quality indicator parameters such as pH, conductivity, turbidity, dissolved oxygen (DO), temperature and oxidation reduction potential (ORP) was not part of the scope of work.

5.7 Ground Water: Sampling

During Stage One, ground water samples were collected from the three monitoring wells (BH/MW201 through BH/MW203) on February 24, 2017, after well development and purging, using dedicated sampling equipment.

The ground water samples were field logged and placed in clean, laboratory provided bottles, stored in an insulated cooler on ice and returned to our laboratory where the samples were temporarily preserved in a fridge to maintain a cool environment until they were picked up by AGAT Laboratories Limited. Particular attention was applied to visual and olfactory evidence of potential contamination such as odours and sheens during the course of the field work.

The ground water sampling and sample handling procedures were carried out according to the supporting documents of O. Reg. 153/04, as amended and established standards.

5.8 Sediment Sampling

No surface water bodies, creeks, ditches or ponds were observed on Site; therefore sediment sampling was not conducted.

5.9 Analytical Testing

Selected soil and ground water samples were submitted for chemical analysis to AGAT Laboratories Limited (AGAT), a Canadian Association for Laboratory Accreditation Inc. (CALA) accredited laboratory in Mississauga, Ontario. The chemical analysis conducted by AGAT were in accordance with the O. Reg. 153/04 Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act dated March 9, 2004, amended as of July 1, 2011.

It is noted that during Stage Two, samples on the AGAT chain of custody were initially labelled as TP201 to TP207, however the sample identifications were changed to BH301 to BH307, and the grab samples (GS) was changed to auger samples (AS).

The rationale for sample selection during Stage One was based on visual and olfactory evidence of potential contamination, APECs 1 to 4 and general coverage requirements. Sample selection during Stage Two was based on vertical and horizontal delineation of contamination identified during Stage One and of a previously identified exceedance.

The soil samples were analyzed for the contaminants of concern (COC), namely metal and inorganic ORPs, PHC Fractions F1 to F4, VOCs, PCBs and/or PAHs.

In addition as part of Stage One, one representative sample of the soil to be removed from the Site was submitted for testing in accordance with O. Reg. 347, Schedule 4, as amended, for Toxicity Characteristic Leaching Procedure (TCLP). The sample was analyzed for metals and inorganics, ignitability, VOCs and PCBs. TCLP testing classifies a material for landfill disposal purposes.

The ground water samples were analyzed for metal and inorganic ORPs, PHC Fractions F1 to F4, VOCs and/or PAHs.

A summary listing of all soil and ground water samples submitted for analysis is included as Table 2, appended.

5.10 Residue Management Procedures

Soil cuttings from drilling operations were placed into one 205 L steel drum on Site. Ground water from development and purging of the wells, and fluids from equipment cleaning were placed into three 20L pails on Site. Pending the results of the chemical analysis, the soil and ground water residue may be disposed of off Site by a licensed contractor.

5.11 Elevation Surveying

The borehole and monitoring well locations were selected and established in the field by PML. Ground surface elevations and UTM co-ordinates at the borehole locations were determined by PML. The following benchmark (BM) was used for vertical reference:

BM: Top of Sanitary Manhole at Corner of Stonehaven Drive and Orchard Road.
Elevation: 155.03 (metric, geodetic)

5.12 Quality Assurance and Quality Control Measures

Soil samples were field logged and examined for geoenvironmental classification, placed in laboratory provided airtight amber glass containers with Teflon® lined lids and stored in an insulated cooler for transportation to our laboratory for additional examination. Soil samples analyzed for VOCs or PHC Fraction F1 were preserved in methanol in laboratory provided septum vials using a Terra Core® sub-sampler. As well, a portion of each soil sample was placed in a sealed plastic bag for later vapour screening.

Ground water samples were also placed in laboratory provided containers. Samples analyzed for metals, hexavalent chromium and mercury were field filtered. Samples analyzed for VOCs and PHC Fraction F1 were placed in septum vials with Teflon® lined lids with zero head space. The following details the container types and preservatives for the ground water analytes sampled for:

Ground Water Analyte Group	Container Type	Preservative
PHC Fraction F1/BTEX and VOCs	6 - 40 ml Amber Vials	$NaHSO_4$
PHC Fraction F2 – F4	1 – 1L Amber Glass Bottle	HCl
Metals (field filter)	1 - 120 ml Plastic Bottle	HNO_3
Chromium VI (field filter)	1 - 120 ml Plastic Bottle	NaOH
Cyanide	1 - 120 ml Plastic Bottle	NaOH
Mercury (field filter)	1 - 120 ml Amber Glass Bottle	HCl
Various Inorganics	1 - 500 ml Plastic Bottle	None
PAHs	1 - 1L Amber Glass Bottle	None

Soil sample containers were labelled in the field with permanent marker by indicating the borehole, sample and project numbers and were cross referenced to the borehole logs. Ground water sample containers were pre-labelled from the laboratory based on the borehole/monitoring from which they were sampled from.

The drilling contractors precleaned a set of hollow or solid stem augers and/or tools prior to arriving on-site. PML cleaned the solid stem auger between boreholes. The drilling contractor cleaned the split spoon samplers which were decontaminated prior to and between taking samples by scrubbing with a wire brush and washing in a solution of Alconox soap. The sample spoons were then rinsed with distilled water. In an effort to minimize potential cross-contamination dedicated Waterra™ bailers with new nitrile gloves were used for each well. The Solinst™ ground water level reader was cleaned with distilled water between uses at each monitoring well location.

Field quality control records were maintained through the use of borehole log sheets, field logbooks, sample labels and chain of custody records. Field logbooks and borehole log sheets were maintained by technical staff to record data collection and sampling activities. The equipment used to collect samples was noted, along with the time of sampling, sampling description, depth from which the samples were collected, volume and number of containers. In addition, all samples were accompanied by a properly completed chain of custody record, which listed the sample identification, sample dates and time, sample matrix, the number of containers, and analytical parameters for which the samples are to be tested (included in Appendix B).

Since the quality of data depends upon planning, sampling, analysis and reporting, duplicate soil and ground water samples were analyzed for Quality Assurance/Quality Control (QA/QC) purposes. In addition to the equipment and sampling tools decontamination procedures described above, the field QC measures consisted of the following:

- As a means of determining the reproducibility or variability related to analytical procedures and sample homogeneity, the percentage differences between analyzed values for original and duplicate samples were calculated.
- A trip blank ground water sample was obtained from AGAT and kept on Site during the day of sampling and was sent to AGAT for VOC analysis.

The laboratory analytical methods consisted of the following:

- Soil and ground water samples were analysed by using standard reference methods and the testing methods were referenced in AGAT certificate of analysis (Appendix B) as required by the MOE's protocol. Method blank, spiked method blank, laboratory spiked and duplicate soil and ground water samples were analysed with each batch of soil and ground water samples.
- A table of analytical data indicating parameters, estimated quantitation limit, corrected quantitation limit for dilute samples, percentage recovery, range of lower and upper limits was reported in AGAT certificate of analysis (Appendix B).

6. REVIEW AND EVALUATION

6.1 Geology

A brief summary of the subsurface conditions encountered at the Phase Two ESA Update property is presented below. Detailed borehole logs are appended. The boreholes were advanced to depths ranging from 0.8 to 6.2 m below grade. The pavement structure at grade on the road at Bird Boulevard and Stonehaven Drive comprised asphalt overlying crushed limestone granular base. The remainder of the boreholes and monitoring wells generally comprised topsoil overlying fill (sandy silt, sand, silty clay, clayey silt), underlain by native clay and/or silt till. At the location of BH/MW202 the fill comprised occasional black asphalt fragments and at the location of BH301 were numerous red brick fragments. At the location of BH303 and BH307 were occasional asphalt and red brick fragments.

The following is a summary of the general unit thicknesses and corresponding elevations on Site:

Approx. Depth (m)	Approximate Elevation (m)[1]	Geologic Unit
0.0 to 0.1	156.1 to 156.0	Topsoil Fill: Sandy silt
0.1 to 0.7	156.0 to 155.3	Fill: Sandy silt, gravelly sand
0.7 to 6.2	155.3 to 149.9	Native sandy silt till and/or clay till

Note [1]: Based on BM elevation 156.1 (metric, geodetic).

6.2 Ground Water: Elevations and Flow Direction

Based on the ground water conditions noted during drilling, the wells (BH/MW201 through BH/MW203) were installed within the till to depths of 5.3 to 6.0 m (elevation 151.3 to 150.1). The wells were screened at the bottom over a length of 3.0 m to intersect the water table to ensure recovery of ground water located within the overburden aquifer.

Ground water levels were recorded in monitoring wells on February 23 and 24, 2017. The geodetic elevation of the ground surface were determined in the field, and ground water level measurements using a Solinst® water level meter (P2/20m) were taken by measuring to the surface of the ground water from the top of the well casing with the necessary corrections made to establish depths below grade.

Ground water conditions were noted during and upon completion of drilling. Reference is made to the appended Log of Borehole sheets, Log of Monitoring Well sheets, Drawing 2-5 (Ground Water Elevation Plan), and Table 3 for details of ground water observations.

Stabilized ground water levels were at about elevations 154.6 to 155.2. Based on this information, the ground water in the till aquifer underlying the Site flows to the north/northwest. Regional ground water flow is expected to be generally toward the south towards Lake Ontario.

Ground water levels are subject to seasonal fluctuations and variations in precipitation. Underground utilities at the Site may interact with the ground water in the native silt till due to the depth of the ground water (between 1.1 to 2.0 m below grade).

6.3 Ground Water: Hydraulic Gradients

Ground water level contours for the Site are shown on Drawing 2-5, which also shows the monitoring well locations and measured water levels. Table 3 provides a summary of the water levels.

Based on PML's Site observations and water level measurements, the ground water table underlying the Site has a horizontal gradient of about 0.01 (1.0%) down toward the north/northwest.

6.4 Fine-Medium Soil Texture

As previously indicated, the soil on Site generally comprised topsoil overlying fill (sandy silt, sand, silty clay, clayey silt) overlying native soils comprising sandy silt, clayey silt, sandy silt till and/or silty clay 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.

6.5 Soil: Field Screening

The measured concentrations on the headspace of recovered soil samples ranged from 0 to 15 parts per million (ppm), which are not considered to be significant.

6.6 Soil Quality

Laboratory certificates of analysis compared to T2 RPI SCSs are included in Appendix B. A comprehensive summary of samples submitted for chemical testing including locations, depths and descriptions from the current and previous ESA and Site remediation work is included in Table 2, appended. Drawing 2-4 illustrates the locations and parameters that exceed the SCSs.

A summary of all chemical test results for soil including locations, depths and descriptions are included in Tables 4 to 8, appended.

Based on the results of chemical testing, the measured concentrations of metals and inorganic ORPs, PHC Fractions F1 to F4, VOCs, PCBs and PAHs were not detected or met the T2 RPI SCSs except at the location of BH/MW202. An exceedance of PHC Fraction F3 was detected in Sample BH/MW202 SS2 at a depth of 0.8 to 1.2 m below grade.

It is noted that there is one remaining exceedance on Site from the previous investigation/2014 remediation. Sample Area 3 J3-2 had an exceedance of PHC Fraction F3 at a depth of 0.1 to 0.4 m below grade.

6.6.1 Waste Characterization

The measured concentrations of the tested metals and inorganic parameters met the Schedule 4 leachate quality criteria, VOCs and PCBs were not detected, and the material was not ignitable. Therefore, the material was classified as nonhazardous waste and could be disposed of at a landfill facility with an ECA to receive the waste type, pending approval of landfill authorities.

6.7 Ground Water Quality

Laboratory certificates of analysis compared to T2 SCSs are included in Appendix B. A comprehensive summary of samples submitted for chemical testing including locations, screened depths and descriptions from the current and previous ESA is included in Table 2, appended.

A summary of all chemical test results for ground water including locations, screened depths and descriptions are included in Tables 9 to 12, appended.

The measured concentrations of metals and inorganic parameters, PHC Fractions F1 to F4, VOCs and PAHs were not detected or met the T2 SCSs.

6.8 Sediment Quality

Sediment was not present on Site.

6.9 Quality Assurance and Quality Control Results

Soil and ground water samples were analysed by using standard reference methods and the testing methods were referenced in AGAT Certificate of Analysis, as required by the MOECC's protocol. Laboratory QA/QC data is included with the Certificates of Analysis provided by in Appendix B. Method blank, spiked method blank, laboratory spiked and duplicate soil samples were analysed by the laboratory with each batch of samples. The results of chemical analysis of method blank sample indicated that the detected levels were within the acceptable range. The chemical test data for spiked method blank and laboratory spike samples indicated that the recovery ranges were within the statistically determined control limits.

The quality of data depends upon planning, sampling, analysis and reporting. As a means of determining the reproducibility or variability related to analytical procedures of a homogenous sample, the relative percentage differences (RPD) between analyzed values for original and duplicate samples were calculated.

For sample reproducibility calculations, maximum RPD values were calculated using the following formula:

$$\text{RPD Value} = \left[\frac{\text{(Analyte A in Test 1 – Analyte A in Test 2)}}{\text{(Analyte A in Test 1 + Analyte A in Test 2) / 2}} \right] \text{ X } 100$$

Blind field duplicates were obtained by PML during the field work and submitted to AGAT; the maximum RPD values were as follows:

Sample ID(s)	Parameter	Maximum RPD Values (%)
Soil – Stage One		
Samples BH/MW203 SS2 and Duplicate 1	Metals and ORPs, and PAHs	33
Samples BH/MW201 SS2 and Duplicate 2	PHC Fractions F1 to F4, and VOCs	NA
Soil – Stage Two		
Samples BH301 AS2 and Duplicate 1	PHC Fractions F1 to F4 including BTEX	NA
Ground Water		
Samples BH/MW201 and Duplicate A	Metals and ORPs PAHs PHC Fractions F1 to F4 VOCs	24

Note: Maximum RPD values are provided as not applicable (NA) where one or both of the results were less than the reported detection limits (RDLs).

The maximum RPD for the duplicate samples were within the acceptable statistical variation of 30 to 40%.

In addition, one 'trip blank' sample of ground water was prepared by AGAT and utilized by PML during the field ground water sampling activities. The sample was submitted for chemical testing for VOCs and the measured concentration of the tested parameters were below the method detection limit (not detected), which is acceptable.

6.10 Phase Two ESA Conceptual Site Model

Based on the review, interpretation and evaluation of the data compiled, a Phase Two Conceptual Site Model (CSM) of the Phase Two ESA property was prepared which demonstrates the current condition of the Phase Two ESA property. PML understands that development plans for the Site include development for residential use. Since a change in property use from a less sensitive property use (residential/commercial) to a more sensitive property use (residential) is planned, a RSC is will be required under O. Reg. 153/04, as amended.

Regarding section 41 and 43.1 of the Regulation, in order to determine the Site Sensitivity, these sections of O. Reg. 153/04, as amended were evaluated by PML. The Site is currently not considered a Shallow Soil property nor within 30 m of a water body and is not considered environmentally sensitive.

6.10.1 Background

The Site comprises an irregular shaped parcel covering an approximate plan area of 0.87 ha (2.1 ac.), as shown on Drawing 2-1. The Site is located along Dundas Street West and is currently accessible from Bird Boulevard and Stonehaven Drive. The Site is located on the north side of Stonehaven Drive, being about 110 m at its widest in the east-west direction, having a frontage of about 62 m along Stonehaven Drive and is about 103 m deep. The Site is currently vacant. The PINs were provided as 07184-3075 (LT), 07184-2679 (LT), 07184-3074 (LT), 07184-3076 (LT) and 07184-2680 (LT).

Based on information from the chain of title, fire insurance plans and historical atlases, the first developed use of the Site was for residential/agricultural property use sometime prior to 1877. Historical use of the Site comprised agricultural use transitioning to residential use and culminating in the most recent mixed residential and commercial use as a garden centre and hauling/trucking company from 1971 to 2006. The Site was acquired by the Halton District School Board (HDSB) in 2006 and has been vacant since that time.

The Site is situated within a recently developed portion of Burlington which is a primarily residential and commercial land use area with some institutional land uses. No bodies of water or areas of natural significance were noted within 250 m of the Phase Two Property boundaries.

In addition to the following paragraphs describing the Site conditions encountered during the Phase One and Phase Two ESA, the CSM is illustrated on the following documents included in the Phase Two ESA Update report.

Drawing 2-1 shows the current Site boundaries, existing features and the location of utility services on Site.

Drawing 2-2 shows the current land uses in the Phase One ESA Study Area.

Drawing 2-3 depicts the location of and the areas of potentially contaminating activities (PCAs) and areas of potential environmental concern (APECs) identified for the Site.

Drawing 2-4 shows the location of boreholes and monitoring wells, soil samples not meeting the T2 RPI SCSs and the limits of PHC Fraction F3 soil contamination.

Drawing 2-5 shows the ground water elevations, ground water contours and ground water flow direction for the Site.

The stratigraphy and hydrogeological characteristics of the Site are depicted in Section A – A' (Drawings 2-6), Section B – B' (Drawing 2-7) and Section C – C' (Drawing 2-8). The Sections show the approximate depth to the water table, screened intervals of the monitoring wells, lateral and vertical distribution of contaminants and the stratigraphy from ground surface to the deepest aquifer or aquitard investigated.

6.10.2 PCAs and APECs

During the Phase One and Two ESA Update, four on Site and nine off Site PCAs were identified as contributing to four APECs. Refer to the appended Table 13 for a detailed description of the APECs.

Area of Potential Environmental Concern	Location of Area of Potential Environmental Concern on Phase One Property	Potentially Contaminating Activity (PCA)	Contaminants of Potential Concern
1	Northeast portion of Site	Other PCA's the QP is aware of: Activities that resulted in the presence of known soil contamination documented during the concurrent Phase Two ESA Update (Area A).	- Petroleum Hydrocarbons (PHCs)
2	Southeast portion of Site	Other PCA's the QP is aware of: Activities that resulted in the presence of known soil contamination documented in previous reports (Area B).	- PHCs
3	Entire Site	PCA Item No. 30 - Importation of fill material of unknown quality	- Metals and Other Regulated Parameters (ORPs) - PHCs - Polycyclic Aromatic Hydrocarbons (PAHs) - Volatile Organic Compounds (VOCs)
4	West portion of Site	PCA Item No. 46 – Rail Yards, Tracks and Spurs	- ORPs - PAHs - PHCs - VOCs

The on Site PCAs resulted from previously documented contamination (petroleum hydrocarbons (PHCs) and electrical conductivity (EC)) in the soil, and the possible presence of fill material and demolition debris from two former buildings.

The off Site PCA contributing to an APEC was an existing Canadian National Railway (CNR) located to the immediate west of the Site.

Contaminants of potential concern associated with these identified APECs include metals and Other Regulated Parameters (ORPs), PHC fractions F1 to F4, volatile organic compounds (VOCs) and/or polycyclic aromatic hydrocarbons (PAHs), which have the potential to impact soil and ground water at the Site.

Based on the above findings, a Phase Two ESA Update, consisting of a program of soil and ground water sampling and chemical testing was recommended to address the potential for contaminants to exist within the various APECs.

6.10.3 Summarized Geological and Hydrogeological Conditions

A brief summary of the subsurface conditions encountered at the Phase Two ESA property is presented below. Detailed borehole logs are appended. The boreholes were advanced to depths ranging from 0.8 to 6.2 m below grade.

The pavement structure at grade on the road at Bird Boulevard and Stonehaven Drive comprised asphalt overlying crushed limestone granular base. The remainder of the boreholes and monitoring wells generally comprised topsoil overlying fill (sandy silt, sand, silty clay, clayey silt), underlain by native clay and/or silt till.

The following is a summary of the general unit thicknesses and corresponding elevations on Site:

Approx. Depth (m)	Approximate Elevation (m)[1]	Geologic Unit
0.0 to 0.1	156.1 to 156.0	Topsoil Fill: Sandy silt
0.1 to 0.7	156.0 to 155.3	Fill: Sandy silt, gravelly sand
0.7 to 6.2	155.3 to 149.9	Native sandy silt till and/or clay till

Note [1]: Based on BM elevation 156.1 (metric, geodetic).

Based on Bedrock Topography Map 2034 and MOECC water well records, bedrock comprising red shale of the Queenston Formation is expected at depths of 0.3 to 12.0 m below grade in the area.

Stabilized ground water levels were at about elevations 154.6 to 155.2. Based on this information, the ground water in the silt till aquifer flows to the north/northwest. Regional ground water flow is expected to be generally toward the south towards Lake Ontario. Surface drainage at the Site comprises overland flow into municipal storm sewers on Orchard Road and Stonehaven Drive, which eventually drain into tributaries of Bronte Creek and Sheldon Creek which eventually drain into Lake Ontario. Local variations in ground water flow patterns however can be expected due to buried utility infrastructures.

Based on PML's Site observations and water level measurements, the ground water table underlying the Site has a horizontal gradient of about 0.01 (1.0%) down toward the north/northwest. Ground water contours are depicted in Drawing 2-5.

6.10.4 Areas of Contamination

6.10.4.1 Soil

The contaminated soil is located within two areas (Areas A to B) as shown on Drawing 2-4 as follows:

- Area A comprises an approximate 1,025 m^2 area of PHC Fraction F3 contamination in the fill material. The contamination extends to a depth of about 1.5 m.
- Area B comprises an approximately 615 m^2 area of PHC Fraction F3 contamination in the fill material. The contamination extends to a depth of 0.5 m.

The total estimated quantity of soil/fill which requires off Site disposal is 1,845 m^3 or 3,690 tonnes. This includes surface treatment such as pavement structures (gravel).

6.10.4.2 Ground Water

Not applicable.

6.10.4.3 Remediation/Cleanup

A program of site remediation/cleanup will be required before a RSC can be prepared for the Site.

6.10.5 Contaminant Distribution

Further migration of the PHC Fraction F3 contaminant into the natural environment is not expected based on the following rationale:

- There are no preferential pathways to our knowledge;
- the location of the PHC F3 contaminants are relatively shallow (about 0.0 – 1.5 m); and

- the ground water table is located at an elevation of about 154.6 to 155.2 m and the PHC Fraction F3 contamination was confirmed at an elevation of about 155.3 to 154.9 m which is at the water table. It is noted however the PHC Fraction F3 contamination is likely a result of pulverized asphalt within the soil and is in a solid and relatively stable.

Potential exposure pathways for human receptors include soil ingestion, soil inhalation, soil skin contact and vapour inhalation sourced from soil. Receptors include residents (adults and children), construction/remediation workers, and long term indoor and outdoor workers.

Since the Site covered with a gravel walkway/pulverized asphalt and vegetation, and is located in an urban area, ecological receptors are minimal and would be associated with man-made terrestrial habitat. There is no aquatic habitat, nor aquatic receptors. Terrestrial ecological receptors may include trees/shrubs, grasses and weeds, earthworms, small mammals and avian species. Potential exposure pathways for terrestrial ecological receptors include dermal contact, soil ingestion, soil inhalation, ingestion of prey/food, and root uptake of soil.

7. CONCLUSIONS

As a result of the findings from the Phase One ESA Update, a Phase Two ESA Update was completed for the property located at 5209 Stonehaven Drive in Burlington, Ontario. The purpose of the Phase Two ESA Update was to check if the chemical quality of the soil and ground water at the Site exceeds the applicable O. Reg. 153/04, as amended, SCSs for Table 2 RPI property use in order to facilitate the preparation of a RSC for the Site.

Stage One of the Phase Two ESA Update involved drilling three (3) boreholes and installing three (3) ground water monitoring wells, soil and ground water sampling and chemical analysis, data compilation, and evaluation of the information gathered.

Stage Two of the Phase Two ESA Update involved vertical and horizontal delineation which included augering seven (7) additional boreholes, soil sampling and chemical analysis, data compilation, evaluation of the information gathered and preparation of this report.

Based on the findings of this Phase Two ESA Update, the chemical quality of the soil at the Site met the applicable T2 RPI SCSs except for two locations. A program of site remediation/cleanup will be required before a RSC can be prepared for the Site.

The chemical quality of the ground water at the Site met the applicable T2 SCSs.

The soil contamination is located within two general areas on Site and includes PHC Fraction F3 as follows:

LOCATION	SAMPLE	PARAMETERS	SOIL TYPE
Area A, Refer to Drawing 2-4			
Borehole/ Monitoring Well 202 (Northeast portion of Site)	BH/MW202 SS2	PHC Fraction F3	Fill
Area B – Refer to Drawing 2-4			
Area 3 J3-2 (South-central portion of Site)	Area 3 J3-2	PHC Fraction F3	Fill

The assignment is subject to the Statement of Limitations that is included in Appendix C and must be read in conjunction with this report.

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

7.1 Signatures

The preparation of this report was prepared by Danika Durish, B.Sc., C.E.T., E.P. who has been trained to conduct Phase One and Two ESAs in accordance with the O. Reg. 153/04, as amended. Ms. Durish is a project supervisor with 16 years of interdisciplinary professional experience specializing in geoenvironmental and hydrogeologic investigations and project management. Her main areas of expertise include Phase One and Phase Two ESAs, site cleanup/remediation planning and supervision, waste management, UST and AST removals, site remediation, Risk Assessment, RSCs and hydrogeologic investigations. Ms. Durish has

completed hundreds of ESAs for commercial, industrial, and residential clients for a wide variety of project types (industrial complexes, commercial developments, entertainment and institutional buildings, and residential development).

This report was reviewed by Melissa King, P.Geo., a Professional Geoscientist registered with the Association of Professional Geoscientists of Ontario. Ms. King is the Discipline Head of the Geoenvironmental and Hydrogeological Services Department at PML's Hamilton branch office and is a Qualified Person (QP) registered with the MOECC. She has 19 years of interdisciplinary professional experience specializing in geoenvironmental and hydrogeologic investigations and project management. Her main areas of expertise include Phase One and Phase Two ESAs, site cleanup/remediation planning and supervision, waste management, UST and AST removals, site remediation, Risk Assessment, Records of Site Condition and hydrogeologic investigations. She has completed hundreds of ESAs for commercial, industrial, and residential clients for a wide variety of project types (industrial complexes, commercial developments, entertainment and institutional buildings, and residential development).

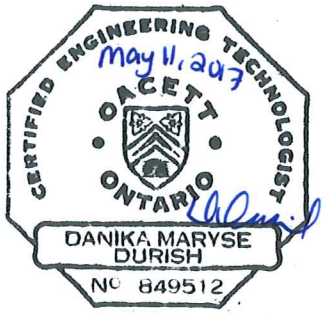
Peto MacCallum Ltd. was established in 1973 as a result of the merger of Peto Associates Ltd., founded in 1956, and the Ontario division of Racey MacCallum and Associates Limited, chartered in 1952. Peto MacCallum Ltd. is a consulting engineering firm that specializes in the fields of geoenvironmental, hydrogeological and geotechnical engineering, building sciences, construction supervision/inspection and materials engineering/testing. Personnel in our four branch offices form a network of full time dedicated environmental professionals.

Peto MacCallum Ltd. has been awarded the distinction of being one of **CANADA'S 100 BEST SMALL & MEDIUM EMPLOYERS since 2015.** We are very proud of this accomplishment and are pleased to be celebrating our 61st year in business.

We trust the information presented in this report is sufficient for your present purposes. If you have any questions, please do not hesitate to contact our office.

Sincerely

Peto MacCallum Ltd.



Danika Durish, B.Sc., C.E.T., EP
Project Supervisor, Geoenvironmental and Hydrogeological Services



Melissa King, P.Geo., QP_{ESA}
Associate
Discipline Head, Geoenvironmental and Hydrogeological Services

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8. REFERENCES

Report titled “Phase One Environmental Site Assessment Update, Halton District School Board Surplus Land on Stonehaven Drive, 5209 Stonehaven Drive, Burlington, Ontario”, Prepared for Mantella Corporation, Prepared by Peto MacCallum Ltd., Project No. 17HX001, Report 1, dated May 9, 2017.

AGAT Laboratories, Certificates of Analysis (appended).

American Society for Testing and Materials (ASTM) Standard D6452 – 99 (Reapproved 2005), Standard Guide for Purging Methods for Wells Used for Ground-Water Quality Investigations.

Guide for Completing Phase Two Environmental Site Assessments Under Ontario Regulation 153/04, Ministry of the Environment, Environmental Assessment and Approvals Branch, June 2011.

Ontario Regulation 153/04 (O. Reg. 153/04), Records of Site Condition - Part XV.1 of the Environmental Protection Act, amended July 1, 2011.

Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, Ministry of the Environment, April 15, 2011.

Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act, Laboratory Services Branch, Ministry of the Environment, March 9, 2004, as amended as of July 1, 2011.

9. FIGURES AND TABLES

9.1 Tables

Tables 1 to 13 are appended and form part of this report.

9.1.1 Monitoring Well Installation

Refer to Table 3 (Summary of Ground Water Data) and Log of Monitoring Well Sheets BH/MW201 through BH/MW203 regarding monitoring well construction details and elevations for monitoring wells installed during the field investigation.

9.1.2 Water Levels

Refer to Table 3 (Summary of Ground Water Data) regarding water level measurements, including depth to water and reference elevations.

9.1.3 LNAPLs and DNAPLs

Dense non-aqueous phase liquids (DNAPLs) and light non-aqueous phase liquids (LNAPL) were not encountered at the Phase Two ESA property.

9.1.4 Soil Data

Soil quality data contained in laboratory certificates of analysis are included in Appendix B, which includes the results of chemical testing, date of sample collection, date of analysis and analytical report reference number. In addition, Tables 4 to 8 provide a comparison of the data to applicable SCSs, the borehole and monitoring well identification numbers, sample depths, and sample identification number.

9.1.5 Ground Water Data

Ground water quality data contained in laboratory certificates of analysis are included in Appendix B, which includes the results of chemical testing, date of sample collection, date of analysis and analytical report reference number. In addition, Tables 9 to 12 provide a comparison of the data to applicable SCSs, the borehole and monitoring well identification numbers, sample depths, and sample identification number.

9.1.6 Sediment Data

Not applicable.

9.1.7 Ground Water, Sediment and Soil Maximum Concentration Data

A table of maximum Soil and Ground Water Concentration Data will be prepared following Site remediation and prior to filing of a RSC.

9.2 Figures

9.2.1 Areas of Natural Significance and Water Bodies

There are no areas of natural significance that:

- Include the Phase Two ESA property;
- Are adjacent to the Phase Two ESA property;
- Are located, wholly or partly, on the Phase Two ESA property;
- Are located within 30 metres of the Phase Two ESA property.

There are no water bodies located that:

- Are adjacent to the Phase Two ESA property
- Are located, wholly or partly, on the Phase Two ESA property
- Are located within 30 metres of the Phase Two ESA property

Refer to Tables 1A and 1B – Site Sensitivity Analysis, appended.

9.2.2 Property Before Actions Taken to Reduce the Concentrations of Contaminants

Refer to the appended Drawings 2-1 and 2-4 to 2-8 for all features relevant to the Phase Two ESA Update prior to any actions being taken to reduce the concentration of contaminants and prior to completion of an RSC including:

i) Areas where a contaminant is present at a concentration greater than the applicable SCSs for the contaminant; and

ii) The locations of any buildings, storage tanks, drainage features and fill areas on or under the Phase Two ESA property.

9.2.3 Interpreted Contours of Ground Water Elevations

Refer to Drawing 2-5 (Ground Water Elevation Plan) showing the monitoring well identification numbers, water elevation at each monitoring well and inferred direction of ground water flow.

9.2.4 Contaminants in Soil before Actions Taken to Reduce the Concentration of Contaminants

Refer to Drawings 2-4 to 2-8 showing the plan view of the Phase Two ESA property that shows the contamination identified on Site, and corresponding boreholes and monitoring well locations.

9.2.5 Contaminants in Ground Water Before Actions Taken to Reduce the Concentration of Contaminants

Not applicable.

9.2.6 Contaminants in Sediment Before Actions Taken to Reduce the Concentration of Contaminants

Not applicable.

9.2.7 Delineation

Refer to Drawings 2-4 to 2-9 showing the plan view of the Phase Two ESA property that shows where contamination was identified on Site, and corresponding boreholes and monitoring well locations.

9.2.8 Contaminants of Concern in Areas of Potential Environmental Concern

Refer to Drawing 2-6 (Section A to A'), Drawing 2-7 (Section B to B') and Drawing 2-8 (Section C to C') for cross sections that are oriented parallel and near-perpendicular to the direction of ground water flow at the Phase Two ESA property depicting the stratigraphy from ground surface to the depth extent of the boreholes, the approximate depth to the water table, screened intervals of the monitoring wells, and lateral and vertical distribution of contaminants.

10. APPENDICES

10.1 General

Appendices A to C are appended and form part of this report.

10.1.1 Sampling and Analysis Plan

The Geoenvironmental Sampling and Analysis Plans are included in Appendix A.

10.1.2 Finalized Field Logs

Geologic descriptions of the soil samples are provided on the appended Log of Monitoring Well Sheets (BH/MW201 to BH/MW203) and Log of Borehole Sheets (BH301 to BH307).

10.1.3 Certificates of Analysis or Analytical Reports from Laboratories

A copy of the AGAT Laboratories Limited Certificates of Analysis is included in Appendix B.

10.1.4 Residue Management

Permits and approvals from municipal, provincial or federal governments or agencies were not required for this project.

10.1.5 Survey of Phase Two Property

A signed and sealed survey plan for the Phase Two property will be required in order to prepare and file the RSC.

10.2 Remediation

A program of site remediation/cleanup will be required before a RSC can be prepared for the Site.

The contaminated soil is located within two areas (Areas A and B as shown on Drawings 2-4) as follows:

- Area A comprises an approximate 1,025 m^2 area of PHC Fraction F3 contamination in the fill material. The contamination extends to a depth of about 1.5 m.
- Area B comprises an approximately 615 m^2 area of PHC Fraction F3 contamination in the fill material. The contamination extends to a depth of 0.5 m.

The total estimated quantity of soil/fill which requires off Site disposal is 1,845 m^3 or 3,690 tonnes. This includes surface treatment such as pavement structures (gravel).

The ground water met the applicable SCSs.

10.3 Soil Excavated at or Brought to the Phase Two Property

Not applicable.

10.4 Modified Generic Risk Assessment

Not applicable.

TABLE 1A

Site Sensitivity Analysis
Site Condition Standards, Environmentally Sensitive Areas
Section 41, Ontario Regulation 153/04, as amended

Criteria	Decision for the Site
41. (1) This section applies in relation to a property if,	
(a) the property is within an area of natural significance, includes or is adjacent to an area of natural significance or part of such an area, or includes land that is within 30 m of an area of natural significance or part of such area;	No
(b) the soil at the property has a pH value as follows: (i) for surface soil, less than 5 or greater than 9, (ii) for subsurface soil, less than 5 or greater than 11;	No
(c) a qualified person is of the opinion that, given the characteristics of the property and the certifications the qualified person would be required to make in a record of site condition in relation to the property as specified in Schedule A, it is appropriate to apply this section to the property.	No

In Section 41 (1) (a) above, "area of natural significance" means any of the following:

1. A provincial park designated by a regulation under the *Provincial Parks Act*.
2. A conservation reserve established under the *Public Lands Act*.
3. An area of natural and scientific interest (life science) identified by the Ministry of Natural Resources as having provincial significance.
4. A wetland identified by the Ministry of Natural Resources as having provincial significance.
5. An area designated by a municipality in its official plan as environmentally significant, however expressed, including designations of areas as environmentally sensitive, as being of environmental concern and as being ecologically significant.
6. An area designated as an escarpment natural area or an escarpment protection area by the Niagara Escarpment Plan under the *Niagara Escarpment Planning and Development Act*.
7. A habitat of endangered or threatened species identified by the Ministry of Natural Resources.
8. Property within an area designated as a natural core area or natural linkage area within the area to which the Oak Ridges Moraine Conservation Plan under the *Oak Ridges Moraine Conservation Act, 2001.*

TABLE 1B

Site Condition Standards, Shallow Soil or Water Body
Section 43.1, Ontario Regulation 153/04, as amended

Criteria	Decision for the Site
43.1. (1) This section applies in relation to a property if,	
(a) the property is a shallow soil property; or	No
(b) the property includes all or part of a water body or is adjacent to a water body or includes land that is within 30 metres of a water body.	No
(c) a qualified person is of the opinion that, given the characteristics of the property and the certifications the qualified person would be required to make in a record of site condition in relation to the property as specified in Schedule A, it is appropriate to apply this section to the property.	No

In Section 43.1 (1) (a) above:

"shallow soil property" means a property of which 1/3 or more of the area consists of soil equal to or less than 2 metres in depth beneath the soil surface, excluding any non-soil surface treatment such as asphalt, concrete or aggregate;

"soil" means, for the purposes of the definition of shallow soil property, unconsolidated naturally occurring mineral particles and other naturally occurring material resulting from the natural breakdown of rock or organic matter by physical, chemical or biological processes that are smaller than 2 millimetres in size or that pass the US #10 sieve, and includes a mixture of soil and rock if less than 50 per cent by mass of the mixture is rock. O. Reg. 511/09, s. 21.

TABLE 2

Summary of Samples Submitted for Chemical Testing

Location	Sample ID	Approx. Depth (m)	Lithology	Type of Chemical Analysis
SOIL				
Stage One				
Borehole/Monitoring Well 201	BH/MW201 SS1B	0.3 – 0.6	Silt till	Metals and ORPs PAHs
Borehole/Monitoring Well 201	BH/MW201 SS2	0.8 – 1.2	Silt till	PHC Fractions F1 to F4 VOCs
Borehole/Monitoring Well 201	Duplicate 2	0.8 – 1.2	Duplicate of BH/MW201 SS2	PHC Fractions F1 to F4 VOCs
Borehole/Monitoring Well 202	BH/MW202 SS2	0.8 – 1.2	Fill	Metals and ORPs PAHs PHC Fractions F1 to F4 VOCs
Borehole/Monitoring Well 203	BH/MW203 SS2	0.8 – 1.2	Silt till	Metals and ORPs PAHs PHC Fractions F1 to F4 VOCs
Borehole/Monitoring Well 203	Duplicate 1	0.8 – 1.2	Duplicate of BH/MW203 SS2	Metals and ORPs PAHs
Stage Two				
Borehole 301	BH301 AS1	0.4 – 1.5	Clayey silt	PHC Fractions F1 to F4 including BTEX
Borehole 301	BH301 AS2	1.5 – 1.8	Silty clay till	PHC Fractions F1 to F4 including BTEX
Borehole 301	Duplicate 1	1.5 – 1.8	Duplicate of BH301 AS2	PHC Fractions F1 to F4 including BTEX
Borehole 302	BH302 AS1	0.3 – 0.9	Fill	PHC Fractions F1 to F4 including BTEX

TABLE 2

Summary of Samples Submitted for Chemical Testing

Location	Sample ID	Approx. Depth (m)	Lithology	Type of Chemical Analysis
Borehole 302	BH302 AS2	0.9 – 1.0	Silty clay till	PHC Fractions F1 to F4 including BTEX
Borehole 303	BH303 AS1	1.4 – 1.8	Silty clay till	PHC Fractions F1 to F4 including BTEX
Borehole 304	BH304 AS1	0.7 – 0.9	Sandy silt	PHC Fractions F1 to F4 including BTEX
Borehole 304	BH304 AS2	0.9 – 1.8	Silty clay till	PHC Fractions F1 to F4 including BTEX
Borehole 305	BH305 AS1	0.2 – 0.5	Fill	PHC Fractions F1 to F4 including BTEX
Borehole 305	BH305 AS2	0.5 – 1.0	Silty clay till	PHC Fractions F1 to F4 including BTEX
Borehole 306	BH306 AS1	0.2 – 0.4	Fill	PHC Fractions F1 to F4 including BTEX
Borehole 306	BH306 AS2	0.4 – 0.8	Silty clay till	PHC Fractions F1 to F4 including BTEX
Borehole 307	BH307 AS1	0.5 – 0.8	Silty clay till	PHC Fractions F1 to F4 including BTEX
WASTE CHARACTERIZATION				
Borehole/Monitoring Well 202	TCLP	0.8 – 1.2	Sample BH/MW202 SS2	TCLP – Metals and Inorganics, Ignitability, PCBs and VOCs

TABLE 2

Summary of Samples Submitted for Chemical Testing

Location	Sample ID	Approx. Depth (m)	Lithology	Type of Chemical Analysis
GROUND WATER				
Borehole/ Monitoring Well 201	BH/MW201	Screened 2.3 to 5.3 Elevation 154.3 to 151.3	Reddish brown, silty, no odours or sheens	Metals and ORPs PAHs PHC Fractions F1 to F4 VOCs
Borehole/ Monitoring Well 201	Duplicate A	Screened 2.3 to 5.3 Elevation 154.3 to 151.3	Duplicate of BH/MW201	Metals and ORPs PAHs PHC Fractions F1 to F4 VOCs
Borehole/ Monitoring Well 202	BH/MW202	Screened 3.0 to 6.0 Elevation 153.1 to 150.1	Brown, very silty, no odours or sheens	Metals and ORPs PAHs PHC Fractions F1 to F4 VOCs
Borehole/ Monitoring Well 203	BH/MW203	Screened 2.3 to 5.3 Elevation 154.0 to 151.0	Brown, silty, no odours or sheens	Metals and ORPs PAHs PHC Fractions F1 to F4 VOCs
Quality Control				
TRIP BLANK	TRIP BLANK	--	--	VOCs (Certificate of Analysis - AGAT Work Order: 17T190941)

Notes:

Metals and Other Regulated Parameters (ORPs) (boron – hot water soluble (B-HWS), electrical conductivity (EC), chromium VI (Cr(VI)), Mercury (Hg), sodium adsorption ratio (SAR), free cyanide (CN-))
Metals, Hydride-Forming (Arsenic (As), selenium (Se) and antimony (Sb))
PAHs – Polycyclic Aromatic Hydrocarbons
PHC – Petroleum Hydrocarbon
TCLP – Toxicity Characteristic Leaching Procedure
VOCs – Volatile Organic Compounds

TABLE 3

Summary of Ground Water Data

Location	Elevation of Ground Surface (m)	Screened Interval (m) (Elevations) Top to Bottom	Approx. Depth of Well (m)	Lithology Screened	Depth to Ground Water (meters below ground surface)		Ground Water Elevation (m) February 24, 2017
					February 23, 2017	February 24, 2017	
BH/MW201	156.6	Screened 2.3 to 5.3 Elevation 154.3 to 151.3	5.3	Till	4.4	2.0	154.6
BH/MW202	156.1	Screened 3.0 to 6.0 Elevation 153.1 to 150.1	6.0	Till	1.1	1.4	154.7
BH/MW203	156.3	Screened 2.3 to 5.3 Elevation 154.0 to 151.0	5.3	Till	1.1	1.1	155.2

TABLE 4: Metals and Inorganics in Soil

Results of Chemical Testing Compared to the Table 2 (T2) Site Condition Standards (SCSs) for Residential/Parkland/Institutional (RPI) Property Use

Sample ID				BH/MW 101 SS2B	BH/MW 102 SS1	BH 112 AS1 (Removed Off Site)	BH 113 AS1	GS1	Intentionally Left Blank		
Depth (At Time of Sampling)				Refer to Table 2 of the previous PML Report 2							
Sample Date (Year/Month/Day)				2013/03/05	2013/03/04	2013/03/05	2013/03/05	2013/03/07			
Description				Clay till	Fill	Fill	Fill	Stockpile Fill			
Contaminant	T2 RPI SCSs	Units	RDL	4174583	4174592	4174620	4174624	4179214			
Antimony	7.5	µg/g	0.8	<0.8	<0.8	<0.8	<0.8	-			
Arsenic	18	µg/g	1	6	4	6	8	-			
Barium	390	µg/g	2	82	35	42	39	-			
Beryllium	4	µg/g	0.5	0.8	<0.5	<0.5	<0.5	-			
Boron (Total)	120	µg/g	5	9	8	9	10	-			
Boron (Hot Water Soluble)	1.5	µg/g	0.10	0.32	1.25	1.31	0.72	-			
Cadmium	1.2	µg/g	0.5	<0.5	<0.5	**1.6**	0.5	-			
Chromium (Total)	160	µg/g	2	22	17	20	9	-			
Chromium VI	8	µg/g	0.2	<0.2	<0.2	<0.2	<0.2	-			
Cobalt	22	µg/g	0.5	12.0	3.7	3.9	3.6	-			
Copper	140	µg/g	1	41	18	29	15	-			
Cyanide, Free	0.051	µg/g	0.040	<0.040	<0.040	<0.040	<0.040	<0.040			
Electrical Conductivity	0.7	mS/cm	0.005	0.346	0.277	0.310	0.45	-			
Lead	120	µg/g	1	14	18	99	66	-			
Mercury	0.27	µg/g	0.10	<0.10	<0.10	<0.10	<0.10	-			
Molybdenum	6.9	µg/g	0.5	1.0	0.8	2.2	1.1	-			
Nickel	100	µg/g	1	26	7	10	5	-			
Selenium	2.4	µg/g	0.4	<0.4	0.4	<0.4	<0.4	-			
Silver	20	µg/g	0.2	<0.2	<0.2	<0.2	<0.2	-			
Sodium Adsorption Ratio	5	N/A	N/A	1.22	0.157	0.718	0.73	-			
Thallium	1	µg/g	0.4	<0.4	<0.4	<0.4	<0.4	-			
Uranium	23	ug/g	0.5	0.9	<0.5	<0.5	<0.5	-			
Vanadium	86	µg/g	1	30	17	15	9	-			
Zinc	340	µg/g	5	68	53	330	115	-			
pH	See Note[1]	pH Units	NA	7.30	7.63	8.21	8.35	-			

Notes:

RDL = Reported Detection Limit; "-" = not analyzed; NL = Not Listed; NV = No Value; NA = Not Applicable

1. pH 5 to 9 for surface soil, pH 5 to 11 for subsurface soil.
2. Green Fill Sample IDs represent soil exceeding SCSs and removed during remediation.

TABLE 4: Metals and Inorganics in Soil

Results of Chemical Testing Compared to the Table 2 (T2) Site Condition Standards (SCSs) for Residential/Parkland/Institutional (RPI) Property Use

Sample ID				TP118 GS1	TP118 GS2	TP119 GS1	TP120 GS1	TP120 GS2	Duplicate A	TP121 GS2	TP122 GS1
Depth (At Time of Sampling)				Refer to Table 1 of the previous PML Report 4							
Sample Date (Year/Month/Day)				2013/06/18	2013/06/18	2013/06/18	2013/06/18	2013/06/18	2013/06/18	2013/06/18	2013/06/18
Description				Fill	Silt Till	Topsoil	Topsoil	Silt Till	Duplicate of TP120 GS2	Fill	Fill
Contaminant	T2 RPI SCSs	Units	RDL	4479351	4479353	4479388	4479355	4479357	4479383	4479359	4479360
Antimony	7.5	µg/g	0.8	-	-	-	-	-	-	-	-
Arsenic	18	µg/g	1	-	-	-	-	-	-	-	-
Barium	390	µg/g	2	91	109	-	54	89	75	-	49
Beryllium	4	µg/g	0.5	0.7	0.8	-	<0.5	0.7	0.6	-	<0.5
Boron (Total)	120	µg/g	5	8	7	-	8	8	8	-	9
Boron (Hot Water Soluble)	1.5	µg/g	0.10	-	-	1.06	0.73	-	-	1.04	0.58
Cadmium	1.2	µg/g	0.5	<0.5	<0.5	-	1.1	<0.5	<0.5	-	<0.5
Chromium (Total)	160	µg/g	2	20	23	-	33	21	18	-	10
Chromium VI	8	µg/g	0.2	-	-	-	-	-	-	-	-
Cobalt	22	µg/g	0.5	10.8	12.6	-	6.1	11.1	10.7	-	4.1
Copper	140	µg/g	1	27	29	-	36	33	27	-	25
Cyanide, Free	0.051	µg/g	0.040	-	-	-	-	-	-	-	-
Electrical Conductivity	0.7	mS/cm	0.005	-	-	-	-	-	-	-	-
Lead	120	µg/g	1	19	22	-	110	11	11	-	43
Mercury	0.27	µg/g	0.10	-	-	-	-	-	-	-	-
Molybdenum	6.9	µg/g	0.5	<0.5	0.7	-	1.2	<0.5	<0.5	-	0.9
Nickel	100	µg/g	1	24	24	-	15	27	25	-	10
Selenium	2.4	µg/g	0.4	-	-	-	-	-	-	-	-
Silver	20	µg/g	0.2	<0.2	<0.2	-	<0.2	<0.2	<0.2	-	<0.2
Sodium Adsorption Ratio	5	N/A	N/A	-	-	-	-	-	-	-	-
Thallium	1	µg/g	0.4	<0.4	<0.4	-	<0.4	<0.4	<0.4	-	<0.4
Uranium	23	ug/g	0.5	0.5	0.5	-	<0.5	<0.5	<0.5	-	<0.5
Vanadium	86	µg/g	1	25	30	-	20	28	24	-	13
Zinc	340	µg/g	5	62	85	-	162	63	58	-	106
pH	See Note[1]	pH Units	NA	-	-	-	-	-	-	-	-

Notes:
RDL = Reported Detection Limit; "-" = not analyzed; NL = Not Listed; NV = No Value; NA = Not Applicable
1. pH 5 to 9 for surface soil, pH 5 to 11 for subsurface soil.

TABLE 4: Metals and Inorganics in Soil

Results of Chemical Testing Compared to the Table 2 (T2) Site Condition Standards (SCSs) for Residential/Parkland/Institutional (RPI) Property Use

Sample ID				TP122 GS2	TP123 GS3	TP125 GS2	TP126 GS2 (Removed Off Site)	TP127 GS1	Stockpile GS1	Duplicate E	Stockpile GS2
Depth (At Time of Sampling)				Refer to Table 1 of the previous PML Report 4							
Sample Date (Year/Month/Day)				2013/06/18	2013/06/18	2013/06/18	2013/06/18	2013/06/18	2013/06/18	2013/06/18	2013/06/18
Description				Silt Till	Fill	Fill	Fill	Fill	Topsoil	Duplicate of Stockpile GS1	Topsoil
Contaminant	**T2 RPI SCSs**	**Units**	**RDL**	**4479362**	**4479364**	**4479366**	**4479367**	**4479389**	**4479390**	**4479393**	**4479391**
Antimony	7.5	µg/g	0.8	-	-	-	-	-	-	-	-
Arsenic	18	µg/g	1	-	-	-	-	-	-	-	-
Barium	390	µg/g	2	112	69	-	34	-	-	-	-
Beryllium	4	µg/g	0.5	0.8	<0.5	-	<0.5	-	-	-	-
Boron (Total)	120	µg/g	5	<5	10	-	16	-	-	-	-
Boron (Hot Water Soluble)	1.5	µg/g	0.10	-	-	0.45	0.67	0.94	-	-	-
Cadmium	1.2	µg/g	0.5	<0.5	0.6	-	**1.6**	-	-	-	-
Chromium (Total)	160	µg/g	2	23	17	-	28	-	-	-	-
Chromium VI	8	µg/g	0.2	-	-	-	-	-	-	-	-
Cobalt	22	µg/g	0.5	12.4	5.9	-	5.4	-	-	-	-
Copper	140	µg/g	1	18	30	-	26	-	-	-	-
Cyanide, Free	0.051	µg/g	0.040	-	-	-	-	-	-	-	-
Electrical Conductivity	0.7	mS/cm	0.005	-	-	-	-	-	0.177	0.174	0.275
Lead	120	µg/g	1	17	80	-	47	-	-	-	-
Mercury	0.27	µg/g	0.10	-	-	-	-	-	-	-	-
Molybdenum	6.9	µg/g	0.5	<0.5	1.2	-	1.3	-	-	-	-
Nickel	100	µg/g	1	20	14	-	10	-	-	-	-
Selenium	2.4	µg/g	0.4	-	-	-	-	-	-	-	-
Silver	20	µg/g	0.2	<0.2	<0.2	-	<0.2	-	-	-	-
Sodium Adsorption Ratio	5	NA	NA	-	-	-	-	-	-	-	-
Thallium	1	µg/g	0.4	<0.4	<0.4	-	<0.4	-	-	-	-
Uranium	23	ug/g	0.5	0.9	0.5	-	<0.5	-	-	-	-
Vanadium	86	µg/g	1	30	18	-	20	-	-	-	-
Zinc	340	µg/g	5	68	111	-	**342**	-	-	-	-
pH	See Note[1]	pH Units	NA	-	-	-	-	-	-	-	-

Notes:
RDL = Reported Detection Limit; "-" = not analyzed; NL = Not Listed; NV = No Value; NA = Not Applicable

1. pH 5 to 9 for surface soil, pH 5 to 11 for subsurface soil.
2. Green Fill Sample IDs represent soil exceeding SCSs and removed during remediation.

TABLE 4: Metals and Inorganics in Soil

Results of Chemical Testing Compared to the Table 2 (T2) Site Condition Standards (SCSs) for Residential/Parkland/Institutional (RPI) Property Use

Sample ID				GS4-11 (Removed Off Site)	Area 3 E9 (Removed Off Site)	Area 3 G6 (Removed Off Site)	Area 3 I4	Area 3 D3	Area 3 Duplicate (Area 3 D3)	Area 3 C8	Area 3 I8
Depth (At Time of Sampling)				Refer to Table 1 of previous PML Report 11							
Sample Date (Year/Month/Day)				2014/06/11	2014-03-25	2014-03-25	2014-03-25	2014-03-26	2014-03-26	2014-03-26	2014-03-26
Description				Fill	Topsoil	Silt Till	Silt Till	Silt	Silt	Silt Till	Silt Till
Contaminant	**T2 RPI SCSs**	**Units**	**RDL**	**WH8834**	**VI0768**	**VI0769**	**VI0770**	**VI4545**	**VI4561**	**VI4546**	**VI4547**
Antimony	7.5	µg/g	0.20	<0.20	0.28	<0.20	<0.20	0.22	0.26	0.58	<0.20
Arsenic	18	µg/g	1.0	4.0	7	4.7	3.7	4.6	5.2	5.9	5.4
Barium	390	µg/g	0.50	45	120	83	84	78	79	84	170
Beryllium	4	µg/g	0.20	0.32	0.93	0.64	0.64	0.56	0.59	0.61	1.3
Boron (Total)	120	µg/g	5.0	7.3	<5.0	<5.0	<5.0	<5.0	<5.0	5.7	<5.0
Boron (Hot Water Soluble)	1.5	µg/g	0.050	1.0	**1.9**	**1.6**	1.4	0.85	0.73	0.71	0.65
Cadmium	1.2	µg/g	0.10	0.32	0.77	0.32	0.36	0.18	0.31	0.43	0.53
Chromium (Total)	160	µg/g	1.0	11	22	18	17	16	16	18	26
Chromium VI	8	µg/g	0.2	<0.2	-	-	-	-	-	-	-
Cobalt	22	µg/g	0.10	4.9	9.2	7.9	9.8	9	9.7	8.9	12
Copper	140	µg/g	0.50	15	31	19	20	16	24	30	27
Cyanide, Free	0.051	µg/g	0.01	0.05	-	-	-	-	-	-	-
Electrical Conductivity	0.7	mS/cm	0.002	**1.1**	-	-	-	-	-	-	
Lead	120	µg/g	1.0	14	45	30	24	22	32	54	23
Mercury	0.27	µg/g	0.050	<0.050	0.075	<0.050	<0.050	<0.050	<0.050	0.068	0.071
Molybdenum	6.9	µg/g	0.50	0.56	0.65	0.5	0.64	<0.50	0.54	1.1	0.78
Nickel	100	µg/g	0.50	9.7	21	15	15	15	16	18	21
Selenium	2.4	µg/g	0.50	<0.50	0.59	<0.50	<0.50	<0.50	<0.50	<0.50	0.63
Silver	20	µg/g	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Sodium Adsorption Ratio	5	NA	NA	2.4	-	-	-	-	-	-	-
Thallium	1	µg/g	0.050	0.061	0.16	0.14	0.12	0.13	0.11	0.12	0.16
Uranium	23	ug/g	0.050	0.46	-	-	-	-	-	-	-
Vanadium	86	µg/g	5.0	20	30	26	27	27	27	26	40
Zinc	340	µg/g	5.0	64	130	99	70	57	80	110	90
pH	See Note[1]	pH Units	NA	7.40	-	-	-	-	-	-	-

Notes:

RDL = Reported Detection Limit; "-" = not analyzed; NL = Not Listed; NV = No Value; NA = Not Applicable

1. pH 5 to 9 for surface soil, pH 5 to 11 for subsurface soil.
2. Green Fill Sample IDs represent soil exceeding SCSs and removed during remediation.

TABLE 4: Metals and Inorganics in Soil

Results of Chemical Testing Compared to the Table 2 (T2) Site Condition Standards (SCSs) for Residential/Parkland/Institutional (RPI) Property Use

Sample ID				Area 3 A3	Area 3 A9	Area 3 B1	Area 3 F1	Area 3 J3	Area 3 J10 (Removed Off Site)	Area 3 G6-1	Area 3 E9-1
Depth (At Time of Sampling)				Refer to Table 1 of previous PML Report 11							
Sample Date (Year/Month/Day)				2014-03-26	2014-03-26	2014-03-26	2014-03-26	2014-03-26	2014-03-26	2014-08-14	2014-08-14
Description				Topsoil	Topsoil	Topsoil	Fill	Fill	Fill	Silt Till	Silt Till
Contaminant	**T2 RPI SCSs**	**Units**	**RDL**	**VI4551**	**VI4552**	**VI4554**	**VI4555**	**VI4558**	**VI4559**	**XD3769**	**XD3770**
Antimony	7.5	µg/g	0.20	0.72	0.42	0.34	0.61	<0.20	0.45	0.2	0.25
Arsenic	18	µg/g	1.0	5.5	5.3	4.7	6.2	4.7	6.9	5.4	8.8
Barium	390	µg/g	0.50	93	80	57	76	86	58	94	140
Beryllium	4	µg/g	0.20	0.52	0.6	0.48	0.58	0.46	0.42	0.76	1.1
Boron (Total)	120	µg/g	5.0	<5.0	5	5.1	6.5	<5.0	8	8.7	8.4
Boron (Hot Water Soluble)	1.5	µg/g	0.050	0.8	0.67	1.1	0.69	0.65	0.41	0.081	0.1
Cadmium	1.2	µg/g	0.10	0.58	0.47	0.68	0.59	0.23	**2.1**	0.16	0.13
Chromium (Total)	160	µg/g	1.0	18	18	22	23	12	14	22	16
Chromium VI	8	µg/g	0.2	-	-	-					-
Cobalt	22	µg/g	0.10	8	8.1	7.5	9.5	7	6.9	11	50
Copper	140	µg/g	0.50	26	28	26	34	33	30	29	16
Cyanide, Free	0.051	µg/g	0.01	-	-	-	-	-	-	-	-
Electrical Conductivity	0.7	mS/cm	0.002	-	-	-	-	-	-	-	-
Lead	120	µg/g	1.0	40	51	59	41	11	77	12	-
Mercury	0.27	µg/g	0.050	0.07	0.053	<0.050	<0.050	<0.050	<0.050	-	0.55
Molybdenum	6.9	µg/g	0.50	0.75	0.72	0.72	0.86	<0.50	0.86	<0.50	35
Nickel	100	µg/g	0.50	17	18	16	20	15	14	26	<0.50
Selenium	2.4	µg/g	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.20
Silver	20	µg/g	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.15
Sodium Adsorption Ratio	5	NA	NA	-	-	-	-	-	-	-	-
Thallium	1	µg/g	0.050	0.12	0.11	0.11	0.12	0.097	0.12	0.13	40
Uranium	23	ug/g	0.050	-	-	-	-	-	-	0.7	0.79
Vanadium	86	µg/g	5.0	23	23	25	25	19	20	30	78
Zinc	340	µg/g	5.0	150	110	130	130	47	200	60	16
pH	See Note[1]	pH Units	NA	-	-	-	-	-	-	-	-

Notes:
RDL = Reported Detection Limit; "-" = not analyzed; NL = Not Listed; NV = No Value; NA = Not Applicable

1. pH 5 to 9 for surface soil, pH 5 to 11 for subsurface soil.
2. Green Fill Sample IDs represent soil exceeding SCSs and removed during remediation.

TABLE 4: Metals and Inorganics in Soil

Results of Chemical Testing Compared to the Table 2 (T2) Site Condition Standards (SCSs) for Residential/Parkland/Institutional (RPI) Property Use

Sample ID				**Area 3 C8-1**	**Area 3 D3-1**	**Area 3 B1-1**	**Area 3 J10-1**	**Area 3 J3-1**	**GS1**	**GS2**	**GS3**
Depth (At Time of Sampling)				Refer to Table 1 of previous PML Report 11							
Sample Date (Year/Month/Day)				2014-08-14	2014-08-14	2014-08-15	2014-08-15	2014-08-14	2014-03-07	2014-03-07	2014-03-07
Description				Silt Till	Silt Till	Topsoil	Fill	Fill	Silt Till	Silt Till	Silt Till
Contaminant	**T2 RPI SCSs**	**Units**	**RDL**	**XD3771**	**XD3772**	**XD9708**	**XD9709**	**XD9710**	**VD5044**	**VD5045**	**VD5046**
Antimony	7.5	µg/g	0.20	0.22	0.34	0.59	0.28	0.5	-	-	-
Arsenic	18	µg/g	1.0	6.7	6.5	5.6	7.9	5	-	-	-
Barium	390	µg/g	0.50	110	92	61	57	30	-	-	-
Beryllium	4	µg/g	0.20	0.91	0.59	0.43	0.31	<0.20	-	-	-
Boron (Total)	120	µg/g	5.0	8.4	0.51	0.44	0.44	0.44	-	-	-
Boron (Hot Water Soluble)	1.5	µg/g	0.050	0.23	0.76	1.3	0.26	0.92	-	-	-
Cadmium	1.2	µg/g	0.10	0.12	0.35	0.63	0.37	0.71	-	-	-
Chromium (Total)	160	µg/g	1.0	13	9.3	6.9	5.8	3.8	-	-	-
Chromium VI	8	µg/g	0.2	-	-	-	-	-	-	-	-
Cobalt	22	µg/g	0.10	37	27	26	29	25	-	-	-
Copper	140	µg/g	0.50	14	41	63	51	58	-	-	-
Cyanide, Free	0.051	µg/g	0.01	-	-	-	-	-	-	-	-
Electrical Conductivity	0.7	mS/cm	0.002	-	-	-	-	-	0.43	0.58	0.62
Lead	120	µg/g	1.0	-	-	-	-	-	-	-	-
Mercury	0.27	µg/g	0.050	0.55	0.69	0.89	0.81	1.5	-	-	-
Molybdenum	6.9	µg/g	0.50	31	17	16	12	8.3	-	-	-
Nickel	100	µg/g	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	-	-	-
Selenium	2.4	µg/g	0.50	<0.20	<0.20	<0.20	<0.20	<0.20	-	-	-
Silver	20	µg/g	0.20	0.13	0.14	0.13	0.1	0.089	-	-	-
Sodium Adsorption Ratio	5	NA	NA	-	-	-	-	-	-	-	-
Thallium	1	µg/g	0.050	37	31	27	17	17	-	-	-
Uranium	23	ug/g	0.050	0.73	-	-	-	-	-	-	-
Vanadium	86	µg/g	5.0	71	110	130	120	120	-	-	-
Zinc	340	µg/g	5.0	13	5.5	8.4	9.1	12	-	-	-
pH	See Note[1]	pH Units	NA	-	-	-	-	-	-	-	-

Notes:

RDL = Reported Detection Limit; "-" = not analyzed; NL = Not Listed; NV = No Value; NA = Not Applicable

1. pH 5 to 9 for surface soil, pH 5 to 11 for subsurface soil.

TABLE 4: Metals and Inorganics in Soil

Results of Chemical Testing Compared to the Table 2 (T2) Site Condition Standards (SCSs) for Residential/Parkland/Institutional (RPI) Property Use

Sample ID				Duplicate 1	GS4 (Removed Off Site)	GS5	GS4-1 (Removed Off Site)	GS4-2 (Removed Off Site)	GS4-3 (Removed Off Site)	GS4-4 (Removed Off Site)	GS4-5
Depth (At Time of Sampling)				Refer to Table 1 of previous PML Report 11							
Sample Date (Year/Month/Day)				2014-03-07	2014-03-07	2014-03-07	2014-06-03	2014-06-03	2014-06-03	2014-06-03	2014-06-03
Description				Silt Till	Topsoil Fill	Silt Till	Silt Fill	Silt Fill	Silt Fill	Silt Fill	Topsoil Fill
Contaminant	**T2 RPI SCSs**	**Units**	**RDL**	**VD5049**	**VD5047**	**VD5048**	**WE3456**	**WE3457**	**WE3458**	**WE3459**	**WE3460**
Antimony	7.5	µg/g	0.20	-	-	-	-	-	-	-	-
Arsenic	18	µg/g	1.0	-	-	-	-	-	-	-	-
Barium	390	µg/g	0.50	-	-	-	-	-	-	-	-
Beryllium	4	µg/g	0.20	-	-	-	-	-	-	-	-
Boron (Total)	120	µg/g	5.0	-	-	-	-	-	-	-	-
Boron (Hot Water Soluble)	1.5	µg/g	0.050	-	-	-	-	-	-	-	-
Cadmium	1.2	µg/g	0.10	-	-	-	-	-	-	-	-
Chromium (Total)	160	µg/g	1.0	-	-	-	-	-	-	-	-
Chromium VI	8	µg/g	0.2	-	-	-	-	-	-	-	-
Cobalt	22	µg/g	0.10	-	-	-	-	-	-	-	-
Copper	140	µg/g	0.50	-	-	-	-	-	-	-	-
Cyanide, Free	0.051	µg/g	0.01	-	-	-	-	-	-	-	-
Electrical Conductivity	0.7	mS/cm	0.002	0.60	**1.5**	0.49	**1.6**	**2.1**	**1.9**	**2.1**	0.4
Lead	120	µg/g	1.0	-	-	-	-	-	-	-	-
Mercury	0.27	µg/g	0.050	-	-	-	-	-	-	-	-
Molybdenum	6.9	µg/g	0.50	-	-	-	-	-	-	-	-
Nickel	100	µg/g	0.50	-	-	-	-	-	-	-	-
Selenium	2.4	µg/g	0.50	-	-	-	-	-	-	-	-
Silver	20	µg/g	0.20	-	-	-	-	-	-	-	-
Sodium Adsorption Ratio	5	NA	NA	-	-	-	-	-	-	-	-
Thallium	1	µg/g	0.050	-	-	-	-	-	-	-	-
Uranium	23	ug/g	0.050	-	-	-	-	-	-	-	-
Vanadium	86	µg/g	5.0	-	-	-	-	-	-	-	-
Zinc	340	µg/g	5.0	-	-	-	-	-	-	-	-
pH	See Note[1]	pH Units	NA	-	-	-	-	-	-	-	-

Notes:

RDL = Reported Detection Limit; "-" = not analyzed; NL = Not Listed; NV = No Value; NA = Not Applicable

1. pH 5 to 9 for surface soil, pH 5 to 11 for subsurface soil.
2. Green Fill Sample IDs represent soil exceeding SCSs and removed during remediation.

TABLE 4: Metals and Inorganics in Soil

Results of Chemical Testing Compared to the Table 2 (T2) Site Condition Standards (SCSs) for Residential/Parkland/Institutional (RPI) Property Use

Sample ID				GS4-6	GS4-7 (Removed Off Site)	GS4-8 (Removed Off Site)	GS4-9 (Removed Off Site)	GS4-10 (Removed Off Site)	Topsoil Area A1 (Removed Off Site)	Topsoil Area B0 (Removed Off Site)	Topsoil Area D1 (Removed Off Site)
Depth (At Time of Sampling)				Refer to Table 1 of previous PML Report 11							
Sample Date (Year/Month/Day)				2014-06-03	2014-06-03	2014-06-03	2014-06-03	2014-06-03	2014-08-14	2014-08-14	2014-08-14
Description				Topsoil Fill	Topsoil Fill	Silt Fill	Silt Fill	Silt Fill	Silt Fill	Silt Fill	Silt Fill
Contaminant	**T2 RPI SCSs**	**Units**	**RDL**	**WE3461**	**WE3462**	**WE3463**	**WE3464**	**WE3465**	**XD3775**	**XD3776**	**XD3777**
Antimony	7.5	µg/g	0.20	-	-	-	-	-	-	-	-
Arsenic	18	µg/g	1.0	-	-	-	-	-	-	-	-
Barium	390	µg/g	0.50	-	-	-	-	-	-	-	-
Beryllium	4	µg/g	0.20	-	-	-	-	-	-	-	-
Boron (Total)	120	µg/g	5.0	-	-	-	-	-	-	-	-
Boron (Hot Water Soluble)	1.5	µg/g	0.050	-	-	-	-	-	-	-	-
Cadmium	1.2	µg/g	0.10	-	-	-	-	-	-	-	-
Chromium (Total)	160	µg/g	1.0	-	-	-	-	-	-	-	-
Chromium VI	8	µg/g	0.2	-	-	-	-	-	-	-	-
Cobalt	22	µg/g	0.10	-	-	-	-	-	-	-	-
Copper	140	µg/g	0.50	-	-	-	-	-	-	-	-
Cyanide, Free	0.051	µg/g	0.01	-	-	-	-	-	-	-	-
Electrical Conductivity	0.7	mS/cm	0.002	0.42	**0.71**	**0.93**	**1**	**1.9**	**0.85**	**0.85**	**0.82**
Lead	120	µg/g	1.0	-	-	-	-	-	-	-	-
Mercury	0.27	µg/g	0.050	-	-	-	-	-	-	-	-
Molybdenum	6.9	µg/g	0.50	-	-	-	-	-	-	-	-
Nickel	100	µg/g	0.50	-	-	-	-	-	-	-	-
Selenium	2.4	µg/g	0.50	-	-	-	-	-	-	-	-
Silver	20	µg/g	0.20	-	-	-	-	-	-	-	-
Sodium Adsorption Ratio	5	NA	NA	-	-	-	-	-	-	-	-
Thallium	1	µg/g	0.050	-	-	-	-	-	-	-	-
Uranium	23	ug/g	0.050	-	-	-	-	-	-	-	-
Vanadium	86	µg/g	5.0	-	-	-	-	-	-	-	-
Zinc	340	µg/g	5.0	-	-	-	-	-	-	-	-
pH	See Note[1]	pH Units	NA	-	-	-	-	-	-	-	-

Notes:
RDL = Reported Detection Limit; "-" = not analyzed; NL = Not Listed; NV = No Value; NA = Not Applicable

1. pH 5 to 9 for surface soil, pH 5 to 11 for subsurface soil.
2. Green Fill Sample IDs represent soil exceeding SCSs and removed during remediation.

TABLE 4: Metals and Inorganics in Soil

Results of Chemical Testing Compared to the Table 2 (T2) Site Condition Standards (SCSs) for Residential/Parkland/Institutional (RPI) Property Use

Sample ID				Topsoil Area E2.5 (Removed Off Site)	Topsoil Area B2 (Removed Off Site)	Topsoil Area C1 (Removed Off Site)	Topsoil Area A1-1	Topsoil Area B0-1	Topsoil Area D1-1	Topsoil Area B2-1	Topsoil Area C1-1
Depth (At Time of Sampling)				Refer to Table 1 of previous PML Report 11							
Sample Date (Year/Month/Day)				2014/08/14	2014/08/14	2014/08/14	2014/08/21	2014/08/21	2014/08/21	2014/08/21	2014/08/21
Description				Topsoil Fill	Silt Fill	Silt Fill	Silt Fill	Silt Fill	Silt Fill	Silt	Silt
Contaminant	**T2 RPI SCSs**	**Units**	**RDL**	**XD3778**	**XD3775**	**XD3776**	**XG2010**	**XG2011**	**XG2012**	**XG2013**	**XG2014**
Antimony	7.5	µg/g	0.20	-	-	-	-	-	-	-	-
Arsenic	18	µg/g	1.0	-	-	-	-	-	-	-	-
Barium	390	µg/g	0.50	-	-	-	-	-	-	-	-
Beryllium	4	µg/g	0.20	-	-	-	-	-	-	-	-
Boron (Total)	120	µg/g	5.0	-	-	-	-	-	-	-	-
Boron (Hot Water Soluble)	1.5	µg/g	0.050	-	-	-	-	-	-	-	-
Cadmium	1.2	µg/g	0.10	-	-	-	-	-	-	-	-
Chromium (Total)	160	µg/g	1.0	-	-	-	-	-	-	-	-
Chromium VI	8	µg/g	0.2	-	-	-	-	-	-	-	-
Cobalt	22	µg/g	0.10	-	-	-	-	-	-	-	-
Copper	140	µg/g	0.50	-	-	-	-	-	-	-	-
Cyanide, Free	0.051	µg/g	0.01	-	-	-	-	-	-	-	-
Electrical Conductivity (EC)	0.7	mS/cm	0.002	**2.7**	**0.85**	**0.85**	0.65	**0.88**	**0.89**	**0.90**	**0.74**
Lead	120	µg/g	1.0	-	-	-	-	-	-	-	-
Mercury	0.27	µg/g	0.050	-	-	-	-	-	-	-	-
Molybdenum	6.9	µg/g	0.50	-	-	-	-	-	-	-	-
Nickel	100	µg/g	0.50	-	-	-	-	-	-	-	-
Selenium	2.4	µg/g	0.50	-	-	-	-	-	-	-	-
Silver	20	µg/g	0.20	-	-	-	-	-	-	-	-
Sodium Adsorption Ratio	5	NA	NA	-	-	-	-	-	-	-	-
Thallium	1	µg/g	0.050	-	-	-	-	-	-	-	-
Uranium	23	ug/g	0.050	-	-	-	-	-	-	-	-
Vanadium	86	µg/g	5.0	-	-	-	-	-	-	-	-
Zinc	340	µg/g	5.0	-	-	-	-	-	-	-	-
pH	See Note[1]	pH Units	NA	-	-	-	-	-	-	-	-

Notes:

RDL = Reported Detection Limit; "-" = not analyzed; NL = Not Listed; NV = No Value; NA = Not Applicable

1. pH 5 to 9 for surface soil, pH 5 to 11 for subsurface soil.
2. Blue Fill Entries show parameters exceeding the T2 RPI SCSs and remaining on Site. It was PML's opinion that the elevated EC levels were a result of runoff and overspray of de-icing salt used along the roadway (Dundas Street/Highway 5). Under O. Reg. 153/04, as amended, where a SCS is exceeded solely because a substance has been used on a highway for purposes of keeping traffic safe under conditions of snow and ice, the applicable site condition standard is deemed not to be exceeded. In this regard, the EC is not considered contamination.
3. Green Fill Sample IDs represent soil exceeding SCSs and removed during remediation.

TABLE 4: Metals and Inorganics in Soil

Results of Chemical Testing Compared to the Table 2 (T2) Site Condition Standards (SCSs) for Residential/Parkland/Institutional (RPI) Property Use

Sample ID				**Topsoil Area E2.5-1**	**BH/MW201 SS1B**	**BH/MW202 SS2**	**BH/MW203 SS2**	**Duplicate 1**	Intentionally Left Blank		
Depth (At Time of Sampling)				Refer to Table 1 of previous PML Report 11 and Table 2 of this Phase Two ESA Update							
Sample Date (Year/Month/Day)				2014/08/21	2017/02/23	2017/02/23	2017/02/23	2017/02/23			
Description				Silt	Till	Till	Till	Duplicate of BH/MW203 SS2			
Contaminant	**T2 RPI SCSs**	**Units**	**RDL**	**XG2015**	**8215993**	**8215996**	**8216005**	**8216009**			
Antimony	7.5	µg/g	0.8	-	<0.8	<0.8	<0.8	<0.8			
Arsenic	18	µg/g	1	-	6	12	6	5			
Barium	390	µg/g	2	-	118	48	96	89			
Beryllium	4	µg/g	0.5	-	0.7	<0.5	0.5	0.5			
Boron (Total)	120	µg/g	5	-	7	12	7	7			
Boron (Hot Water Soluble)	1.5	µg/g	0.10	-	0.51	0.37	0.10	0.11			
Cadmium	1.2	µg/g	0.5	-	<0.5	<0.5	<0.5	<0.5			
Chromium (Total)	160	µg/g	2	-	21	9	18	18			
Chromium VI	8	µg/g	0.2	-	<0.2	<0.2	<0.2	<0.2			
Cobalt	22	µg/g	0.5	-	10.8	5.6	10.5	10.2			
Copper	140	µg/g	1	-	29	25	24	24			
Cyanide, Free	0.051	µg/g	0.040	-	<0.040	<0.040	<0.040	<0.040			
Electrical Conductivity	0.7	mS/cm	0.005	0.69	0.210	0.515	0.306	0.309			
Lead	120	µg/g	1	-	37	27	14	10			
Mercury	0.27	µg/g	0.10	-	<0.10	<0.10	<0.10	<0.10			
Molybdenum	6.9	µg/g	0.5	-	0.6	1.2	<0.5	<0.5			
Nickel	100	µg/g	1	-	23	11	22	21			
Selenium	2.4	µg/g	0.4	-	0.5	<0.4	<0.4	<0.4			
Silver	20	µg/g	0.2	-	<0.2	<0.2	<0.2	<0.2			
Sodium Adsorption Ratio	5	NA	NA	-	0.312	0.525	2.35	2.23			
Thallium	1	µg/g	0.4	-	<0.4	<0.4	<0.4	<0.4			
Uranium	23	ug/g	0.5	-	0.5	0.5	0.5	0.5			
Vanadium	86	µg/g	1	-	29	14	24	24			
Zinc	340	µg/g	5	-	96	105	53	54			
pH	See Note[1]	pH Units	NA	-	7.14	7.51	7.58	7.53			

Notes:
RDL = Reported Detection Limit; "-" = not analyzed; NL = Not Listed; NV = No Value; NA = Not Applicable

1. pH 5 to 9 for surface soil, pH 5 to 11 for subsurface soil.

TABLE 5: Petroleum Hydrocarbons in Soil

Results of Chemical Testing Compared to the Table 2 (T2) Site Condition Standards (SCSs) for Residential/Parkland/Institutional (RPI) Property Use

Sample ID				**BH/MW 101 SS2B**	**BH 111 AS1A**	**BH 112 AS1**	**BH 113 AS1**	**Intentionally Left Blank**	
Depth (At Time of Sampling)				Refer to Table 2 of the previous PML Report 2					
Sample Date (Year/Month/Day)				2013-03-05	2013-03-05	2013-03-05	2013-03-05		
Description				Clay till	Fill	Fill	Fill		
Contaminant	**T2 RPI SCSs**	**Units**	**RDL**	4174583	4174618	4174620	4174624		
C6 - C10 (F1)	55	µg/g	5	<5	<5	<5	<5		
C6 - C10 (F1 minus BTEX)	55	µg/g	5	<5	<5	<5	<5		
C>10 - C16 (F2)	98	µg/g	10	<10	<10	<10	<10		
C>16 - C34 (F3)	300	µg/g	50	<50	250	**2,400**	170		
C>34 - C50 (F4)	2,800	µg/g	50	<50	330	1,800	100		
Gravimetric Heavy Hydrocarbons	2,800	µg/g	50	NA	NA	NA	NA		

Notes:
RDL = Reported Detection Limit; NL = Not Listed; "-" = not analyzed
1. Green Fill Sample IDs represent soil exceeding SCSs and removed during remediation.

TABLE 5: Petroleum Hydrocarbons in Soil

Results of Chemical Testing Compared to the Table 2 (T2) Site Condition Standards (SCSs) for Residential/Parkland/Institutional (RPI) Property Use

Sample ID				**TP101 GS1**	**TP102 GS1**	**TP103 GS1**	**TP103 GS2**	**Duplicate C**	**TP104 GS1**
Depth (At Time of Sampling)				Refer to Table 1 of the previous PML Report 4					
Sample Date (Year/Month/Day)				2013/06/13	2013/06/13	2013/06/13	2013/06/13	2013/06/13	2013/06/13
Description				Fill	Fill	Topsoil	Silt Till	Duplicate of TP103 GS2	Topsoil
Contaminant	**T2 RPI SCSs**	**Units**	**RDL**	**4479313**	**4479316**	**4479318**	**4479320**	**4479334**	**4479322**
Benzene	0.21	µg/g	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Toluene	2.3	µg/g	0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08
Ethylbenzene	1.1	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Xylenes	3.1	µg/g	0.05	0.29	<0.05	<0.05	<0.05	<0.05	<0.05
C6 - C10 (F1)	55	µg/g	5	<5	<5	<5	<5	<5	<5
C6 - C10 (F1 minus BTEX)	55	µg/g	5	<5	<5	<5	<5	<5	<5
C>10 - C16 (F2)	98	µg/g	10	<10	<10	<10	<10	<10	<10
C>16 - C34 (F3)	300	µg/g	50	81	<50	**500**	<50	<50	<50
C>34 - C50 (F4)	2,800	µg/g	50	160	<50	880	<50	<50	<50
Gravimetric Heavy Hydrocarbons	2,800	µg/g	50	NA	NA	NA	NA	NA	NA

Notes:
RDL = Reported Detection Limit; NL = Not Listed; "-" = not analyzed
1. Green Fill Sample IDs represent soil exceeding SCSs and removed during remediation.

TABLE 5: Petroleum Hydrocarbons in Soil

Results of Chemical Testing Compared to the Table 2 (T2) Site Condition Standards (SCSs) for Residential/Parkland/Institutional (RPI) Property Use

Sample ID				**TP105 GS1**	**TP106 GS1**	**TP107 GS1**	**TP107 GS2**	**TP108 GS1**	**Intentionally Left Blank**
Depth (At Time of Sampling)				Refer to Table 1 of the previous PML Report 4					
Sample Date (Year/Month/Day)				2013/06/13	2013/06/13	2013/06/13	2013/06/13	2013/06/13	
Description				Fill	Fill	Fill	Silt Till	Fill	
Contaminant	**T2 RPI SCSs**	**Units**	**RDL**	**4479324**	**4479326**	**4479328**	**4479330**	**4479332**	
Benzene	0.21	µg/g	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	
Toluene	2.3	µg/g	0.08	<0.08	<0.08	<0.08	<0.08	<0.08	
Ethylbenzene	1.1	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Xylenes	3.1	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
C6 - C10 (F1)	55	µg/g	5	<5	<5	<5	<5	<5	
C6 - C10 (F1 minus BTEX)	55	µg/g	5	<5	<5	<5	<5	<5	
C>10 - C16 (F2)	98	µg/g	10	<10	<10	<10	<10	<10	
C>16 - C34 (F3)	300	µg/g	50	180	120	140	<50	110	
C>34 - C50 (F4)	2,800	µg/g	50	300	210	<50	<50	<50	
Gravimetric Heavy Hydrocarbons	2,800	µg/g	50	NA	NA	NA	NA	NA	

Notes:
RDL = Reported Detection Limit; NL = Not Listed; "-" = not analyzed

TABLE 5: Petroleum Hydrocarbons in Soil

Results of Chemical Testing Compared to the Table 2 (T2) Site Condition Standards (SCSs) for Residential/Parkland/Institutional (RPI) Property Use

Sample ID				**TP118 GS1**	**TP118 GS2**	**Duplicate B**	**TP120 GS1**	**TP120 GS2**	**TP122 GS1**
Depth (At Time of Sampling)				Refer to Table 1 of the previous PML Report 4					
Sample Date (Year/Month/Day)				2013/06/18	2013/06/18	2013/06/18	2013/06/18	2013/06/18	2013/06/18
Description				Fill	Silt Till	Duplicate of TP118 GS2	Topsoil	Silt Till	Fill
Contaminant	**T2 RPI SCSs**	**Units**	**RDL**	**4479351**	**4479353**	**4479385**	**4479355**	**4479357**	**4479360**
Benzene	0.21	µg/g	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Toluene	2.3	µg/g	0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08
Ethylbenzene	1.1	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Xylenes	3.1	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
C6 - C10 (F1)	55	µg/g	5	<5	<5	<5	<5	<5	<5
C6 - C10 (F1 minus BTEX)	55	µg/g	5	<5	<5	<5	<5	<5	<5
C>10 - C16 (F2)	98	µg/g	10	<10	<10	<10	<10	<10	<10
C>16 - C34 (F3)	300	µg/g	50	<50	<50	<50	210	<50	180
C>34 - C50 (F4)	2,800	µg/g	50	<50	<50	<50	130	<50	130
Gravimetric Heavy Hydrocarbons	2,800	µg/g	50	NA	NA	NA	NA	NA	NA

Notes:
RDL = Reported Detection Limit; NL = Not Listed; "-" = not analyzed

TABLE 5: Petroleum Hydrocarbons in Soil

Results of Chemical Testing Compared to the Table 2 (T2) Site Condition Standards (SCSs) for Residential/Parkland/Institutional (RPI) Property Use

Sample ID				**TP122 GS2**	**TP123 GS3**	**TP126 GS2**	**Intentionally Left Blank**		
Depth (At Time of Sampling)				Refer to Table 1 of the previous PML Report 4					
Sample Date (Year/Month/Day)				2013/06/18	2013/06/18	2013/06/18			
Description				Silt Till	Fill	Fill			
Contaminant	**T2 RPI SCSs**	**Units**	**RDL**	**4479362**	**4479364**	**4479367**			
Benzene	0.21	µg/g	0.02	<0.02	<0.02	<0.02			
Toluene	2.3	µg/g	0.08	<0.08	<0.08	<0.08			
Ethylbenzene	1.1	µg/g	0.05	<0.05	<0.05	<0.05			
Xylenes	3.1	µg/g	0.05	<0.05	<0.05	<0.05			
C6 - C10 (F1)	55	µg/g	5	<5	<5	<5			
C6 - C10 (F1 minus BTEX)	55	µg/g	5	<5	<5	<5			
C>10 - C16 (F2)	98	µg/g	10	<10	<10	<10			
C>16 - C34 (F3)	300	µg/g	50	<50	**510**	120			
C>34 - C50 (F4)	2,800	µg/g	50	<50	170	95			
Gravimetric Heavy Hydrocarbons	2,800	µg/g	50	NA	NA	NA			

Notes:
RDL = Reported Detection Limit; NL = Not Listed; "-" = not analyzed
1. Green Fill Sample IDs represent soil exceeding SCSs and removed during remediation.

TABLE 5: Petroleum Hydrocarbons in Soil

Results of Chemical Testing Compared to the Table 2 (T2) Site Condition Standards (SCSs) for Residential/Parkland/Institutional (RPI) Property Use

Sample ID				**GS4-11**	**Area 1 GS1**	**Area 1 GS2**	**Area 1 GS4**	**Area 1 GS5**	**Area 1 GS6**
Depth (At Time of Sampling)				Refer to Table 1 of previous PML Report 11					
Sample Date (Year/Month/Day)				2014/06/11	2014/03/24	2014/03/24	2014/03/24	2014/03/24	2014/03/24
Description				Fill	Fill	Fill	Fill	Topsoil	Topsoil
Contaminant	**T2 RPI SCSs**	**Units**	**RDL**	**WH8834**	**VH6909**	**VH6910**	**VH6911**	**VH6912**	**VH6913**
Benzene	0.21	µg/g	0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Toluene	2.3	µg/g	0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Ethylbenzene	1.1	µg/g	0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Xylenes	3.1	µg/g	0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040
C6 - C10 (F1)	55	µg/g	10	<10	<10	<10	<10	<10	<10
C6 - C10 (F1 minus BTEX)	55	µg/g	10	<10	<10	<10	<10	<10	<10
C>10 - C16 (F2)	98	µg/g	10	<20	<10	<10	<10	<10	<10
C>16 - C34 (F3)	300	µg/g	50	**520**	81	69	<50	<50	<50
C>34 - C50 (F4)	2,800	µg/g	50	1,500	280	53	<50	<50	<50
Gravimetric Heavy Hydrocarbons	2,800	µg/g	100	**5,600**	980	-	-	-	-

Notes:
RDL = Reported Detection Limit; NL = Not Listed; "-" = not analyzed
1. Green Fill Sample IDs represent soil exceeding SCSs and removed during remediation.

TABLE 5: Petroleum Hydrocarbons in Soil

Results of Chemical Testing Compared to the Table 2 (T2) Site Condition Standards (SCSs) for Residential/Parkland/Institutional (RPI) Property Use

Sample ID				**Area 1 GS9**	**Area 1 GS10**	**Area 1 DUP**	**Area 1 GS11**		**Area 3 E9**
Depth (At Time of Sampling)				Refer to Table 1 of previous PML Report 11					Refer to Table 1 of previous PML Report 11
Sample Date (Year/Month/Day)				2014/03/24	2014/03/24	2014/03/24	2014/03/24		2014-03-25
Description				Silt Till	Silt Till	Silt Till	Silt Till		Topsoil
Contaminant	**T2 RPI SCSs**	**Units**	**RDL**	**VH6914**	**VH6915**	**VH6917**	**VH6916**	**RDL**	**VI0768**
Benzene	0.21	µg/g	0.020	<0.020	<0.020	<0.020	<0.020	0.040	<0.040
Toluene	2.3	µg/g	0.020	<0.020	<0.020	<0.020	<0.020	0.040	<0.040
Ethylbenzene	1.1	µg/g	0.020	<0.020	<0.020	<0.020	<0.020	0.040	<0.040
Xylenes	3.1	µg/g	0.040	<0.040	<0.040	<0.040	<0.040	0.080	<0.080
C6 - C10 (F1)	55	µg/g	10	<10	<10	<10	<10	20	<20
C6 - C10 (F1 minus BTEX)	55	µg/g	10	<10	<10	<10	<10	20	<20
C>10 - C16 (F2)	98	µg/g	10	<10	<10	<10	<10	10	<10
C>16 - C34 (F3)	300	µg/g	50	<50	<50	<50	<50	50	<50
C>34 - C50 (F4)	2,800	µg/g	50	<50	<50	<50	<50	50	<50
Gravimetric Heavy Hydrocarbons	2,800	µg/g	100	-	-	-	-	-	-

Notes:
RDL = Reported Detection Limit; NL = Not Listed; "-" = not analyzed

TABLE 5: Petroleum Hydrocarbons in Soil

Results of Chemical Testing Compared to the Table 2 (T2) Site Condition Standards (SCSs) for Residential/Parkland/Institutional (RPI) Property Use

Sample ID				**Area 3 G6**	**Area 3 I4**		**Area 3 D3**	**Area 3 Duplicate**	**Area 3 C8**
Depth (At Time of Sampling)				Refer to Table 1 of previous PML Report 11			Refer to Table 1 of previous PML Report 11		
Sample Date (Year/Month/Day)				2014-03-25	2014-03-25		2014-03-26	2014-03-26	2014-03-26
Description				Silt Till	Silt Till		Silt	Silt	Silt Till
Contaminant	**T2 RPI SCSs**	**Units**	**RDL**	**VI0769**	**VI0770**	**RDL**	**VI4545**	**VI4561**	**VI4546**
Benzene	0.21	µg/g	0.040	<0.040	<0.040	0.020	<0.020	<0.020	<0.040
Toluene	2.3	µg/g	0.040	<0.040	<0.040	0.020	<0.020	<0.020	<0.040
Ethylbenzene	1.1	µg/g	0.040	<0.040	<0.040	0.020	<0.020	<0.020	<0.040
Xylenes	3.1	µg/g	0.080	<0.080	<0.080	0.040	<0.040	<0.040	<0.080
C6 - C10 (F1)	55	µg/g	20	<20	<20	10	<10	<10	<20
C6 - C10 (F1 minus BTEX)	55	µg/g	20	<20	<20	10	<10	<10	<20
C>10 - C16 (F2)	98	µg/g	10	<10	<10	10	81	**200**	<10
C>16 - C34 (F3)	300	µg/g	50	<50	<50	50	280	**420**	**730**
C>34 - C50 (F4)	2,800	µg/g	50	<50	<50	50	<50	<50	470
Gravimetric Heavy Hydrocarbons	2,800	µg/g	-	-	-	100	-	-	-

Notes:
RDL = Reported Detection Limit; NL = Not Listed; "-" = not analyzed
1. Green Fill Sample IDs represent soil exceeding SCSs and removed during remediation.

TABLE 5: Petroleum Hydrocarbons in Soil

Results of Chemical Testing Compared to the Table 2 (T2) Site Condition Standards (SCSs) for Residential/Parkland/Institutional (RPI) Property Use

Sample ID				**Area 3 I8**	**Area 3 A3**	**Area 3 A9**	**Area 3 B1**	**Area 3 F1**	**Area 3 J3**
Depth (At Time of Sampling)				Refer to Table 1 of previous PML Report 11					
Sample Date (Year/Month/Day)				2014-03-26	2014-03-26	2014-03-26	2014-03-26	2014-03-26	2014-03-26
Description				Silt Till	Topsoil	Topsoil	Topsoil	Fill	Fill
Contaminant	**T2 RPI SCSs**	**Units**	**RDL**	**VI4547**	**VI4551**	**VI4552**	**VI4554**	**VI4555**	**VI4558**
Benzene	0.21	µg/g	0.040	<0.020	<0.040	<0.060	<0.040	<0.020	<0.020
Toluene	2.3	µg/g	0.040	<0.020	<0.040	<0.060	<0.040	<0.020	<0.020
Ethylbenzene	1.1	µg/g	0.040	<0.020	<0.040	<0.060	<0.040	<0.020	<0.020
Xylenes	3.1	µg/g	0.080	<0.040	<0.080	<0.12	<0.080	<0.040	<0.040
C6 - C10 (F1)	55	µg/g	20	<10	<20	<30	<20	<10	<10
C6 - C10 (F1 minus BTEX)	55	µg/g	20	<10	<20	<30	<20	<10	<10
C>10 - C16 (F2)	98	µg/g	10	<10	<10	<10	<10	<10	41
C>16 - C34 (F3)	300	µg/g	50	<50	<50	260	**360**	150	**2,300**
C>34 - C50 (F4)	2,800	µg/g	50	<50	<50	420	690	130	590
Gravimetric Heavy Hydrocarbons	2,800	µg/g	-	-	-	2,200	2,400	670	-

Notes:
RDL = Reported Detection Limit; NL = Not Listed; "-" = not analyzed
1. Green Fill Sample IDs represent soil exceeding SCSs and removed during remediation.

TABLE 5: Petroleum Hydrocarbons in Soil

Results of Chemical Testing Compared to the Table 2 (T2) Site Condition Standards (SCSs) for Residential/Parkland/Institutional (RPI) Property Use

Sample ID				**Area 3 J10**	**Area 3 G6-1**	**Area 3 E9-1**	**Area 3 C8-1**	**Area 3 D3-1**	**Area 3 B1-1**
Depth (At Time of Sampling)				Refer to Table 1 of previous PML Report 11					
Sample Date (Year/Month/Day)				2014-03-26	2014-08-14	2014-08-14	2014-08-14	2014-08-14	2014-08-15
Description				Fill	Silt Till	Topsoil	Silt Till	Silt	Topsoil
Contaminant	**T2 RPI SCSs**	**Units**	**RDL**	**VI4559**	**XD3769**	**XD3770**	**XD3771**	**XD3772**	**XD9708**
Benzene	0.21	µg/g	0.040	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Toluene	2.3	µg/g	0.040	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Ethylbenzene	1.1	µg/g	0.040	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Xylenes	3.1	µg/g	0.080	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040
C6 - C10 (F1)	55	µg/g	20	<10	<10	<10	<10	<10	<10
C6 - C10 (F1 minus BTEX)	55	µg/g	20	<10	<10	<10	<10	<10	<10
C>10 - C16 (F2)	98	µg/g	10	<10	<10	<10	<10	<10	<10
C>16 - C34 (F3)	300	µg/g	50	100	<50	<50	<50	280	160
C>34 - C50 (F4)	2,800	µg/g	50	100	<50	<50	<50	94	330
Gravimetric Heavy Hydrocarbons	2,800	µg/g	-	320	-	-	-	400	1,600

Notes:
RDL = Reported Detection Limit; NL = Not Listed; "-" = not analyzed

TABLE 5: Petroleum Hydrocarbons in Soil

Results of Chemical Testing Compared to the Table 2 (T2) Site Condition Standards (SCSs) for Residential/Parkland/Institutional (RPI) Property Use

Sample ID				**Area 3 J3-1**	**Area 3 J10-1**	**Area 3 J3-2**	**Topsoil Area A1**	**Topsoil Area B0**	**Topsoil Area D1**
Depth (At Time of Sampling)				Refer to Table 1 of previous PML Report 11					
Sample Date (Year/Month/Day)				2014-08-15	2014-08-15	2014-08-21	2014-08-14	2014-08-14	2014-08-14
Description				Fill	Fill	Fill	Fill	Fill	Fill
Contaminant	**T2 RPI SCSs**	**Units**	**RDL**	**XD9710**	**XD9709**	**XG2017**	**XD3773**	**XD3774**	**XD3775**
Benzene	0.21	µg/g	0.040	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Toluene	2.3	µg/g	0.040	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Ethylbenzene	1.1	µg/g	0.040	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Xylenes	3.1	µg/g	0.080	<0.040	<0.040	<0.040	0.077	<0.040	<0.040
C6 - C10 (F1)	55	µg/g	20	<10	<10	<10	<10	<10	<10
C6 - C10 (F1 minus BTEX)	55	µg/g	20	<10	<10	<10	<10	<10	<10
C>10 - C16 (F2)	98	µg/g	10	<10	<10	<10	<10	<10	<10
C>16 - C34 (F3)	300	µg/g	50	**360**	130	**390**	<50	140	100
C>34 - C50 (F4)	2,800	µg/g	50	400	330	540	<50	<50	91
Gravimetric Heavy Hydrocarbons	2,800	µg/g	-	**5,800**	1,700	2,200	-	-	470

Notes:
RDL = Reported Detection Limit; NL = Not Listed; "-" = not analyzed
1. Red Fill Entries exceed the T2 RPI SCSs and will require remediation.
2. Green Fill Sample IDs represent soil exceeding SCSs and removed during remediation.

TABLE 5: Petroleum Hydrocarbons in Soil

Results of Chemical Testing Compared to the Table 2 (T2) Site Condition Standards (SCSs) for Residential/Parkland/Institutional (RPI) Property Use

Sample ID				**Topsoil Area E2.5**	**Topsoil Area B2**	**Topsoil Area C1**	**Topsoil Area E2.5-1**	**BH/MW201 SS2**	**Duplicate 2**
Depth (At Time of Sampling)				Refer to Table 1 of previous PML Report 11 and to Table 2 of this Phase Two ESA Update					
Sample Date (Year/Month/Day)				2014-08-14	2014-08-14	2014-08-14	2014-08-21	2017-02-23	2017-02-23
Description				Topsoil Fill	Fill	Fill	Fill	Silt Till	Duplicate of BH/MW201 SS2
Contaminant	**T2 RPI SCSs**	**Units**	**RDL**	**XD3776**	**XD3777**	**XD3778**	**XG2015**	**8215995**	**8216013**
Benzene	0.21	µg/g	0.02	<0.020	<0.020	<0.020	<0.020	-	-
Toluene	2.3	µg/g	0.02	<0.020	<0.020	<0.020	<0.020	-	-
Ethylbenzene	1.1	µg/g	0.02	<0.020	<0.020	<0.020	<0.020	-	-
Xylenes	3.1	µg/g	0.04	<0.040	<0.040	<0.040	<0.040	-	-
C6 - C10 (F1)	55	µg/g	10	<10	<10	<10	<10	<5	<5
C6 - C10 (F1 minus BTEX)	55	µg/g	10	<10	<10	<10	<10	<5	<5
C>10 - C16 (F2)	98	µg/g	10	<10	18	<10	<10	<10	<10
C>16 - C34 (F3)	300	µg/g	50	**320**	51	250	<10	<50	<50
C>34 - C50 (F4)	2,800	µg/g	50	150	<50	130	<50	<50	<50
Gravimetric Heavy Hydrocarbons	2,800	µg/g	50	600	-	470	-	NA	NA

Notes:
RDL = Reported Detection Limit; NL = Not Listed; "-" = not analyzed
1. Green Fill Sample IDs represent soil exceeding SCSs and removed during remediation.

TABLE 5: Petroleum Hydrocarbons in Soil

Results of Chemical Testing Compared to the Table 2 (T2) Site Condition Standards (SCSs) for Residential/Parkland/Institutional (RPI) Property Use

Sample ID				**BH/MW202 SS2**	**BH/MW203 SS2**	**BH301 AS1**	**BH301 AS2**	**Duplicate 1**	**BH302 AS1**
Depth (At Time of Sampling)				Refer to Table 2 of this Phase Two ESA Update					
Sample Date (Year/Month/Day)				02/23/2017	02/23/2017	03/30/2017	03/30/2017	03/30/2017	03/30/2017
Description				Fill	Silt Till	Clayey Silt	Silty Clay Till	Duplicate of BH301 AS2	Fill
Contaminant	**T2 RPI SCSs**	**Units**	**RDL**	**8215996**	**8216005**	**8292225**	**8292226**	**8292251**	**8292228**
Benzene	0.21	µg/g	0.02	-	-	<0.02	<0.02	<0.02	<0.02
Toluene	2.3	µg/g	0.08	-	-	<0.08	<0.08	<0.08	<0.08
Ethylbenzene	1.1	µg/g	0.05	-	-	<0.05	<0.05	<0.05	<0.05
Xylenes	3.1	µg/g	0.05	-	-	<0.05	<0.05	<0.05	<0.05
C6 - C10 (F1)	55	µg/g	5	<5	<5	<5	<5	<5	<5
C6 - C10 (F1 minus BTEX)	55	µg/g	5	<5	<5	<5	<5	<5	<5
C>10 - C16 (F2)	98	µg/g	10	<10	<10	<10	<10	<10	<10
C>16 - C34 (F3)	300	µg/g	50	**2,000**	<50	<50	<50	<50	<50
C>34 - C50 (F4)	2,800	µg/g	50	2,100	<50	<50	<50	<50	<50
Gravimetric Heavy Hydrocarbons	2,800	µg/g	50	NA	NA	NA	NA	NA	NA

Notes:
RDL = Reported Detection Limit; NL = Not Listed; "-" = not analyzed
1. Red Fill Entries exceed the T2 RPI SCSs and will require remediation.

TABLE 5: Petroleum Hydrocarbons in Soil

Results of Chemical Testing Compared to the Table 2 (T2) Site Condition Standards (SCSs) for Residential/Parkland/Institutional (RPI) Property Use

Sample ID				**BH302 AS2**	**BH303 AS1**	**BH304 AS1**	**BH304 AS2**	**BH305 AS1**	**BH305 AS2**
Depth (At Time of Sampling)				Refer to Table 2 of this Phase Two ESA Update					
Sample Date (Year/Month/Day)				03/30/2017	03/30/2017	03/28/2017	03/28/2017	03/28/2017	03/28/2017
Description				Silty Clay Till	Silty Clay Till	Sandy Silt	Silty Clay Till	Fill	Silty Clay Till
Contaminant	**T2 RPI SCSs**	**Units**	**RDL**	**8292230**	**8292232**	**8292234**	**8292236**	**8292238**	**8292240**
Benzene	0.21	µg/g	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Toluene	2.3	µg/g	0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08
Ethylbenzene	1.1	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Xylenes	3.1	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
C6 - C10 (F1)	55	µg/g	5	<5	<5	<5	<5	<5	<5
C6 - C10 (F1 minus BTEX)	55	µg/g	5	<5	<5	<5	<5	<5	<5
C>10 - C16 (F2)	98	µg/g	10	<10	<10	<10	<10	<10	<10
C>16 - C34 (F3)	300	µg/g	50	<50	<50	<50	<50	<50	<50
C>34 - C50 (F4)	2,800	µg/g	50	<50	<50	<50	<50	<50	<50
Gravimetric Heavy Hydrocarbons	2,800	µg/g	50	NA	NA	NA	NA	NA	NA

Notes:
RDL = Reported Detection Limit; NL = Not Listed; "-" = not analyzed

TABLE 5: Petroleum Hydrocarbons in Soil

Results of Chemical Testing Compared to the Table 2 (T2) Site Condition Standards (SCSs) for Residential/Parkland/Institutional (RPI) Property Use

Sample ID				**BH306 AS1**	**BH306 AS2**	**BH307 AS1**	**Intentionally Left Blank**		
Depth (At Time of Sampling)				Refer to Table 2 of this Phase Two ESA Update					
Sample Date (Year/Month/Day)				03/28/2017	03/28/2017	03/28/2017			
Description				Fill	Silty Clay Till	Silty Clay Till			
Contaminant	**T2 RPI SCSs**	**Units**	**RDL**	**8292242**	**8292246**	**8292248**			
Benzene	0.21	µg/g	0.02	<0.02	<0.02	<0.02			
Toluene	2.3	µg/g	0.08	<0.08	<0.08	<0.08			
Ethylbenzene	1.1	µg/g	0.05	<0.05	<0.05	<0.05			
Xylenes	3.1	µg/g	0.05	<0.05	<0.05	<0.05			
C6 - C10 (F1)	55	µg/g	5	<5	<5	<5			
C6 - C10 (F1 minus BTEX)	55	µg/g	5	<5	<5	<5			
C>10 - C16 (F2)	98	µg/g	10	<10	<10	<10			
C>16 - C34 (F3)	300	µg/g	50	130	<50	53			
C>34 - C50 (F4)	2,800	µg/g	50	51	<50	<50			
Gravimetric Heavy Hydrocarbons	2,800	µg/g	50	NA	NA	NA			

Notes:
RDL = Reported Detection Limit; NL = Not Listed; "-" = not analyzed

TABLE 6: Volatile Organic Compounds in Soil

Results of Chemical Testing Compared to the Table 2 (T2) Site Condition Standards (SCSs) for Residential/Parkland/Institutional (RPI) Property Use

Sample ID				BH/MW 101 SS2B	BH 111 AS1A	BH 112 AS1	BH 113 AS1	BH/MW201 SS2	Duplicate 2
Depth (At Time of Sampling)				Refer to Table 2 of the previous PML Report 2 and Table 2 of this Phase Two ESA Update					
Sample Date (Year/Month/Day)				2013-03-05	2013-03-05	2013-03-05	2013-03-05	02/23/2017	02/23/2017
Description				Clay till	Fill	Fill	Fill	Silt Till	Fill
Contaminant	**T2 RPI SCSs**	**Units**	**RDL**	**4174583**	**4174618**	**4174620**	**4174624**	**8215995**	**8216013**
Acetone	16	µg/g	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Benzene	0.21	µg/g	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bromodichloromethane	1.5	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Bromoform	0.27	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Bromomethane	0.05	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Carbon Tetrachloride	0.05	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorobenzene	2.4	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chloroform	0.05	µg/g	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Dibromochloromethane	2.3	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-Dichlorobenzene	1.2	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,3-Dichlorobenzene	4.8	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,4-Dichlorobenzene	0.083	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichlorodifluoromethane	16	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethane	0.47	µg/g	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
1,2-Dichloroethane	0.05	µg/g	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
1,1-Dichloroethylene	0.05	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Cis- 1,2-Dichloroethylene	1.9	µg/g	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Trans- 1,2-Dichloroethylene	0.084	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-Dichloropropane	0.05	µg/g	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
1,3-Dichloropropene	0.05	µg/g	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Ethylbenzene	1.1	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ethylene Dibromide	0.05	µg/g	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
n-Hexane	2.8	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methyl Ethyl Ketone	16	µg/g	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl Isobutyl Ketone	1.7	µg/g	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl tert-butyl Ether	0.75	ug/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methylene Chloride	0.1	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Styrene	0.7	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,1,2-Tetrachloroethane	0.058	µg/g	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
1,1,2,2-Tetrachloroethane	0.05	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Tetrachloroethylene	0.28	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Toluene	2.3	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,1-Trichloroethane	0.38	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,2-Trichloroethane	0.05	µg/g	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Trichloroethylene	0.061	µg/g	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Trichlorofluoromethane	4	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Vinyl Chloride	0.02	µg/g	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Xylene Mixture	3.1	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Notes: RDL = Reported Detection Limit; NL = Not Listed

TABLE 6: Volatile Organic Compounds in Soil

Results of Chemical Testing Compared to the Table 2 (T2) Site Condition Standards (SCSs) for Residential/Parkland/Institutional (RPI) Property Use

Sample ID				**BH/MW202 SS2**	**BH/MW203 SS2**	**Intentionally Left Blank**			
Depth (At Time of Sampling)				Refer to Table 2 of this Phase Two ESA Update					
Sample Date (Year/Month/Day)				02/23/2017	02/23/2017				
Description				Silt Till	Duplicate of BH/MW203 SS2				
Contaminant	**T2 RPI SCSs**	**Units**	**RDL**	**8215996**	**8216005**				
Acetone	16	µg/g	0.50	<0.50	<0.50				
Benzene	0.21	µg/g	0.02	<0.02	<0.02				
Bromodichloromethane	1.5	µg/g	0.05	<0.05	<0.05				
Bromoform	0.27	µg/g	0.05	<0.05	<0.05				
Bromomethane	0.05	µg/g	0.05	<0.05	<0.05				
Carbon Tetrachloride	0.05	µg/g	0.05	<0.05	<0.05				
Chlorobenzene	2.4	µg/g	0.05	<0.05	<0.05				
Chloroform	0.05	µg/g	0.04	<0.04	<0.04				
Dibromochloromethane	2.3	µg/g	0.05	<0.05	<0.05				
1,2-Dichlorobenzene	1.2	µg/g	0.05	<0.05	<0.05				
1,3-Dichlorobenzene	4.8	µg/g	0.05	<0.05	<0.05				
1,4-Dichlorobenzene	0.083	µg/g	0.05	<0.05	<0.05				
Dichlorodifluoromethane	16	µg/g	0.05	<0.05	<0.05				
1,1-Dichloroethane	0.47	µg/g	0.02	<0.02	<0.02				
1,2-Dichloroethane	0.05	µg/g	0.03	<0.03	<0.03				
1,1-Dichloroethylene	0.05	µg/g	0.05	<0.05	<0.05				
Cis- 1,2-Dichloroethylene	1.9	µg/g	0.02	<0.02	<0.02				
Trans- 1,2-Dichloroethylene	0.084	µg/g	0.05	<0.05	<0.05				
1,2-Dichloropropane	0.05	µg/g	0.03	<0.03	<0.03				
1,3-Dichloropropene	0.05	µg/g	0.04	<0.04	<0.04				
Ethylbenzene	1.1	µg/g	0.05	<0.05	<0.05				
Ethylene Dibromide	0.05	µg/g	0.04	<0.04	<0.04				
n-Hexane	2.8	µg/g	0.05	<0.05	<0.05				
Methyl Ethyl Ketone	16	µg/g	0.50	<0.50	<0.50				
Methyl Isobutyl Ketone	1.7	µg/g	0.50	<0.50	<0.50				
Methyl tert-butyl Ether	0.75	µg/g	0.05	<0.05	<0.05				
Methylene Chloride	0.1	µg/g	0.05	<0.05	<0.05				
Styrene	0.7	µg/g	0.05	<0.05	<0.05				
1,1,1,2-Tetrachloroethane	0.058	µg/g	0.04	<0.04	<0.04				
1,1,2,2-Tetrachloroethane	0.05	µg/g	0.05	<0.05	<0.05				
Tetrachloroethylene	0.28	µg/g	0.05	<0.05	<0.05				
Toluene	2.3	µg/g	0.05	<0.05	<0.05				
1,1,1-Trichloroethane	0.38	µg/g	0.05	<0.05	<0.05				
1,1,2-Trichloroethane	0.05	µg/g	0.04	<0.04	<0.04				
Trichloroethylene	0.061	µg/g	0.03	<0.03	<0.03				
Trichlorofluoromethane	4	µg/g	0.05	<0.05	<0.05				
Vinyl Chloride	0.02	µg/g	0.02	<0.02	<0.02				
Xylene Mixture	3.1	µg/g	0.05	<0.05	<0.05				

Notes: RDL = Reported Detection Limit; NL = Not Listed

TABLE 7: Polychlorinated Biphenyls in Soil

Results of Chemical Testing Compared to the Table 2 (T2) Site Condition Standards (SCSs) for Residential/Parkland/Institutional (RPI) Property Use

Sample ID				**GS4-11**	**Intentionally Left Blank**
Depth (At Time of Sampling)				Refer to Table 1 of the previous PML Report 11	
Sample Date (Year/Month/Day)				2014/06/11	
Description				Fill	
Contaminant	**Table 2 RPI SCS**	**Units**	**RDL**	**WH8834**	
Aroclor 1242		µg/g	0.010	<0.010	
Aroclor 1248		µg/g	0.010	<0.010	
Aroclor 1254		µg/g	0.010	<0.010	
Aroclor 1260		µg/g	0.010	<0.010	
Polychlorinated Biphenyls	0.35	µg/g	0.010	<0.010	

Notes:
RDL = Reported Detection Limit; NL = Not Listed; "-" = not analyzed

TABLE 8: Polycyclic Aromatic Hydrocarbons in Soil

Results of Chemical Testing Compared to the Table 2 (T2) Site Condition Standards (SCSs) for Residential/Parkland/Institutional (RPI) Property Use

Sample ID				**BH/MW201 SS1B**	**BH/MW202 SS2**	**BH/MW203 SS2**	**Duplicate 1**	**Intentionally Left Blank**
Depth (At Time of Sampling)				Refer to Table 2 of this Phase Two ESA Update				
Sample Date (Year/Month/Day)				02/23/2017	02/23/2017	02/23/2017	02/23/2017	
Description				Silt Till	Fill	Silt Till	Duplicate of BH/MW203 SS2	
Contaminant	**T2 RPI SCSs**	**Units**	**RDL**	**8215993**	**8215996**	**8216005**	**8216009**	
Acenaphthene	7.9	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	
Acenaphthylene	0.15	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	
Anthracene	0.67	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	
Benz(a)anthracene	0.5	µg/g	0.05	<0.05	0.11	<0.05	<0.05	
Benzo(a)pyrene	0.3	µg/g	0.05	<0.05	0.06	<0.05	<0.05	
Benzo(b)fluoranthene	0.78	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	
Benzo(g,h,i)perylene	6.6	µg/g	0.05	<0.05	0.06	<0.05	<0.05	
Benzo(k)fluoranthene	0.78	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	
Chrysene	7	µg/g	0.05	<0.05	0.12	<0.05	<0.05	
Dibenz(a,h)anthracene	0.1	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	
Fluoranthene	0.69	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	
Fluorene	62	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	
Indeno(1,2,3-cd)pyrene	0.38	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	
2-and1-methyl Naphthalene	0.99	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	
Naphthalene	0.6	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	
Phenanthrene	6.2	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	
Pyrene	78	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	

Notes:
RDL = Reported Detection Limit; NL = Not Listed; "-" = not analyzed

TABLE 9: Metals and Inorganics in Ground Water

Results of Chemical Testing Compared to the Table 2 (T2) Site Condition Standards (SCSs) for All Types of Property Use (All) Potable Ground Water

Sample ID				**BH/MW101**	**BH/MW102**		**BH/MW201**	**Duplicate A**	**BH/MW202**	**BH/MW203**	**Intentionally Left Blank**
Screened Depth				Refer to Table 2 of previous PML Report 2			Refer to Table 2 of this Phase Two ESA Update				
Sample Date (Year/Month/Day)				2013-03-07	2013-03-07		02/24/2017	02/24/2017	02/24/2017	02/24/2017	
Description				Reddish brown, silty, no odours or sheens	Reddish brown, silty, no odours or sheens		Reddish brown, silty, no odours or sheens	Duplicate of BH/MW201	Brown, very silty, no odours or sheens	Brown, silty, no odours or sheens	
Contaminant	**T2 All SCSs**	**Units**	**RDL**	4180699	4180710	**RDL**	8218483	8218533	8218487	8218507	
Antimony	6	µg/L	0.5	<0.5	<0.5	1.0	<1.0	<1.0	<1.0	<1.0	
Arsenic	25	µg/L	1.0	1.5	1.3	1.0	<1.0	<1.0	<1.0	<1.0	
Barium	1,000	µg/L	2.0	70.4	92.5	2.0	98.2	57.2	41.0	92.7	
Beryllium	4	µg/L	0.5	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	
Boron	5,000	µg/L	10.0	60.3	462	10.0	106	67.5	55.8	92.7	
Cadmium	2.7	µg/L	0.2	<0.2	<0.2	0.2	<0.2	<0.2	<0.2	<0.2	
Chloride	790,000	µg/L	100	188,000	110,000	500	53,500	304,000	105,000	54,100	
Chromium	50	µg/L	2.0	5.5	4.2	2.0	<2.0	2.2	<2.0	<2.0	
Chromium VI	25	µg/L	5	<5	<5	5	<5	<5	<5	<5	
Cobalt	3.8	µg/L	0.5	1.6	2.3	0.5	0.6	0.9	0.7	0.6	
Copper	87	µg/L	1.0	2.8	13.7	1.0	2.4	2.8	1.9	2.1	
Cyanide	66	µg/L	2	<2	<2	2	<2	<2	<2	<2	
Electrical Conductivity	NA	uS/cm	2	1,800	1,790	2	1,400	1,980	1,680	1,400	
Lead	10	µg/L	0.5	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	
Mercury	0.29	µg/L	0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	
Molybdenum	70	µg/L	0.5	21.3	6.9	0.5	7.0	1.8	1.3	6.9	
Nickel	100	µg/L	1.0	6.8	13.5	1.0	<1.0	2.1	1.8	1.2	
Selenium	10	µg/L	1.0	<1.0	<1.0	1.0	3.6	1.9	2.6	4.6	
Silver	1.5	µg/L	0.2	<0.2	<0.2	0.2	<0.2	<0.2	<0.2	<0.2	
Sodium	490,000	µg/L	500	131,000	72,200	1,000	88,400	46,900	44,600	90,400	
Thallium	2	µg/L	0.3	<0.3	<0.3	0.3	<0.3	<0.3	<0.3	<0.3	
Uranium	20	µg/L	0.5	10.3	7.8	0.5	10.2	10.3	8.3	9.7	
Vanadium	6.2	µg/L	0.4	1.0	0.9	0.4	1.5	0.5	<0.4	1.5	
Zinc	1,100	µg/L	5.0	7.1	<5.0	5.0	<5.0	<5.0	<5.0	<5.0	
pH	NA	pH Units	NA	7.99	7.71	NA	8.23	8.12	8.18	8.20	

Notes:
RDL = Reported Detection Limit; "-" = not analyzed; NL = Not Listed; NA = Not Applicable

TABLE 10: Petroleum Hydrocarbons in Ground Water

Results of Chemical Testing Compared to the Table 2 (T2) Site Condition Standards (SCSs) for All Types of Property Use (All) Potable Ground Water

Sample ID				**BH/MW101**	**BH/MW102**	**BH/MW201**	**Duplicate A**	**BH/MW202**	**BH/MW203**	**Intentionally Left Blank**
Screened Depth				Refer to Table 2 of previous PML Report 2		Refer to Table 2 of this Phase Two ESA Update				
Sample Date (Year/Month/Day)				2013-03-07	2013-03-07	02/24/2017	02/24/2017	02/24/2017	02/24/2017	
Description				Reddish brown, silty, no odours or sheens	Reddish brown, silty, no odours or sheens	Reddish brown, silty, no odours or sheens	Duplicate of BH/MW201	Brown, very silty, no odours or sheens	Brown, silty, no odours or sheens	
Contaminant	**T2 All SCSs**	**Units**	**RDL**	**4180699**	**4180710**	**8218483**	**8218533**	**8218487**	**8218507**	
C6 - C10 (F1)	750	µg/L	25	<25	<25	<25	<25	<25	<25	
C6 - C10 (F1 minus BTEX)	750	µg/L	25	<25	<25	<25	<25	<25	<25	
C>10 - C16 (F2)	150	µg/L	100	<100	<100	<100	<100	<100	<100	
C>16 - C34 (F3)	500	µg/L	100	<100	<100	<100	<100	160	<100	
C>34 - C50 (F4)	500	µg/L	100	<100	<100	<100	<100	<100	<100	
Gravimetric Heavy Hydrocarbons	500	µg/L	500	NA	NA	NA	NA	NA	NA	

Notes:
RDL = Reported Detection Limit; NL = Not Listed; PHC = Petroleum Hydrocarbon

TABLE 11: Volatile Organic Compounds in Ground Water

Results of Chemical Testing Compared to the Table 2 (T2) Site Condition Standards (SCSs) for All Types of Property Use (All) Non-Potable Ground Water

Sample ID				**BH/MW101**		**BH/MW102**		**BH/MW201**	**Duplicate A**	**BH/MW202**	**BH/MW203**
Screened Depth				Refer to Table 2 of previous PML Report 2		Refer to Table 2 of previous PML Report 2		Refer to Table 2 of this Phase Two ESA Update			
Sample Date (Year/Month/Day)				2013-03-07		2013-03-07		02/24/2017	02/24/2017	02/24/2017	02/24/2017
Description				Reddish brown, silty, no odours or sheens		Reddish brown, silty, no odours or sheens		Reddish brown, silty, no odours or sheens	Duplicate of BH/MW201	Brown, very silty, no odours or sheens	Brown, silty, no odours or sheens
Contaminant	**T2 All SCSs**	**Units**	**RDL**	**4180699**	**RDL**	**4180710**	**RDL**	**8218483**	**8218533**	**8218487**	**8218507**
Acetone	2,700	µg/L	1.0	<1.0	2.0	<2.0	1.0	<1.0	<1.0	<2.0	<1.0
Benzene	5	µg/L	0.20	0.3	0.40	<0.40	0.20	<0.20	<0.20	<0.40	<0.20
Bromodichloromethane	16	µg/L	0.20	<0.20	0.40	<0.40	0.20	<0.20	<0.20	<0.40	<0.20
Bromoform	25	µg/L	0.10	<0.10	0.20	<0.20	0.10	<0.10	<0.10	<0.20	<0.10
Bromomethane	0.89	µg/L	0.20	<0.20	0.40	<0.40	0.20	<0.20	<0.20	<0.40	<0.20
Carbon Tetrachloride	0.79	µg/L	0.20	<0.20	0.40	<0.40	0.20	<0.20	<0.20	<0.40	<0.20
Chlorobenzene	30	µg/L	0.10	<0.10	0.20	<0.20	0.10	<0.10	<0.10	<0.20	<0.10
Chloroform	2.4	µg/L	0.20	<0.20	0.40	<0.40	0.20	<0.20	<0.20	<0.40	<0.20
Dibromochloromethane	25	µg/L	0.10	<0.10	0.20	<0.20	0.10	<0.10	<0.10	<0.20	<0.10
1,2-Dichlorobenzene	3	µg/L	0.10	<0.10	0.20	<0.20	0.10	<0.10	<0.10	<0.20	<0.10
1,3-Dichlorobenzene	59	µg/L	0.10	<0.10	0.20	<0.20	0.10	<0.10	<0.10	<0.20	<0.10
1,4-Dichlorobenzene	1	µg/L	0.10	<0.10	0.20	<0.20	0.10	<0.10	<0.10	<0.20	<0.10
Dichlorodifluoromethane	590	µg/L	0.20	<0.20	0.40	<0.40	0.20	<0.20	<0.20	<0.40	<0.20
1,1-Dichloroethane	5	µg/L	0.30	<0.30	0.60	<0.60	0.30	<0.30	<0.30	<0.60	<0.30
1,2-Dichloroethane	1.6	µg/L	0.20	<0.20	0.40	<0.40	0.20	<0.20	<0.20	<0.40	<0.20
1,1-Dichloroethylene	1.6	µg/L	0.30	<0.30	0.60	<0.60	0.30	<0.30	<0.30	<0.60	<0.30
cis- 1,2-Dichloroethylene	1.6	µg/L	0.20	<0.20	0.40	<0.40	0.20	<0.20	<0.20	<0.40	<0.20
trans- 1,2-Dichloroethylene	1.6	µg/L	0.20	<0.20	0.40	<0.40	0.20	<0.20	<0.20	<0.40	<0.20
1,2-Dichloropropane	5	µg/L	0.20	<0.20	0.40	<0.40	0.20	<0.20	<0.20	<0.40	<0.20
1,3-Dichloropropene	0.5	µg/L	0.30	<0.30	0.60*	<0.60*	0.30	<0.30	<0.30	<0.50	<0.30
Ethylbenzene	2.4	µg/L	0.10	<0.10	0.20	<0.20	0.10	<0.10	<0.10	<0.20	<0.10
Ethylene Dibromide	0.2	µg/L	0.10	<0.10	0.20	<0.20	0.10	<0.10	<0.10	<0.20	<0.10
n-Hexane	51	µg/L	0.20	<0.20	0.40	<0.40	0.20	<0.20	<0.20	<0.40	<0.20
Methyl Ethyl Ketone	1,800	µg/L	1.0	<1.0	2.0	<2.0	1.0	<1.0	<1.0	<2.0	<1.0
Methyl Isobutyl Ketone	640	µg/L	1.0	<1.0	2.0	<2.0	1.0	<1.0	<1.0	<2.0	<1.0

TABLE 11: Volatile Organic Compounds in Ground Water

Results of Chemical Testing Compared to the Table 2 (T2) Site Condition Standards (SCSs) for All Types of Property Use (All) Non-Potable Ground Water

Sample ID				BH/MW101		BH/MW102		BH/MW201	Duplicate A	BH/MW202	BH/MW203
Screened Depth				Refer to Table 2 of previous PML Report 2		Refer to Table 2 of previous PML Report 2		Refer to Table 2 of this Phase Two ESA Update			
Sample Date (Year/Month/Day)				2013-03-07		2013-03-07		02/24/2017	02/24/2017	02/24/2017	02/24/2017
Description				Reddish brown, silty, no odours or sheens		Reddish brown, silty, no odours or sheens		Reddish brown, silty, no odours or sheens	Duplicate of BH/MW201	Brown, very silty, no odours or sheens	Brown, silty, no odours or sheens
Contaminant	**T2 All SCSs**	**Units**	**RDL**	**4180699**	**RDL**	**4180710**	**RDL**	**8218483**	**8218533**	**8218487**	**8218507**
Methyl tert-butyl ether	15	µg/L	0.20	<0.20	0.40	<0.40	0.20	<0.20	<0.20	<0.40	<0.20
Methylene Chloride	50	µg/L	0.30	<0.30	0.60	<0.60	0.30	<0.30	<0.30	<0.60	<0.30
Styrene	5.4	µg/L	0.10	<0.10	0.20	<0.20	0.10	<0.10	<0.10	<0.20	<0.10
1,1,1,2-Tetrachloroethane	1.1	µg/L	0.10	<0.10	0.20	<0.20	0.10	<0.10	<0.10	<0.20	<0.10
1,1,2,2-Tetrachloroethane	1	µg/L	0.10	<0.10	0.20	<0.20	0.10	<0.10	<0.10	<0.20	<0.10
Tetrachloroethylene	1.6	µg/L	0.20	<0.20	0.40	<0.40	0.20	<0.20	<0.20	<0.40	<0.20
Toluene	24	µg/L	0.20	0.36	0.40	<0.40	0.20	<0.20	<0.20	<0.40	<0.20
1,1,1-Trichloroethane	200	µg/L	0.30	<0.30	0.60	<0.60	0.30	<0.30	<0.30	<0.60	<0.30
1,1,2-Trichloroethane	4.7	µg/L	0.20	<0.20	0.40	<0.40	0.20	<0.20	<0.20	<0.40	<0.20
Trichloroethylene	1.6	µg/L	0.20	<0.20	0.40	<0.40	0.20	<0.20	<0.20	<0.40	<0.20
Trichlorofluoromethane	150	µg/L	0.40	<0.40	0.80	<0.80	0.40	<0.40	<0.40	<0.80	<0.40
Vinyl Chloride	0.5	µg/L	0.17	<0.17	0.34	<0.34	0.17	<0.17	<0.17	<0.34	<0.17
Xylene Mixture	300	µg/L	0.20	<0.20	0.40	<0.40	0.20	<0.20	<0.20	<0.40	<0.20

Notes:
RDL = Reported Detection Limit; NL = Not Listed; "-" = not analyzed
1. * - Result is inconclusive since the RDL is above the T2 SCSs. Well was decommissioned and well was replaced by BH/MW201, BH/MW202 and BH/MW203.

TABLE 12: Polycyclic Aromatic Hydrocarbons in Ground Water

Results of Chemical Testing Compared to the Table 2 (T2) Site Condition Standards (SCSs) for All Types of Property Use (All) Non-Potable Ground Water

Sample ID				**BH/MW201**	**Duplicate A**	**BH/MW202**	**BH/MW203**	**Intentionally Left Blank**				
Screened Depth				Refer to Table 2 of this Phase Two ESA Update								
Sample Date (Year/Month/Day)				02/24/2017	02/24/2017	02/24/2017	02/24/2017					
Description				Reddish brown, silty, no odours or sheens	Duplicate of BH/MW201	Brown, very silty, no odours or sheens	Brown, silty, no odours or sheens					
Contaminant	**T2 All SCSs**	**Units**	**RDL**	**8218483**	**8218533**	**8218487**	**8218507**					
Acenaphthene	4.1	µg/L	0.05	<0.20	<0.20	<0.20	<0.20					
Acenaphthylene	1	µg/L	0.05	<0.20	<0.20	<0.20	<0.20					
Anthracene	2.4	µg/L	0.05	<0.10	<0.10	<0.10	<0.10					
Benz(a)anthracene	1	µg/L	0.05	<0.20	<0.20	<0.20	<0.20					
Benzo(a)pyrene	0.01	µg/L	0.05	<0.01	<0.01	<0.01	<0.01					
Benzo(b)fluoranthene	0.1	µg/L	0.05	<0.10	<0.10	<0.10	<0.10					
Benzo(g,h,i)perylene	0.2	µg/L	0.05	<0.20	<0.20	<0.20	<0.20					
Benzo(k)fluoranthene	0.1	µg/L	0.05	<0.10	<0.10	<0.10	<0.10					
Chrysene	0.1	µg/L	0.05	<0.10	<0.10	<0.10	<0.10					
Dibenz(a,h)anthracene	0.2	µg/L	0.05	<0.20	<0.20	<0.20	<0.20					
Fluoranthene	0.41	µg/L	0.05	<0.20	<0.20	<0.20	<0.20					
Fluorene	120	µg/L	0.05	<0.20	<0.20	<0.20	<0.20					
Indeno(1,2,3-cd)pyrene	0.2	µg/L	0.05	<0.20	<0.20	<0.20	<0.20					
2-and 1-methyl Naphthalene	3.2	µg/L	0.05	<0.20	<0.20	<0.20	<0.20					
Naphthalene	11	µg/L	0.05	<0.20	<0.20	<0.20	<0.20					
Phenanthrene	1	µg/L	0.05	<0.10	<0.10	<0.10	<0.10					
Pyrene	4.1	µg/L	0.05	<0.20	<0.20	<0.20	<0.20					

Notes:
RDL = Reported Detection Limit; NL = Not Listed; "-" = not analyzed

TABLE 13

Areas of Potential Environmental Concern (APEC)

Phase One ESA Property

Area of Potential Environmental Concern [1]	Location of Area of Potential Environmental Concern 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)
1	Northeast portion of Site	Other PCA's the QP is aware of: Activities that resulted in the presence of known soil contamination documented during the concurrent Phase Two ESA Update (fill and asphalt millings/pulverized asphalt).	On Site	- Petroleum Hydrocarbons (PHCs)	Soil
2	Southeast portion of Site	Other PCA's the QP is aware of: Activities that resulted in the presence of known soil contamination documented in previous reports (fill and asphalt millings/pulverized asphalt).	On Site	- PHCs	Soil
3	Entire Site	PCA Item No. 30 - Importation of fill material of unknown quality	On Site	- Metals and Other Regulated Parameters (ORPs) (boron - hot water soluble (B-HWS), electrical conductivity (EC), chromium VI (Cr(VI)), mercury (Hg), sodium adsorption ratio (SAR), free cyanide (CN^{-})) - Metals, Hydride-Forming (arsenic (As), selenium (Se) and antimony (Sb)) - PHCs - Polycyclic Aromatic	Soil and ground water

TABLE 13

Areas of Potential Environmental Concern (APEC)

Phase One ESA Property

Area of Potential Environmental Concern [1]	Location of Area of Potential Environmental Concern 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)
				Hydrocarbons (PAHs) - Volatile Organic Compounds (VOCs)	
4	West portion of Site	PCA Item No. 46 – Rail Yards, Tracks and Spurs	Off Site	- Metals and ORPs (B-HWS, EC, Cr(VI), Hg, SAR, CN^-) - Metals, Hydride-Forming (As, Se and Sb) - PAHs - PHCs - VOCs	Soil and ground water

Notes:

1 - Areas 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, identify 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

Cette publication hautement spécialisée n'est disponible qu'en anglais en vertu du règlement 671/92, qui en exempte l'application de la Loi sur les services en français. Pour obtenir de l'aide en francais, veuillez communiquer avec le ministère de l'Environnement et de l'Action en matière de changement climatique au 1-800-461-6290

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		

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

TYPE OF SAMPLE

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

PH	Sample Advanced Hydraulically
PM	Sample Advanced Manually

SOIL TESTS

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

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE/MONITORING WELL NO. 201

17T 596816E 4806449N

PROJECT Halton District School Board Surplus Land on Stonehaven Drive — **PML REF.** 17HX001

LOCATION 5209 Stonehaven Drive, Burlington, Ontario — **BORING DATE** February 23, 2017 — **GEOSCIENTIST** M. King

BORING METHOD Continuous Flight Solid Stem Augers — **TECHNICIAN** K. Pettitt

DEPTH (metres)	ELEV	DESCRIPTION	STRAT PLOT	SAMPLE NUMBER	SAMPLE TYPE	"N" VALUES
		SURFACE ELEVATION 156.63				
0.0				1A		
0.20	156.43	TOPSOIL: 200 mm dark brown clayey silt topsoil, trace gravel, moist; occasional rootlets		1B[1]	SS	3
		CLAY TILL: Very stiff, reddish brown silty clay till, trace gravel, damp; occasional shale fragments				
1.0				2[1]	SS	21
1.4	155.2	SILT TILL: Dense to very dense, reddish brown sandy silt till, trace gravel, damp; occasional shale fragments, iron staining		3	SS	36
2.0				4	SS	94/275 mm
3.0				5	SS	50/125 mm
4.0				6	SS	50/150 mm
4.3	152.3	becoming wet to saturated		7	SS	75
5.0				8	SS	50/150 mm
5.5	151.1	BOREHOLE TERMINATED AT 5.5 m				
6.0						
7.0						
8.0						
9.0						
10.0						

ELEVATION SCALE: 156, 155, 154, 153, 152

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

GAS READINGS (ppm): 0, 0, 0, 0, 5, 0, 0, 0

GROUND WATER OBSERVATIONS AND REMARKS

GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

Stickup Well Protector Set in Concrete

Bentonite Seal

El. 154.6

Filter Sand

Screen

El. 152.4

Water Level Readings:

Date	Depth	Elev.
2017-02-23	4.4	152.2
2017-02-24	2.0	154.6

NOTES 1. Sample submitted for chemical testing

▼ GROUND WATER STRIKE

▽ HYDROSTATIC GROUND WATER LEVEL

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE/MONITORING WELL NO. 202

17T 596868E 4807014N

PROJECT Halton District School Board Surplus Land on Stonehaven Drive — **PML REF.** 17HX001

LOCATION 5209 Stonehaven Drive, Burlington, Ontario — **BORING DATE** February 23, 2017 — **GEOSCIENTIST** M. King

BORING METHOD Continuous Flight Solid Stem Augers — **TECHNICIAN** K. Pettitt

DEPTH (metres)	ELEV	DESCRIPTION	STRAT PLOT	SAMPLE NUMBER	SAMPLE TYPE	"N" VALUES
		SURFACE ELEVATION 156.07				
0.0	156.07					
0.14	155.93	TOPSOIL: 140 mm dark brown sandy silt topsoil fill, trace gravel, moist		1A		
		FILL: Compact, brown sandy silt fill, trace clay and gravel, moist		1B	SS	18
0.69	155.38	grey gravelly sand fill, trace silt, saturated, slight industrial odour; occasional black asphalt fragments		2[1]	SS	11
1.4	154.7	SILT TILL: Compact, reddish brown sandy silt till, trace gravel, wet; occasional shale fragments		3	SS	21
				4	SS	26
2.9	153.2	becoming very dense, moist to damp		5	SS	77/275 mm
				6	SS	50/125 mm
				7	SS	50/125 mm
				8	SS	50/150 mm
6.2	150	BOREHOLE TERMINATED AT 6.2 m		9	SS	50/100 mm

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

GAS READINGS ppm: 0, 15, 10, 10, 0, 0, 0, 0, 10, 0

GROUND WATER OBSERVATIONS AND REMARKS

GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

Stickup Well Protector Set in Concrete
El. 155.4
El. 154.7
Bentonite Seal
Filter Sand
Screen

Water Level Readings:

Date	Depth	Elev.
2017-02-23	1.1	155.0
2017-02-24	1.4	154.7

NOTES 1. Sample submitted for chemical testing

▼ GROUND WATER STRIKE

▽ HYDROSTATIC GROUND WATER LEVEL

Peto MacCallum Ltd.
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LOG OF BOREHOLE/MONITORING WELL NO. 203

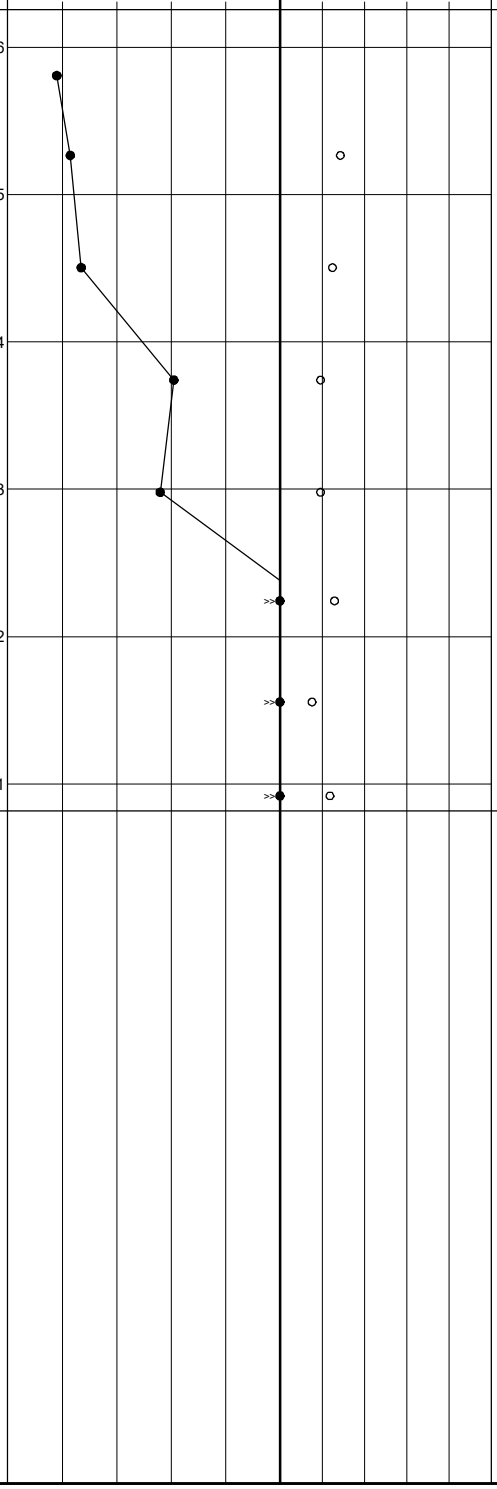
17T 596890E 4806940N

PROJECT Halton District School Board Surplus Land on Stonehaven Drive — **PML REF.** 17HX001

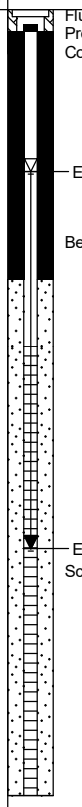
LOCATION 5209 Stonehaven Drive, Burlington, Ontario — **BORING DATE** February 23, 2017 — **GEOSCIENTIST** M. King

BORING METHOD Continuous Flight Solid Stem Augers — **TECHNICIAN** K. Pettitt

DEPTH (metres)	ELEV	DESCRIPTION	STRAT PLOT	SAMPLE NUMBER	SAMPLE TYPE	"N" VALUES
		SURFACE ELEVATION 156.26				
0.0	156.26	PAVEMENT STRUCTURE: 150 mm asphalt over 500 mm grey crushed limestone granular base		1	SS	18
0.65	155.61	SILT TILL: Compact to very dense, reddish brown sandy silt till, trace gravel and clay, damp; occasional to numerous shale fragments		2[1]	SS	23
1.0						
				3	SS	27
2.0						
				4	SS	61
3.0						
				5	SS	56
3.7	152.6	CLAY TILL: Hard brown silty clay till, trace gravel, wet to saturated; numerous shale fragments				
4.0				6	SS	94/250 mm
				7	SS	73/250 mm
5.0	5.1					
	151.2	SILT TILL: Very dense, reddish brown sandy silt till, trace gravel and clay, damp; numerous shale fragments		8	SS	50/100 mm
	5.4 150.9	BOREHOLE TERMINATED AT 5.4 m				
6.0						
7.0						
8.0						
9.0						
10.0						



GAS READINGS (ppm)
0
5
0
0
0
0
0
0
0



GROUND WATER OBSERVATIONS AND REMARKS

GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

Water Level Readings:

Date	Depth	Elev.
2017-02-23	1.1	155.2
2017-02-24	1.1	155.2

NOTES 1. Sample submitted for chemical testing

▼ GROUND WATER STRIKE

▽ HYDROSTATIC GROUND WATER LEVEL

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 301

17T 596853E 4807056N

PROJECT Halton District School Board Surplus Land on Stonehaven Drive — **PML REF.** 17HX001

LOCATION 5209 Stonehaven Drive, Burlington, Ontario — **BORING DATE** March 30, 3017 — **GEOSCIENTIST** M. King

BORING METHOD Manual Sampling Hand Auger — **TECHNICIAN** K. Pettitt

DEPTH (metres)	ELEV	DESCRIPTION	STRAT PLOT	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES "N" VALUES	ELEVATION SCALE	SHEAR STRENGTH (kPa) / DYNAMIC CONE PENETRATION / STANDARD PENETRATION TEST	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L / WATER CONTENT (%)	GAS READINGS ppm	GROUND WATER OBSERVATIONS AND REMARKS / GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
		SURFACE ELEVATION 156.50									
0.0		TOPSOIL: 600 mm dark brown sandy silt topsoil, trace gravel, moist; numerous red brick fragments									
0.40	156.10	FILL: Brown sandy silt fill, some clay, trace gravel, damp; numerous red brick fragments					156				
1.0		CLAY SILT: Grey to dark brown clayey silt, WTPL; with occasional rootlets and organics		1[1]	AS					0	
1.5							155				
1.8		CLAY TILL: Reddish brown silty clay till, trace gravel, WTPL		2[1]	AS					0	
2.0	154.7	BOREHOLE TERMINATED AT 1.8 m									Upon completion of augering, no free water, no cave
3.0											
4.0											
5.0											
6.0											
7.0											
8.0											
9.0											
10.0											

SHEAR STRENGTH (kPa): + FIELD VANE △ TORVANE ○ Qu ▲ POCKET PENETROMETER ○ Q — 50 100 150 200

DYNAMIC CONE PENETRATION × STANDARD PENETRATION TEST ● — 20 40 60 80

WATER CONTENT (%) — 10 20 30 40

NOTES 1. Sample submitted for chemical testing

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 302

17T 596855E 4806909N

PROJECT Halton District School Board Surplus Land on Stonehaven Drive — **PML REF.** 17HX001

LOCATION 5209 Stonehaven Drive, Burlington, Ontario — **BORING DATE** March 30, 3017 — **GEOSCIENTIST** M. King

BORING METHOD Manual Sampling Hand Auger — **TECHNICIAN** K. Pettitt

DEPTH (metres) / ELEV	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 (%)	GAS READINGS (ppm)	GROUND WATER OBSERVATIONS AND REMARKS / GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
	SURFACE ELEVATION 155.56									
0.24 / 155.32	TOPSOIL: 240 mm dark brown sandy silt topsoil, trace gravel, moist; occasional rootlets									
	FILL: Brown sandy silt fill, trace gravel, moist		1[1]	AS		155			0	
0.85 / 154.71	CLAY TILL: Reddish brown silty clay till, trace gravel, WTPL; occasional shale fragments		2[1]	AS		154			0	
1.8 / 153.8	BOREHOLE TERMINATED AT 1.8 m									Upon completion of augering, no free water, no cave

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

0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0

NOTES 1. Sample submitted for chemical testing

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 303

17T 596868E 4807014N

PROJECT Halton District School Board Surplus Land on Stonehaven Drive — **PML REF.** 17HX001

LOCATION 5209 Stonehaven Drive, Burlington, Ontario — **BORING DATE** March 30, 3017 — **GEOSCIENTIST** M. King

BORING METHOD Manual Sampling Hand Auger — **TECHNICIAN** K. Pettitt

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 (%)	GAS READINGS ppm	GROUND WATER OBSERVATIONS AND REMARKS / GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
	SURFACE ELEVATION 156.07						50 100 150 200 / 20 40 60 80	10 20 30 40		
0.14 / 155.93	TOPSOIL: 140 mm dark brown sandy silt topsoil, trace gravel, moist; occasional red brick fragments					156				
0.65 / 155.42	FILL: Brown sandy silt fill, trace gravel, damp; occasional asphalt and red brick fragments									
1.4	Grey gravelly sand fill, trace silt, saturated; occasional asphalt fragments					155				
154.7 / 1.8	CLAY TILL: Reddish brown silty clay till, trace gravel, WTPL; occasional shale fragments		1[1]	AS					0	
154.3	BOREHOLE TERMINATED AT 1.8 m									Upon completion of augering, water at 0.4 m, no cave

NOTES 1. Sample submitted for chemical testing

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 304

17T 596877E 4807009N

PROJECT Halton District School Board Surplus Land on Stonehaven Drive — ***PML REF.*** 17HX001

LOCATION 5209 Stonehaven Drive, Burlington, Ontario — ***BORING DATE*** March 30, 3017 — ***GEOSCIENTIST*** M. King

BORING METHOD Manual Sampling Hand Auger — ***TECHNICIAN*** K. Pettitt

DEPTH (metres) / ELEV	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 (%)	GAS READINGS ppm	GROUND WATER OBSERVATIONS AND REMARKS; GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
	SURFACE ELEVATION 155.56						50 100 150 200; 20 40 60 80	10 20 30 40		
0.22 / 155.34	TOPSOIL: 220 mm dark brown sandy silt topsoil, trace gravel, moist; occasional rootlets									
0.65	FILL: Reddish brown silty clay fill, WTPL					155				
0.90	SANDY SILT: Grey sandy silt, trace gravel, saturated		1[1]	AS					0	
154.66	CLAY TILL: Reddish brown silty clay till, trace gravel, WTPL		2[1]	AS		154			0	
1.8 / 153.8	BOREHOLE TERMINATED AT 1.8 m									Upon completion of augering, water at 0.4 m, no cave

NOTES 1. Sample submitted for chemical testing

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 305

17T 596887E 4806987N

PROJECT Halton District School Board Surplus Land on Stonehaven Drive — ***PML REF.*** 17HX001

LOCATION 5209 Stonehaven Drive, Burlington, Ontario — ***BORING DATE*** March 28, 2017 — ***GEOSCIENTIST*** M. King

BORING METHOD Manual Sampling Hand Auger — ***TECHNICIAN*** K. Pettitt

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 (%)	GAS READINGS ppm	GROUND WATER OBSERVATIONS AND REMARKS / GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
	SURFACE ELEVATION 155.30									
0.19	TOPSOIL: 190 mm dark brown silty clay topsoil, trace gravel, moist; occasional rootlets		1[1]	AS		155			0	
0.45 / 154.85	FILL: Reddish brown clayey silt fill, trace sand, wet; occasional rootlets		2[1]	AS					0	
1.00	CLAY TILL: Reddish brown silty clay till, trace gravel, WTPL									
154.30	BOREHOLE TERMINATED AT 1.0 m									Upon completion of augering, no free water, no cave

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)

NOTES 1. Sample submitted for chemical testing

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 306

17T 596888E 4806977N

PROJECT Halton District School Board Surplus Land on Stonehaven Drive — **PML REF.** 17HX001

LOCATION 5209 Stonehaven Drive, Burlington, Ontario — **BORING DATE** March 28, 2017 — **GEOSCIENTIST** M. King

BORING METHOD Manual Sampling Hand Auger — **TECHNICIAN** K. Pettitt

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 (%)	GAS READINGS ppm	GROUND WATER OBSERVATIONS AND REMARKS / GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
	SURFACE ELEVATION 155.24						50 100 150 200 / 20 40 60 80	10 20 30 40		
0.21	TOPSOIL: 210 mm dark brown clayey silt topsoil, trace gravel, moist; occasional rootlets					155				
0.42			1[1]	AS					0	
154.82	FILL: Brown sand fill, some silt and gravel, moist		2[1]	AS					0	
0.80	CLAY TILL: Brown silty clay till, trace gravel, WTPL; occasional shale fragments									Upon completion of augering, water at 0.4 m, no cave
154.44	BOREHOLE TERMINATED AT 0.8 m									

NOTES 1. Sample submitted for chemical testing

Peto MacCallum Ltd.
CONSULTING ENGINEERS

LOG OF BOREHOLE NO. 307

17T 596893E 4806981N

PROJECT Halton District School Board Surplus Land on Stonehaven Drive — **PML REF.** 17HX001

LOCATION 5209 Stonehaven Drive, Burlington, Ontario — **BORING DATE** March 28, 2017 — **GEOSCIENTIST** M. King

BORING METHOD Manual Sampling Hand Auger — **TECHNICIAN** K. Pettitt

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 / NATURAL MOISTURE CONTENT / LIQUID LIMIT (w_P, w, w_L); WATER CONTENT (%)	GAS READINGS ppm	GROUND WATER OBSERVATIONS AND REMARKS; GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
	SURFACE ELEVATION 155.30						50 100 150 200; 20 40 60 80	10 20 30 40		
0.16 / 155.14	TOPSOIL: 160 mm dark brown silty clay topsoil, trace gravel, moist; occasional rootlets					155				
0.45 / 154.85	FILL: Brown silty clay fill, damp; with occasional red brick and asphalt fragments		1[1]	AS					0	
0.80 / 154.50	CLAY TILL: Brown silty clay till, trace gravel, WTPL; occasional shale fragments									
	BOREHOLE TERMINATED AT 0.8 m									Upon completion of augering, water at 0.4 m, no cave

NOTES 1. Sample submitted for chemical testing

DUNDAS STREET WEST

RAIL LINE

UNMAINTAINED GRASSLAND

UNDERGROUND BELL/CATV UTILITY

RAIL CORRIDOR BUFFER (BARRIER WALL)

SURFICIAL PULVERIZED ASPHALT/GRAVEL FILL

UNMAINTAINED GRASSLAND

PONDED WATER

METAL DEBRIS AND CONCRETE SEWER PIPES

HOUSEHOLD DEBRIS

STORMWATER SEWER GRATE

RESIDENTIAL TOWNHOMES

BIRD BOULEVARD

STONEHAVEN DRIVE

RESIDENTIAL TOWNHOMES

FIRE HYDRANT

ASPHALT WALKWAY

ORCHARD ROAD



KEY PLAN
BURLINGTON, ONTARIO

LEGEND:

- SITE LIMITS
- UNDERGROUND WATER UTILITY
- UNDERGROUND SANITARY LINE
- UNDEGROUND BELL/CATV UTILITY
- OVERHEAD HYDRO UTILTY
- APPROXIMATE LIMITS OF HISTORICAL EXTENT OF SURFICIAL PULVERIZED ASPHALT/GRAVEL FILL

REFERENCE:

PLAN PRODUCED FROM A TOPOGRAPHIC PLAN TITLED STONEHAVEN DRIVE AND BIRD AVENUE DATED OCTOBER 22, 2013 BY MACKAY, MACKAY PETERS LIMITED AND GIS INFORMATION FROM THE CITY OF BURLINGTON ONLINE INTERACTIVE MAPPING SERVICE.

NOTE:

EXISTING SITE FEATURES OBSERVED ON MARCH 8, 2017

0m 10 20 30 40 50

SCALE
(1:600)

MR. FRANCO BILOTTA

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT UPDATE
HALTON DISTRICT SCHOOL BOARD SURPLUS LAND
5209 STONEHAVEN DRIVE, BURLINGTON

SITE PLAN

Peto MacCallum Ltd.
CONSULTING ENGINEERS

		DATE	SCALE	PML REF.	DRAWING NO.
DRAWN	SM	MAY 2017	AS SHOWN	17HX001	2–1
CHECKED	DS				
APPROVED	MAK				

APPLEBY LINE

HARRISON COURT

DUNDAS STREET (HIGHWAY 5)

STONEHAVEN DRIVE

RAIL LINE

BIRD BOULEVARD

AUTUMN HARVEST WAY

ORCHARD ROAD

RIDGEWELL ROAD

AUCKLAND DRIVE

SUTTON DRIVE

TYDMAN WAY

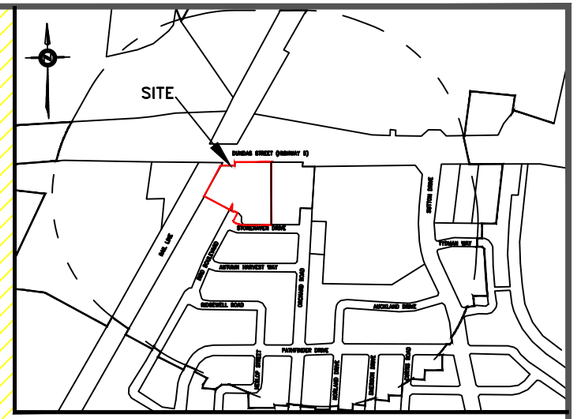
PATHFINDER DRIVE

HESLOP STREET

NORLAND DRIVE

EMERSON DRIVE

CURTIS ROAD



KEY PLAN
BURLINGTON, ONTARIO

LEGEND:

- SITE LIMITS
- LIMITS OF PHASE ONE ESA STUDY AREA
- 250 m FROM SITE BOUNDARIES
- RESIDENTAL PROPERTY USE
- COMMERCIAL PROPERTY USE
- INDUSTRIAL PROPERTY USE
- INSTITUTIONAL PROPERTY USE

REFERENCE:

PLAN PRODUCED FROM GIS INFORMATION FROM THE CITY OF BURLINGTON ONLINE INTERACTIVE MAPPING SERVICE.

25 0m 25 50 75 100 150
SCALE

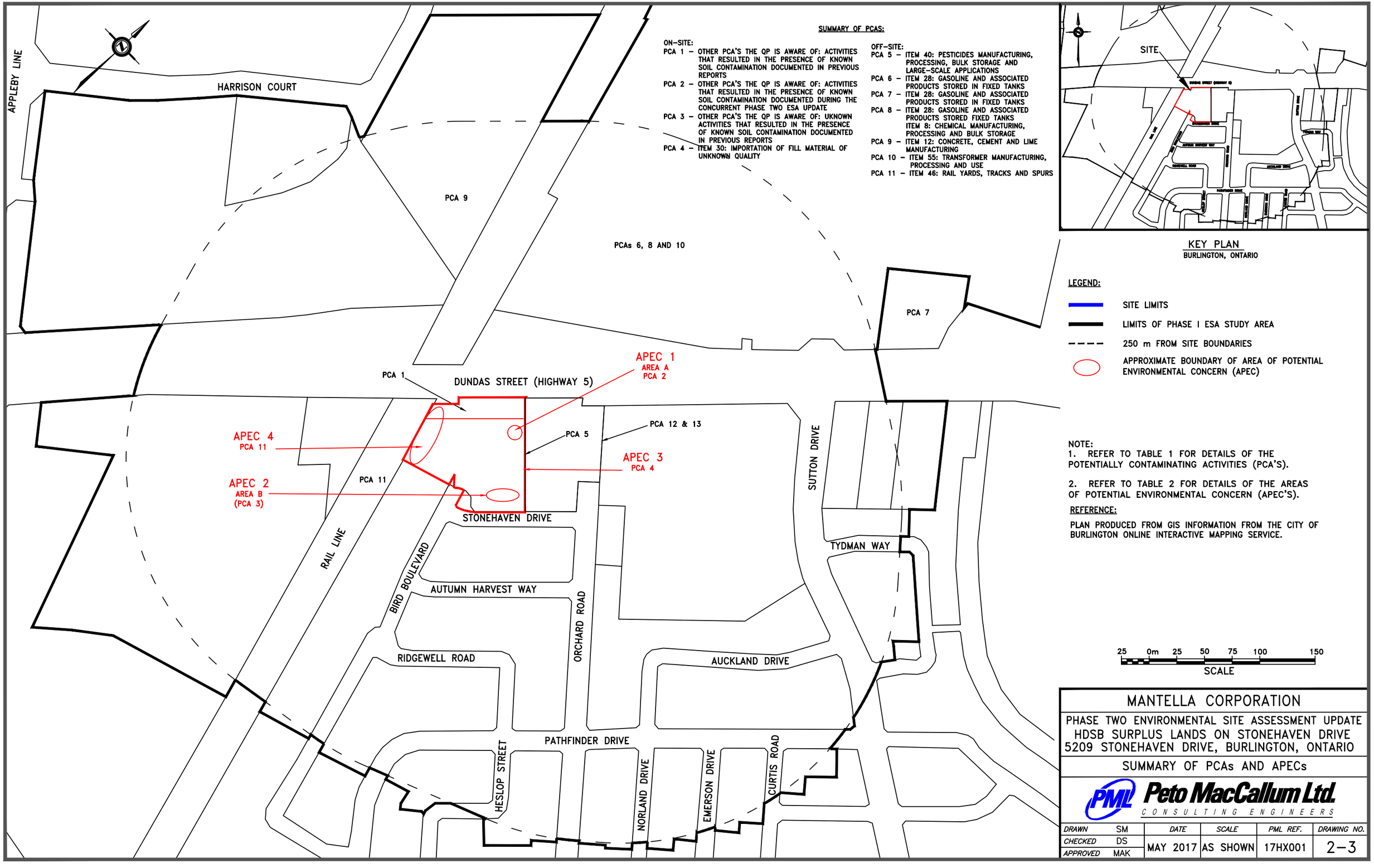
MANTELLA CORPORATION

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT UPDATE
HDSB SURPLUS LANDS ON STONEHAVEN DRIVE
5209 STONEHAVEN DRIVE, BURLINGTON, ONTARIO

CURRENT LAND USES IN THE PHASE ONE ESA STUDY AREA

Peto MacCallum Ltd.
CONSULTING ENGINEERS

		DATE	SCALE	PML REF.	DRAWING NO.
DRAWN	SM	MAY 2017	AS SHOWN	17HX001	2–2
CHECKED	DS				
APPROVED	MAK				



SUMMARY OF PCAS:

ON-SITE:

PCA 1 – OTHER PCA'S THE QP IS AWARE OF: ACTIVITIES THAT RESULTED IN THE PRESENCE OF KNOWN SOIL CONTAMINATION DOCUMENTED IN PREVIOUS REPORTS

PCA 2 – OTHER PCA'S THE QP IS AWARE OF: ACTIVITIES THAT RESULTED IN THE PRESENCE OF KNOWN SOIL CONTAMINATION DOCUMENTED DURING THE CONCURRENT PHASE TWO ESA UPDATE

PCA 3 – OTHER PCA'S THE QP IS AWARE OF: UKNOWN ACTIVITIES THAT RESULTED IN THE PRESENCE OF KNOWN SOIL CONTAMINATION DOCUMENTED IN PREVIOUS REPORTS

PCA 4 – ITEM 30: IMPORTATION OF FILL MATERIAL OF UNKNOWN QUALITY

OFF-SITE:

PCA 5 – ITEM 40: PESTICIDES MANUFACTURING, PROCESSING, BULK STORAGE AND LARGE-SCALE APPLICATIONS

PCA 6 – ITEM 28: GASOLINE AND ASSOCIATED PRODUCTS STORED IN FIXED TANKS

PCA 7 – ITEM 28: GASOLINE AND ASSOCIATED PRODUCTS STORED IN FIXED TANKS

PCA 8 – ITEM 28: GASOLINE AND ASSOCIATED PRODUCTS STORED FIXED TANKS
ITEM 8: CHEMICAL MANUFACTURING, PROCESSING AND BULK STORAGE

PCA 9 – ITEM 12: CONCRETE, CEMENT AND LIME MANUFACTURING

PCA 10 – ITEM 55: TRANSFORMER MANUFACTURING, PROCESSING AND USE

PCA 11 – ITEM 46: RAIL YARDS, TRACKS AND SPURS

KEY PLAN
BURLINGTON, ONTARIO

LEGEND:

- SITE LIMITS
- LIMITS OF PHASE I ESA STUDY AREA
- 250 m FROM SITE BOUNDARIES
- APPROXIMATE BOUNDARY OF AREA OF POTENTIAL ENVIRONMENTAL CONCERN (APEC)

NOTE:
1. REFER TO TABLE 1 FOR DETAILS OF THE POTENTIALLY CONTAMINATING ACTIVITIES (PCA'S).

2. REFER TO TABLE 2 FOR DETAILS OF THE AREAS OF POTENTIAL ENVIRONMENTAL CONCERN (APEC'S).

REFERENCE:

PLAN PRODUCED FROM GIS INFORMATION FROM THE CITY OF BURLINGTON ONLINE INTERACTIVE MAPPING SERVICE.

25 0m 25 50 75 100 150
SCALE

MANTELLA CORPORATION

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT UPDATE
HDSB SURPLUS LANDS ON STONEHAVEN DRIVE
5209 STONEHAVEN DRIVE, BURLINGTON, ONTARIO

SUMMARY OF PCAs AND APECs

Peto MacCallum Ltd.
CONSULTING ENGINEERS

		DATE	SCALE	PML REF.	DRAWING NO.
DRAWN	SM	MAY 2017	AS SHOWN	17HX001	2-3
CHECKED	DS				
APPROVED	MAK				

DUNDAS STREET (HIGHWAY 5)

RAIL LINE

BIRD BOULEVARD

STONEHAVEN DRIVE

ORCHARD ROAD

RAIL CORRIDOR BUFFER (BARRIER WALL)

BH/MW 201
EL. 156.6
EL. 154.6

BH/MW 203
EL. 156.3
EL. 155.2

BH/MW 102
EL. 156.1

BH/MW 202
EL. 156.1
EL. 154.7

BH/MW 101
EL. 155.4

BH 301
EL. 156.5

BH 302
EL. 155.6

BH 303
EL. 156.1

BH 304
EL. 155.6

BH 305
EL. 155.3

BH 306
EL. 155.2

BH 307
EL. 155.3

BH 111
EL. 156.2

BH 113
EL. 155.5

BH 106
EL. 155.4

TP 101 EL. 156.2
TP 102 EL. 156.2
TP 103 EL. 156.2
TP 104 EL. 156.2
TP 105 EL. 156.2
TP 106 EL. 156.2
TP 107 EL. 156.2
TP 108 EL. 156.2
TP 117 EL. 155.3
TP 118 EL. 155.3
TP 119 EL. 155.3
TP 121 EL. 155.7
TP 122 EL. 155.7
TP 123 EL. 155.7
TP 124 EL. 155.4
TP 125 EL. 155.4
TP 126 EL. 155.4
TP 127 EL. 155.4

AREA 1 GS1
AREA 1 GS2
AREA 1 GS3
AREA 1 GS4
AREA 1 GS5
AREA 1 GS6
AREA 1 GS10
AREA 1 GS11

TOPSOIL AREA B0-1
STOCKPILE GS1
TOPSOIL AREA A1-1
TOPSOIL AREA B2-1
TOPSOIL AREA C1-1
TOPSOIL AREA D1-1
STOCKPILE GS2
TOPSOIL AREA E2.5-1

AREA 3 J3-2
AREA 3 J4
AREA 3 J8
AREA 3 J10-1
AREA 3 F1
AREA 3 G6-1
AREA 3 E9-1
AREA 3 D3-1
AREA 3 C8-1
AREA 3 B1-1
AREA 3 A3
AREA 3 A9

B
B'
C
C'
A
A'

SOIL SAMPLE:

AREA 3 J3-2 0.1 – 0.4m FILL	UNITS	MEASURED VALUE	TABLE 2 (RPI) SCSs
PHC FRACTION F3	ug/g	390	300

SOIL SAMPLE:

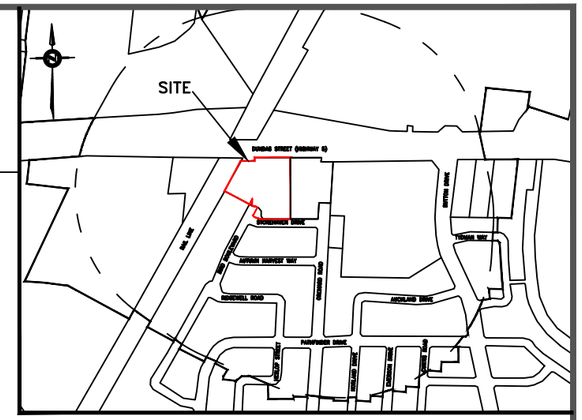
BH/MW202 SS2 0.8 – 1.2m FILL	UNITS	MEASURED VALUE	TABLE 2 (RPI) SCSs
PHC FRACTION F3	ug/g	2,000	300

SAMPLE WHERE SOIL QUALITY WAS ABOVE O. REG. 153/04, AS AMENDED, TABLE 2 STANDARDS

SAMPLE MEDIUM
SAMPLE ID
SAMPLE DEPTH
SAMPLE DESCRIPTION
ANALYTE

SOIL SAMPLE:

BH/MW202 SS2 0.8 – 1.2m FILL:	UNITS	MEASURED VALUE	TABLE 2 (RPI) STANDARDS
PHC FRACTION F3	ug/g	2,000	300



KEY PLAN
BURLINGTON, ONTARIO

LEGEND:

- SITE LIMITS
- BH/MW203 EL. 156.3 — PML BOREHOLE/MONITORING WELL (BH/MW) LOCATION, MARCH 2017
- BH 113 EL. 155.5 — PML BOREHOLE (BH) LOCATION, MARCH 2013
- BH/MW 103 EL. 156.8 — PML BH/MW LOCATION, MARCH 2013 (DECOMMISSIONED)
- TP 118 EL. 155.3 — PML DELINEATION TEST PIT (TP) LOCATION, JUNE 2013
- BH307 EL. 155.3 — PML DELINEATION TESTPIT (TP) LOCATION, MARCH 2017
- PML CONFIRMATORY SAMPLE LOCATION SUBMITTED FOR CHEMICAL TESTING MEETING THE SITE CONDITION STANDARDS (SCSs)
- PML CONFIRMATORY SAMPLE LOCATION SUBMITTED FOR CHEMICAL TESTING NOT MEETING THE SCSs
- AREA 3 J10 — PML CONFIRMATORY SAMPLE ID
- AREA A – AREA OF SOIL EXCEEDING T2 RPI SCSs FOR PETROLEUM HYDROCARBONS (PHCs)
- AREA B – AREA OF SOIL EXCEEDING T2 RPI SCSs FOR PETROLEUM HYDROCARBONS (PHCs)
- BENCHMARK (BM)
- B B' — CROSS SECTION LOCATION

BENCHMARK:
TOP OF SANITARY MANHOLE AT CORNER OF STONEHAVEN DRIVE AND ORCHARD ROAD.
ELEVATION: 155.03 METRIC, GEODETIC

REFERENCE:
PLAN PRODUCED FROM GIS INFORMATION FROM CITY OF BURLINGTON ONLINE INTERACTIVE MAPPING SERVICE.

NOTE:
1. THE INFERRED STRATIGRAPHY REFERRED TO IN THE REPORT IS BASED ON THE DATA FROM THESE BOREHOLES SUPPLEMENTED BY GEOLOGICAL EVIDENCE. THE ACTUAL STRATIGRAPHY BETWEEN THE BOREHOLES MAY VARY.

5 0m 5 10 15 20 30
SCALE

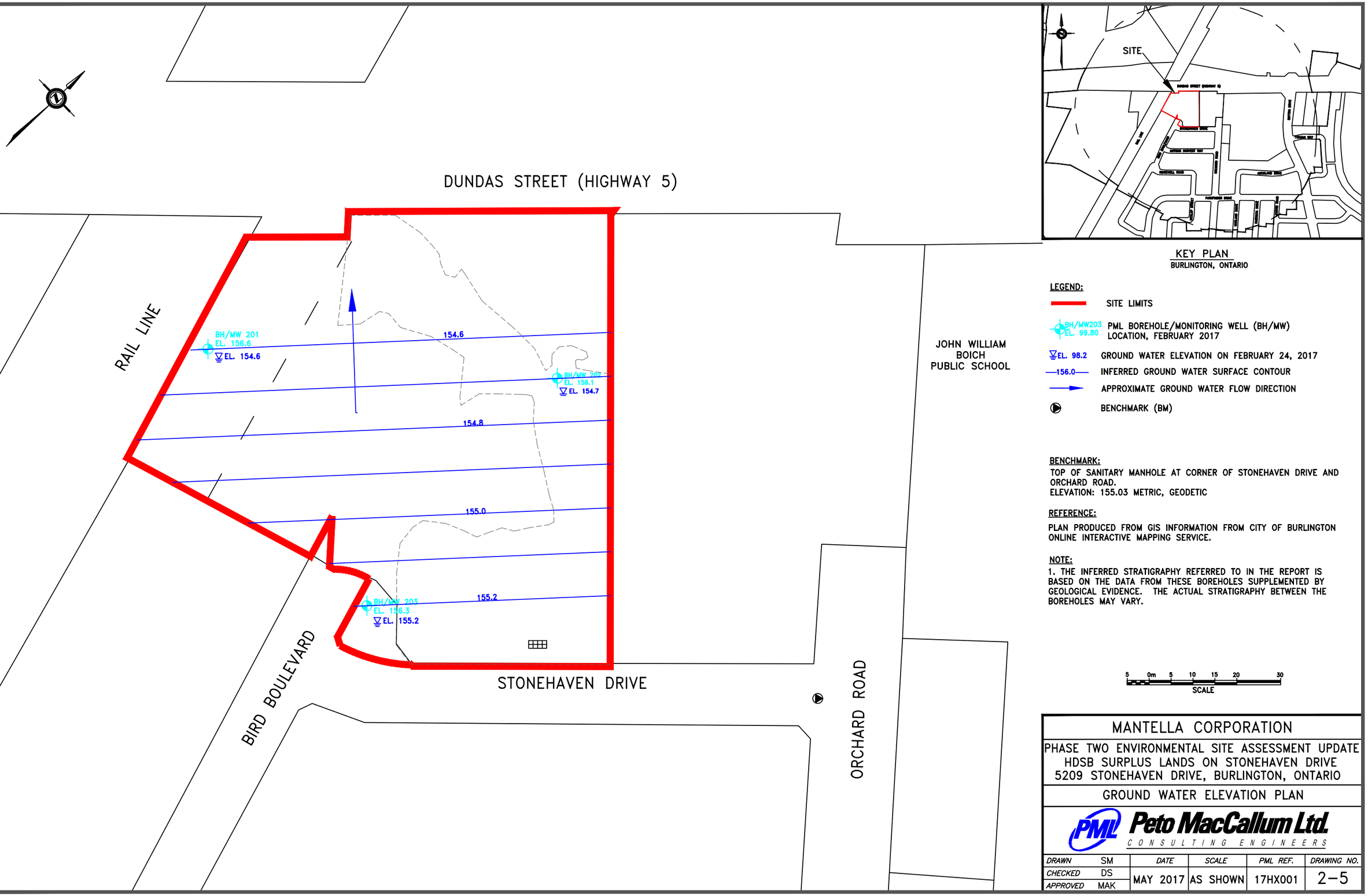
MANTELLA CORPORATION

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT UPDATE
HDSB SURPLUS LANDS ON STONEHAVEN DRIVE
5209 STONEHAVEN DRIVE, BURLINGTON, ONTARIO

BOREHOLE AND MONITORING WELL LOCATION PLAN AND LOCATION OF SOIL SAMPLES NOT MEETING THE SITE CONDITION STANDARDS

Peto MacCallum Ltd.
CONSULTING ENGINEERS

		DATE	SCALE	PML REF.	DRAWING NO.
DRAWN	SM	MAY 2017	AS SHOWN	17HX001	2–4
CHECKED	DS				
APPROVED	MAK				



KEY PLAN
BURLINGTON, ONTARIO

LEGEND:

- SITE LIMITS
- BH/MW203 EL. 99.80 — PML BOREHOLE/MONITORING WELL (BH/MW) LOCATION, FEBRUARY 2017
- EL. 98.2 — GROUND WATER ELEVATION ON FEBRUARY 24, 2017
- 156.0 — INFERRED GROUND WATER SURFACE CONTOUR
- APPROXIMATE GROUND WATER FLOW DIRECTION
- BENCHMARK (BM)

BENCHMARK:
TOP OF SANITARY MANHOLE AT CORNER OF STONEHAVEN DRIVE AND ORCHARD ROAD.
ELEVATION: 155.03 METRIC, GEODETIC

REFERENCE:
PLAN PRODUCED FROM GIS INFORMATION FROM CITY OF BURLINGTON ONLINE INTERACTIVE MAPPING SERVICE.

NOTE:
1. THE INFERRED STRATIGRAPHY REFERRED TO IN THE REPORT IS BASED ON THE DATA FROM THESE BOREHOLES SUPPLEMENTED BY GEOLOGICAL EVIDENCE. THE ACTUAL STRATIGRAPHY BETWEEN THE BOREHOLES MAY VARY.

5 0m 5 10 15 20 30
SCALE

MANTELLA CORPORATION

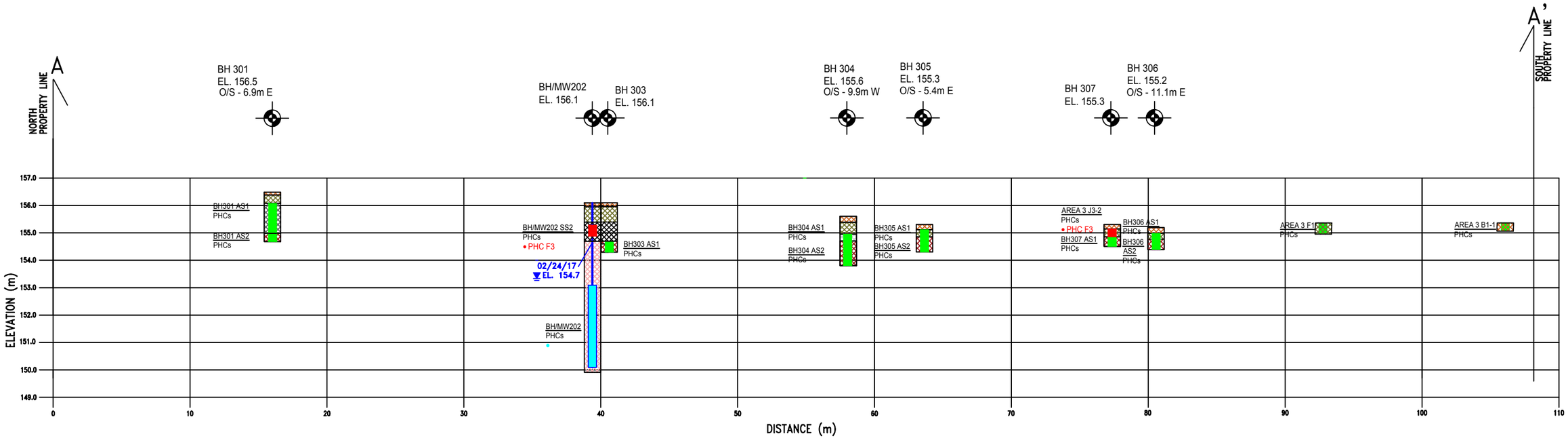
PHASE TWO ENVIRONMENTAL SITE ASSESSMENT UPDATE
HDSB SURPLUS LANDS ON STONEHAVEN DRIVE
5209 STONEHAVEN DRIVE, BURLINGTON, ONTARIO

GROUND WATER ELEVATION PLAN

Peto MacCallum Ltd.
CONSULTING ENGINEERS

		DATE	SCALE	PML REF.	DRAWING NO.
DRAWN	SM	MAY 2017	AS SHOWN	17HX001	2-5
CHECKED	DS				
APPROVED	MAK				

PRE-REMEDIATION SECTION SUMMARIZING RESULTS OF ANALYTICAL TESTING: PETROLEUM HYDROCARBONS (PHCs)



LEGEND:

- ASPHALT
- SAND AND GRAVEL FILL
- SILT FILL
- TOPSOIL FILL
- SANDY SILT
- SILTY CLAY/CLAYEY SILT TILL
- SANDY SILT TILL
- LOCATION OF PML SOIL SAMPLE MEETING TABLE 2 (T2) RESIDENTIAL/PARKLAND/INSTITUTIONAL (RPI) SITE CONDITION STANDARDS (SCSs) FOR PHCs
- LOCATION OF PML SOIL SAMPLE EXCEEDING T2 RPI SCSs FOR PHCs
- MONITORING WELL AND GROUND WATER SAMPLE LOCATION MEETING T2 SCSs FOR PHCs
- GROUND WATER ELEVATION ON MAR. 7, 2012 OR FEB. 24, 2017

NOTES:
1. REFER TO DRAWING 2-4 FOR SECTION LOCATION
2. REFER TO BOREHOLE LOGS, DRAWINGS 2-1 TO 2-5 AND TABLES 4 TO 12 FOR THE FOLLOWING: SAMPLE LOCATIONS, SAMPLE IDENTIFICATION NUMBERS, SAMPLING POINTS AND SAMPLING DEPTHS; CONCENTRATION OF CONTAMINANTS ANALYZED IN AN ACCREDITED LABORATORY; AND THE STRATIGRAPHY FROM GROUND SURFACE TO THE DEEPEST AQUIFER OR AQUITARD INVESTIGATED.
3. REFER TO TABLE 2 OF THE REPORT FOR A LIST OF ALL SAMPLES SUBMITTED FOR CHEMICAL TESTING.

MANTELLA CORPORATION

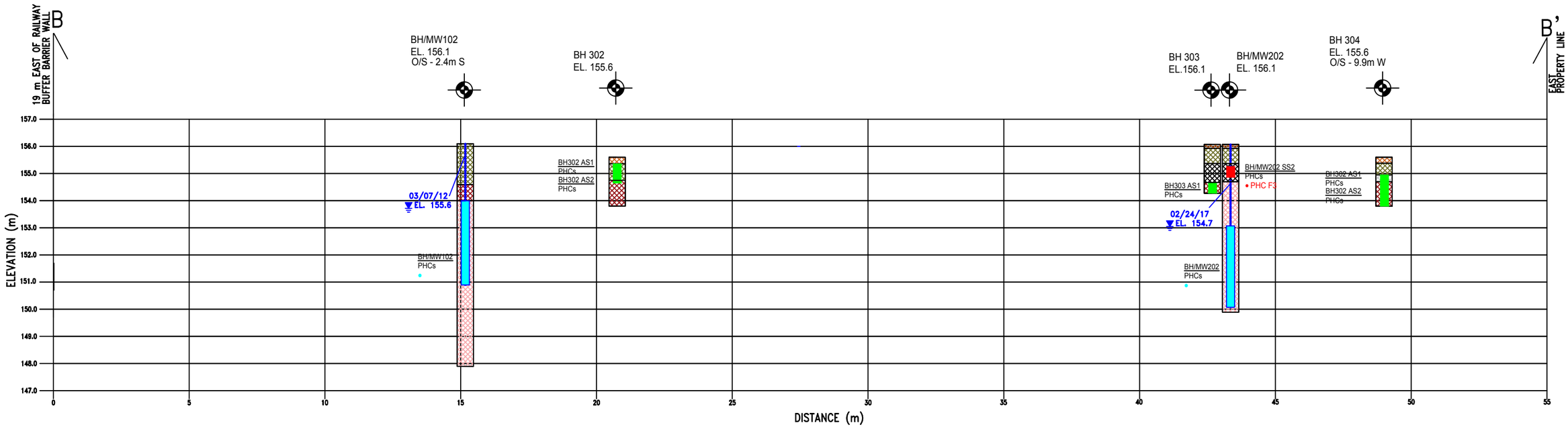
PHASE TWO ENVIRONMENTAL SITE ASSESSMENT UPDATE
HDSB SURPLUS LANDS ON STONEHAVEN DRIVE
5209 STONEHAVEN DRIVE, BURLINGTON, ONTARIO

SECTION A–A' (NORTH–SOUTH)

Peto MacCallum Ltd.
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		DATE	SCALE	PML REF.	DRAWING NO.
DRAWN	SM	MAY 2017	AS SHOWN	17HX001	2–6
CHECKED	DS				
APPROVED	MAK				

PRE-REMEDIATION SECTION SUMMARIZING RESULTS OF ANALYTICAL TESTING:
PETROLEUM HYDROCARBONS (PHCs)



LEGEND:

- ASPHALT
- SAND AND GRAVEL FILL
- SILT FILL
- SANDY SILT
- SILTY CLAY/CLAYEY SILT TILL
- SANDY SILT TILL
- LOCATION OF PML SOIL SAMPLE MEETING TABLE 2 (T2) RESIDENTIAL/PARKLAND/INSTITUTIONAL (RPI) SITE CONDITION STANDARDS (SCSs) FOR PHCs
- LOCATION OF PML SOIL SAMPLE EXCEEDING T2 RPI SCSs FOR PHCs
- MONITORING WELL AND GROUND WATER SAMPLE LOCATION MEETING T2 SCSs FOR PHCs
- GROUND WATER ELEVATION ON MAR. 7, 2012 OR FEB. 24, 2017

NOTES:
1. REFER TO DRAWING 2-4 FOR SECTION LOCATION
2. REFER TO BOREHOLE LOGS, DRAWINGS 2-1 TO 2-5 AND TABLES 4 TO 12 FOR THE FOLLOWING: SAMPLE LOCATIONS, SAMPLE IDENTIFICATION NUMBERS, SAMPLING POINTS AND SAMPLING DEPTHS; CONCENTRATION OF CONTAMINANTS ANALYZED IN AN ACCREDITED LABORATORY; AND THE STRATIGRAPHY FROM GROUND SURFACE TO THE DEEPEST AQUIFER OR AQUITARD INVESTIGATED.
3. REFER TO TABLE 2 OF THE REPORT FOR A LIST OF ALL SAMPLES SUBMITTED FOR CHEMICAL TESTING.

MANTELLA CORPORATION

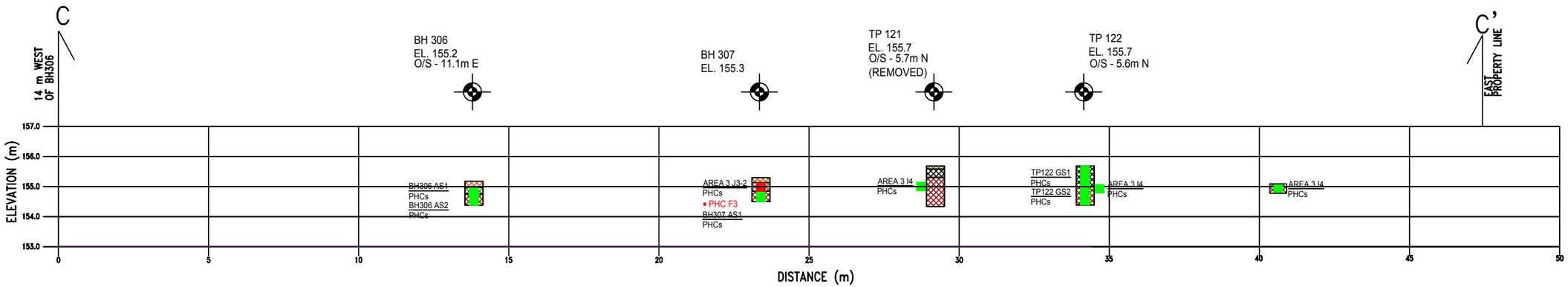
PHASE TWO ENVIRONMENTAL SITE ASSESSMENT UPDATE
HDSB SURPLUS LANDS ON STONEHAVEN DRIVE
5209 STONEHAVEN DRIVE, BURLINGTON, ONTARIO

SECTION B–B' (WEST–EAST)

Peto MacCallum Ltd.
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		DATE	SCALE	PML REF.	DRAWING NO.
DRAWN	SM	MAY 2017	AS SHOWN	17HX001	2–7
CHECKED	DS				
APPROVED	MAK				

PRE-REMEDIATION SECTION SUMMARIZING RESULTS OF ANALYTICAL TESTING:
PETROLEUM HYDROCARBONS (PHCs)



LEGEND:

- ASPHALT
- SAND AND GRAVEL FILL
- SILT FILL
- SANDY SILT
- SILTY CLAY/CLAYEY SILT TILL
- SANDY SILT TILL
- LOCATION OF PML SOIL SAMPLE MEETING TABLE 2 (T2) RESIDENTIAL/PARKLAND/INSTITUTIONAL (RPI) SITE CONDITION STANDARDS (SCSs) FOR PHCs
- LOCATION OF PML SOIL SAMPLE EXCEEDING T2 RPI SCSs FOR PHCs
- MONITORING WELL AND GROUND WATER SAMPLE LOCATION MEETING T2 SCSs FOR PHCs
- GROUND WATER ELEVATION ON MAR. 7, 2012 OR FEB. 24, 2017

NOTES:
1. REFER TO DRAWING 2-4 FOR SECTION LOCATION
2. REFER TO BOREHOLE LOGS, DRAWINGS 2-1 TO 2-5 AND TABLES 4 TO 12 FOR THE FOLLOWING: SAMPLE LOCATIONS, SAMPLE IDENTIFICATION NUMBERS, SAMPLING POINTS AND SAMPLING DEPTHS; CONCENTRATION OF CONTAMINANTS ANALYZED IN AN ACCREDITED LABORATORY; AND THE STRATIGRAPHY FROM GROUND SURFACE TO THE DEEPEST AQUIFER OR AQUITARD INVESTIGATED.
3. REFER TO TABLE 2 OF THE REPORT FOR A LIST OF ALL SAMPLES SUBMITTED FOR CHEMICAL TESTING.

MANTELLA CORPORATION

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT UPDATE
HDSB SURPLUS LANDS ON STONEHAVEN DRIVE
5209 STONEHAVEN DRIVE, BURLINGTON, ONTARIO

SECTION C–C' (WEST–EAST)

Peto MacCallum Ltd.
CONSULTING ENGINEERS

		DATE	SCALE	PML REF.	DRAWING NO.
DRAWN	SM	MAY 2017	AS SHOWN	17HX001	2–8
CHECKED	DS				
APPROVED	MAK				

Appendix A

Geoenvironmental Sampling & Analysis Plans

Peto MacCallum Ltd.
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GEOTECHNICAL/GEOENVIRONMENTAL FIELD INSTRUCTIONS/ SAMPLING & ANALYSIS PLAN

PROJECT NO.	**17HX001**	*DATE*	**February 23, 2017**
PROJECT NAME	**5209 Stonehaven Drive**	*PROJECT LOCATION*	**5209 Stonehaven Drive, Burlington**

GENERAL INSTRUCTIONS – STAGE ONE:

Conduct a Phase Two Environmental Site Assessment (ESA) Update in accordance with O. Reg. 153/04, as amended, as outlined in the investigation program noted below.

RATIONAL, NO. OF BH's/TEST PITS AND DEPTHS:

A total of three (3) boreholes (BH/MW201 to BH/MW203) ranging in depth from 3.0 (10') to 6.1 m (20') or refusal. See attached table for more details.

MONITORING WELL INSTALLATION DETAILS:

Three (3) monitoring wells to be installed up to depths of 3.0 to 6.1 m (10 to 20').

OTHER:	- Survey borehole locations - Measure pavement structure depths - Obtain GPS Coordinates - Measure water levels in all monitoring wells - Measure combustible gas levels in soil samples using RKI Eagle Portable Gas Detector

CHEMICAL ANALYSIS/QA/QC:

GENERAL: One blind field duplicate for every parameter tested

- Trip blank for VOCs when sampling VOCs in ground water.
- Field filter metals, chromium IV and mercury only in ground water.
- Submit the samples on the attached list in accordance with O. Reg. 153/04, as amended (Table 2 (T2) residential/parkland/institutional (RPI) Site Condition Standards (SCSs))

Soil Samples to Be Tested:

- Metals and Inorganics – 3 plus 1 duplicate
- PAHs – 3 plus 1 duplicate
- PHC Fractions F1 to F4 – 3 plus 1 duplicate
- VOCS – 3 plus 1 duplicate
- TCLP - 1 sample for metal and inorganics, VOCs, PCBs and ignitability

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CONSULTING ENGINEERS

GEOTECHNICAL/GEOENVIRONMENTAL FIELD INSTRUCTIONS/ SAMPLING & ANALYSIS PLAN

PROJECT NO.	**17HX001**	*DATE*	**February 23, 2017**
PROJECT NAME	**5209 Stonehaven Drive**	*PROJECT LOCATION*	**5209 Stonehaven Drive, Burlington**

Ground Water Samples to Be Tested:

Ground Water Sample Parameters To Be Tested								
		M & I	F1 to F4	VOCs	PAHs	PCBs	TOC	VOC Trip Blank
	Sample ID:							Yes
1	BH/MW201	Yes	Yes	Yes	Yes	No	No	
2	BH/MW202	Yes	Yes	Yes	Yes	No	No	
3	BH/MW203	Yes	Yes	Yes	Yes	No	No	
7	Duplicate A	Yes	Yes	Yes	Yes	No	No	

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GEOTECHNICAL/GEOENVIRONMENTAL FIELD INSTRUCTIONS/ SAMPLING & ANALYSIS PLAN

PROJECT NO.	**17HX001**	*DATE*	**March 14, 2017**
PROJECT NAME	**5209 Stonehaven Drive**	*PROJECT LOCATION*	**5209 Stonehaven Drive, Burlington**

GENERAL INSTRUCTIONS – STAGE TWO:

Conduct a Phase Two Environmental Site Assessment (ESA) Update in accordance with O. Reg. 153/04, as amended, as outlined in the investigation program noted below.

RATIONAL, NO. OF BH's/TEST PITS AND DEPTHS:

Using hand augering equipment, a total of seven (7) boreholes (BH301 to BH307) ranging in depth from 0.6 (2') to 1.5 m (5'). Two samples are to be obtained at each location.

OTHER:	- Survey borehole locations - Measure pavement structure depths - Obtain GPS Coordinates - Measure combustible gas levels in soil samples using RKI Eagle Portable Gas Detector

CHEMICAL ANALYSIS/QA/QC:

GENERAL: One blind field duplicate for every parameter tested

- Submit the samples on the attached list in accordance with O. Reg. 153/04, as amended (Table 2 (T2) residential/parkland/institutional (RPI) Site Condition Standards (SCSs))

Soil Samples to Be Tested:
- PHC Fractions F1 to F4 – 12 plus 1 duplicate

Appendix B

AGAT Laboratories Limited

Certificates of Analysis

O. Reg. 153/04, As Amended, Table 2

Residential/Parkland/Institutional Site Condition Standards

Soil

Stage One

AGAT Laboratories

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

CLIENT NAME: PETO MACCALLUM LIMITED
45 BURFORD ROAD
HAMILTON, ON L8E3C5
(905) 561-2231

ATTENTION TO: Danika Durish

PROJECT: 17HX001

AGAT WORK ORDER: 17T190760

SOIL ANALYSIS REVIEWED BY: Amanjot Bhela, Inorganic Coordinator

TRACE ORGANICS REVIEWED BY: Oksana Gushyla, Trace Organics Lab Supervisor

DATE REPORTED: Mar 08, 2017

PAGES (INCLUDING COVER): 17

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

*NOTES

All samples will be disposed of within 30 days following analysis. Please contact the lab if you require additional sample storage time.

Member of: Association of Professional Engineers and Geoscientists of Alberta (APEGA)
Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

AGAT Laboratories is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA) and/or Standards Council of Canada (SCC) for specific tests listed on the scope of accreditation. AGAT Laboratories (Mississauga) is also accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) for specific drinking water tests. Accreditations are location and parameter specific. A complete listing of parameters for each location is available from www.cala.ca and/or www.scc.ca. The tests in this report may not necessarily be included in the scope of accreditation.

Results relate only to the items tested and to all the items tested
All reportable information as specified by ISO 17025:2005 is available from AGAT Laboratories upon request

AGAT Laboratories

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FAX (905)712-5122
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 17T190760

PROJECT: 17HX001

CLIENT NAME: PETO MACCALLUM LIMITED

ATTENTION TO: Danika Durish

SAMPLING SITE:Burlington

SAMPLED BY:K. Pettitt

O. Reg. 153(511) - Metals & Inorganics (Soil)

DATE RECEIVED: 2017-02-24

DATE REPORTED: 2017-03-08

SAMPLE DESCRIPTION:				BH/MW201 SS1B	BH/MW202 SS2	BH/MW203 SS2	Duplicate 1
SAMPLE TYPE:				Soil	Soil	Soil	Soil
DATE SAMPLED:				2017-02-23	2017-02-23	2017-02-23	2017-02-23
Parameter	Unit	G / S	RDL	8215993	8215996	8216005	8216009
Antimony	µg/g	7.5	0.8	<0.8	<0.8	<0.8	<0.8
Arsenic	µg/g	18	1	6	12	6	5
Barium	µg/g	390	2	118	48	96	89
Beryllium	µg/g	4	0.5	0.7	<0.5	0.5	0.5
Boron	µg/g	120	5	7	12	7	7
Boron (Hot Water Soluble)	µg/g	1.5	0.10	0.51	0.37	0.10	0.11
Cadmium	µg/g	1.2	0.5	<0.5	<0.5	<0.5	<0.5
Chromium	µg/g	160	2	21	9	18	18
Chromium VI	µg/g	8	0.2	<0.2	<0.2	<0.2	<0.2
Cobalt	µg/g	22	0.5	10.8	5.6	10.5	10.2
Copper	µg/g	140	1	29	25	24	24
Cyanide	µg/g	0.051	0.040	<0.040	<0.040	<0.040	<0.040
Electrical Conductivity	mS/cm	0.7	0.005	0.210	0.515	0.306	0.309
Lead	µg/g	120	1	37	27	14	10
Mercury	µg/g	0.27	0.10	<0.10	<0.10	<0.10	<0.10
Molybdenum	µg/g	6.9	0.5	0.6	1.2	<0.5	<0.5
Nickel	µg/g	100	1	23	11	22	21
Selenium	µg/g	2.4	0.4	0.5	<0.4	<0.4	<0.4
Silver	µg/g	20	0.2	<0.2	<0.2	<0.2	<0.2
Sodium Adsorption Ratio	NA	5	NA	0.312	0.525	2.35	2.23
Thallium	µg/g	1	0.4	<0.4	<0.4	<0.4	<0.4
Uranium	µg/g	23	0.5	0.5	0.5	0.5	0.5
Vanadium	µg/g	86	1	29	14	24	24
Zinc	µg/g	340	5	96	105	53	54
pH, 2:1 CaCl2 Extraction	pH Units		NA	7.14	7.51	7.58	7.53

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soils

8215993-8216009 EC & SAR were determined on the DI water extract obtained from the 2:1 leaching procedure (2 parts DI water:1 part soil). pH was determined on the 0.01M CaCl2 extract prepared at 2:1 ratio.

Certified By: Amanjot Bhela

Results relate only to the items tested and to all the items tested

AGAT Laboratories

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MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
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Certificate of Analysis

AGAT WORK ORDER: 17T190760

PROJECT: 17HX001

CLIENT NAME: PETO MACCALLUM LIMITED

ATTENTION TO: Danika Durish

SAMPLING SITE:Burlington

SAMPLED BY:K. Pettitt

O. Reg. 153(511) - PAHs (Soil)

DATE RECEIVED: 2017-02-24

DATE REPORTED: 2017-03-08

				BH/MW201			
		SAMPLE DESCRIPTION:		SS1B	BH/MW202 SS2	BH/MW203 SS2	Duplicate 1
		SAMPLE TYPE:		Soil	Soil	Soil	Soil
		DATE SAMPLED:		2017-02-23	2017-02-23	2017-02-23	2017-02-23
Parameter	**Unit**	**G / S**	**RDL**	**8215993**	**8215996**	**8216005**	**8216009**
Acenaphthene	µg/g	7.9	0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthylene	µg/g	0.15	0.05	<0.05	<0.05	<0.05	<0.05
Anthracene	µg/g	0.67	0.05	<0.05	<0.05	<0.05	<0.05
Benz(a)anthracene	µg/g	0.5	0.05	<0.05	0.11	<0.05	<0.05
Benzo(a)pyrene	µg/g	0.3	0.05	<0.05	0.06	<0.05	<0.05
Benzo(b)fluoranthene	µg/g	0.78	0.05	<0.05	<0.05	<0.05	<0.05
Benzo(g,h,i)perylene	µg/g	6.6	0.05	<0.05	0.06	<0.05	<0.05
Benzo(k)fluoranthene	µg/g	0.78	0.05	<0.05	<0.05	<0.05	<0.05
Chrysene	µg/g	7	0.05	<0.05	0.12	<0.05	<0.05
Dibenz(a,h)anthracene	µg/g	0.1	0.05	<0.05	<0.05	<0.05	<0.05
Fluoranthene	µg/g	0.69	0.05	<0.05	<0.05	<0.05	<0.05
Fluorene	µg/g	62	0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-cd)pyrene	µg/g	0.38	0.05	<0.05	<0.05	<0.05	<0.05
Moisture Content	%		0.1	18.2	10.8	10.5	12.4
Naphthalene	µg/g	0.6	0.05	<0.05	<0.05	<0.05	<0.05
Phenanthrene	µg/g	6.2	0.05	<0.05	<0.05	<0.05	<0.05
Pyrene	µg/g	78	0.05	<0.05	<0.05	<0.05	<0.05
2-and 1-methyl Naphthalene	µg/g	0.99	0.05	<0.05	<0.05	<0.05	<0.05
Surrogate	**Unit**	**Acceptable Limits**					
Chrysene-d12	%	50-140		73	68	95	89

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soils

8215993-8216009 Results are based on the dry weight of the soil.
Note: The result for Benzo(b)Fluoranthene is the total of the Benzo(b)&(j)Fluoranthene isomers because the isomers co-elute on the GC column.

Certified By:

Results relate only to the items tested and to all the items tested

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 17T190760

PROJECT: 17HX001

CLIENT NAME: PETO MACCALLUM LIMITED

ATTENTION TO: Danika Durish

SAMPLING SITE:Burlington

SAMPLED BY:K. Pettitt

O. Reg. 153(511) - PHC F1 - F4 / VOCs (Soil)

DATE RECEIVED: 2017-02-24

DATE REPORTED: 2017-03-08

		SAMPLE DESCRIPTION:		BH/MW201 SS2	Duplicate 2
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		2017-02-23	2017-02-23
Parameter	Unit	G / S	RDL	8215995	8216013
Acetone	ug/g	16	0.50	<0.50	<0.50
Benzene	ug/g	0.21	0.02	<0.02	<0.02
Bromodichloromethane	ug/g	1.5	0.05	<0.05	<0.05
Bromoform	ug/g	0.27	0.05	<0.05	<0.05
Bromomethane	ug/g	0.05	0.05	<0.05	<0.05
Carbon Tetrachloride	ug/g	0.05	0.05	<0.05	<0.05
Chlorobenzene	ug/g	2.4	0.05	<0.05	<0.05
Chloroform	ug/g	0.05	0.04	<0.04	<0.04
Cis- 1,2-Dichloroethylene	ug/g	1.9	0.02	<0.02	<0.02
Dibromochloromethane	ug/g	2.3	0.05	<0.05	<0.05
1,2-Dichlorobenzene	ug/g	1.2	0.05	<0.05	<0.05
1,4-Dichlorobenzene	ug/g	0.083	0.05	<0.05	<0.05
1,3-Dichlorobenzene	ug/g	4.8	0.05	<0.05	<0.05
Dichlorodifluoromethane	µg/g	16	0.05	<0.05	<0.05
1,2-Dichloroethane	ug/g	0.05	0.03	<0.03	<0.03
1,1-Dichloroethane	ug/g	0.47	0.02	<0.02	<0.02
1,1-Dichloroethylene	ug/g	0.05	0.05	<0.05	<0.05
1,2-Dichloropropane	ug/g	0.05	0.03	<0.03	<0.03
1,3-Dichloropropene	µg/g	0.05	0.04	<0.04	<0.04
Ethylbenzene	ug/g	1.1	0.05	<0.05	<0.05
Ethylene Dibromide	ug/g	0.05	0.04	<0.04	<0.04
F1 (C6 to C10)	µg/g	55	5	<5	<5
F1 (C6 to C10) minus BTEX	µg/g	55	5	<5	<5
F2 (C10 to C16)	µg/g	98	10	<10	<10
F3 (C16 to C34)	µg/g	300	50	<50	<50
F4 (C34 to C50)	µg/g	2800	50	<50	<50
Gravimetric Heavy Hydrocarbons	µg/g	2800	50	NA	NA
Methyl Ethyl Ketone	ug/g	16	0.50	<0.50	<0.50
Methyl Isobutyl Ketone	ug/g	1.7	0.50	<0.50	<0.50
Methyl tert-butyl Ether	ug/g	0.75	0.05	<0.05	<0.05

Certified By:

Results relate only to the items tested and to all the items tested

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Certificate of Analysis

AGAT WORK ORDER: 17T190760

PROJECT: 17HX001

CLIENT NAME: PETO MACCALLUM LIMITED

ATTENTION TO: Danika Durish

SAMPLING SITE:Burlington

SAMPLED BY:K. Pettitt

O. Reg. 153(511) - PHC F1 - F4 / VOCs (Soil)

DATE RECEIVED: 2017-02-24

DATE REPORTED: 2017-03-08

		SAMPLE DESCRIPTION:		BH/MW201 SS2	Duplicate 2
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		2017-02-23	2017-02-23
Parameter	**Unit**	**G / S**	**RDL**	**8215995**	**8216013**
Methylene Chloride	ug/g	0.1	0.05	<0.05	<0.05
Moisture Content	%		0.1	12.8	15.4
Styrene	ug/g	0.7	0.05	<0.05	<0.05
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05	<0.05	<0.05
1,1,1,2-Tetrachloroethane	ug/g	0.058	0.04	<0.04	<0.04
Tetrachloroethylene	ug/g	0.28	0.05	<0.05	<0.05
Toluene	ug/g	2.3	0.05	<0.05	<0.05
Trans- 1,2-Dichloroethylene	ug/g	0.084	0.05	<0.05	<0.05
1,1,1-Trichloroethane	ug/g	0.38	0.05	<0.05	<0.05
1,1,2-Trichloroethane	ug/g	0.05	0.04	<0.04	<0.04
Trichloroethylene	ug/g	0.061	0.03	<0.03	<0.03
Trichlorofluoromethane	ug/g	4	0.05	<0.05	<0.05
Vinyl Chloride	ug/g	0.02	0.02	<0.02	<0.02
Xylene Mixture	ug/g	3.1	0.05	<0.05	<0.05
m & p-Xylene	ug/g		0.05	<0.05	<0.05
n-Hexane	µg/g	2.8	0.05	<0.05	<0.05
o-Xylene	ug/g		0.05	<0.05	<0.05
Surrogate	**Unit**	**Acceptable Limits**			
4-Bromofluorobenzene	% Recovery	50-140		98	93
Terphenyl (F2-F4)	% Recovery	60-140		120	109
Toluene-d8	% Recovery	50-140		105	105

Certified By:

Results relate only to the items tested and to all the items tested

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 17T190760

PROJECT: 17HX001

CLIENT NAME: PETO MACCALLUM LIMITED

ATTENTION TO: Danika Durish

SAMPLING SITE:Burlington

SAMPLED BY:K. Pettitt

O. Reg. 153(511) - PHC F1 - F4 / VOCs (Soil)

DATE RECEIVED: 2017-02-24

DATE REPORTED: 2017-03-08

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soils

8215995-8216013 The sample was analyzed using the high level technique. The sample was extracted using methanol, a small amount of the methanol extract was diluted in water and the purge & trap GC/MS analysis was performed.
Results are based on the dry weight of the soil.
The C6-C10 fraction is calculated using Toluene response factor.
The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and n-C34.
Gravimetric Heavy Hydrocarbons are not included in the Total C16-C50 and are only determined if the chromatogram of the C34 - C50 hydrocarbons indicates that hydrocarbons >C50 are present.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6 - C50 results are corrected for BTEX contributions.
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
nC6 and nC10 response factors are within 30% of Toluene response factor.
nC10, nC16 and nC34 response factors are within 10% of their average.
C50 response factor is within 70% of nC10 + nC16 + nC34 average.
Linearity is within 15%.
Extraction and holding times were met for this sample.
Fractions 1-4 are quantified with the contribution of PAHs. Under Ontario Regulation 153, results are considered valid without determining the PAH contribution if not requested by the client.
Quality Control Data is available upon request.

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 17T190760

PROJECT: 17HX001

CLIENT NAME: PETO MACCALLUM LIMITED

ATTENTION TO: Danika Durish

SAMPLING SITE:Burlington

SAMPLED BY:K. Pettitt

O. Reg. 153(511) - PHC F1 - F4 / VOCs (with PAH) (Soil)

DATE RECEIVED: 2017-02-24

DATE REPORTED: 2017-03-08

		SAMPLE DESCRIPTION:		BH/MW202 SS2	BH/MW203 SS2
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		2017-02-23	2017-02-23
Parameter	Unit	G / S	RDL	8215996	8216005
Acetone	ug/g	16	0.50	<0.50	<0.50
Benzene	ug/g	0.21	0.02	<0.02	<0.02
Bromodichloromethane	ug/g	1.5	0.05	<0.05	<0.05
Bromoform	ug/g	0.27	0.05	<0.05	<0.05
Bromomethane	ug/g	0.05	0.05	<0.05	<0.05
Carbon Tetrachloride	ug/g	0.05	0.05	<0.05	<0.05
Chlorobenzene	ug/g	2.4	0.05	<0.05	<0.05
Chloroform	ug/g	0.05	0.04	<0.04	<0.04
Cis- 1,2-Dichloroethylene	ug/g	1.9	0.02	<0.02	<0.02
Dibromochloromethane	ug/g	2.3	0.05	<0.05	<0.05
1,2-Dichlorobenzene	ug/g	1.2	0.05	<0.05	<0.05
1,4-Dichlorobenzene	ug/g	0.083	0.05	<0.05	<0.05
1,3-Dichlorobenzene	ug/g	4.8	0.05	<0.05	<0.05
Dichlorodifluoromethane	µg/g	16	0.05	<0.05	<0.05
1,2-Dichloroethane	ug/g	0.05	0.03	<0.03	<0.03
1,1-Dichloroethane	ug/g	0.47	0.02	<0.02	<0.02
1,1-Dichloroethylene	ug/g	0.05	0.05	<0.05	<0.05
1,2-Dichloropropane	ug/g	0.05	0.03	<0.03	<0.03
1,3-Dichloropropene	µg/g	0.05	0.04	<0.04	<0.04
Ethylbenzene	ug/g	1.1	0.05	<0.05	<0.05
Ethylene Dibromide	ug/g	0.05	0.04	<0.04	<0.04
F1 (C6 to C10)	µg/g	55	5	<5	<5
F1 (C6 to C10) minus BTEX	µg/g	55	5	<5	<5
F2 (C10 to C16)	µg/g	98	10	<10	<10
F2 (C10 to C16) minus Naphthalene	µg/g		10	<10	<10
F3 (C16 to C34)	µg/g	300	50	**2000**	<50
F3 (C16 to C34) minus PAHs	µg/g		50	2000	<50
F4 (C34 to C50)	µg/g	2800	50	2100	<50
Gravimetric Heavy Hydrocarbons	µg/g	2800	50	NA	NA
Methyl Ethyl Ketone	ug/g	16	0.50	<0.50	<0.50

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AGAT WORK ORDER: 17T190760

PROJECT: 17HX001

CLIENT NAME: PETO MACCALLUM LIMITED

ATTENTION TO: Danika Durish

SAMPLING SITE:Burlington

SAMPLED BY:K. Pettitt

O. Reg. 153(511) - PHC F1 - F4 / VOCs (with PAH) (Soil)

DATE RECEIVED: 2017-02-24

DATE REPORTED: 2017-03-08

		SAMPLE DESCRIPTION:		BH/MW202 SS2	BH/MW203 SS2
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		2017-02-23	2017-02-23
Parameter	**Unit**	**G / S**	**RDL**	**8215996**	**8216005**
Methyl Isobutyl Ketone	ug/g	1.7	0.50	<0.50	<0.50
Methyl tert-butyl Ether	ug/g	0.75	0.05	<0.05	<0.05
Methylene Chloride	ug/g	0.1	0.05	<0.05	<0.05
Moisture Content	%		0.1	10.8	10.5
Styrene	ug/g	0.7	0.05	<0.05	<0.05
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05	<0.05	<0.05
1,1,1,2-Tetrachloroethane	ug/g	0.058	0.04	<0.04	<0.04
Tetrachloroethylene	ug/g	0.28	0.05	<0.05	<0.05
Toluene	ug/g	2.3	0.05	<0.05	<0.05
Trans- 1,2-Dichloroethylene	ug/g	0.084	0.05	<0.05	<0.05
1,1,1-Trichloroethane	ug/g	0.38	0.05	<0.05	<0.05
1,1,2-Trichloroethane	ug/g	0.05	0.04	<0.04	<0.04
Trichloroethylene	ug/g	0.061	0.03	<0.03	<0.03
Trichlorofluoromethane	ug/g	4	0.05	<0.05	<0.05
Vinyl Chloride	ug/g	0.02	0.02	<0.02	<0.02
Xylene Mixture	ug/g	3.1	0.05	<0.05	<0.05
m & p-Xylene	ug/g		0.05	<0.05	<0.05
n-Hexane	µg/g	2.8	0.05	<0.05	<0.05
o-Xylene	ug/g		0.05	<0.05	<0.05
Surrogate	**Unit**	**Acceptable Limits**			
4-Bromofluorobenzene	% Recovery	50-140		90	94
Terphenyl (F2-F4)	% Recovery	60-140		92	96
Toluene-d8	% Recovery	50-140		120	119

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 17T190760

PROJECT: 17HX001

CLIENT NAME: PETO MACCALLUM LIMITED

ATTENTION TO: Danika Durish

SAMPLING SITE:Burlington

SAMPLED BY:K. Pettitt

O. Reg. 153(511) - PHC F1 - F4 / VOCs (with PAH) (Soil)

DATE RECEIVED: 2017-02-24

DATE REPORTED: 2017-03-08

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soils

8215996-8216005 The sample was analyzed using the high level technique. The sample was extracted using methanol, a small amount of the methanol extract was diluted in water and the purge & trap GC/MS analysis was performed.
Results are based on the dry weight of the soil.
The C6-C10 fraction is calculated using toluene response factor.
The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and n-C34.
Gravimetric Heavy Hydrocarbons are not included in the Total C16-C50 and are only determined if the chromatogram of the C34 - C50 hydrocarbons indicates that hydrocarbons >C50 are present.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6 - C50 results are corrected for BTEX and PAH contributions.
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
nC6 and nC10 response factors are within 30% of Toluene response factor.
nC10, nC16 and nC34 response factors are within 10% of their average.
C50 response factor is within 70% of nC10 + nC16 + nC34 average.
Linearity is within 15%.
Extraction and holding times were met for this sample.

Certified By:

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Guideline Violation

AGAT WORK ORDER: 17T190760

PROJECT: 17HX001

CLIENT NAME: PETO MACCALLUM LIMITED

ATTENTION TO: Danika Durish

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
8215996	BH/MW202 SS2	ON T2 S RPI CT	O. Reg. 153(511) - PHC F1 - F4 / VOCs (with PAH) (Soil)	F3 (C16 to C34)	µg/g	300	2000

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Quality Assurance

CLIENT NAME: PETO MACCALLUM LIMITED

AGAT WORK ORDER: 17T190760

PROJECT: 17HX001

ATTENTION TO: Danika Durish

SAMPLING SITE:Burlington

SAMPLED BY:K. Pettitt

Soil Analysis

RPT Date: Mar 08, 2017			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - Metals & Inorganics (Soil)															
Antimony	8227165		<0.8	<0.8	NA	< 0.8	124%	70%	130%	102%	80%	120%	80%	70%	130%
Arsenic	8227165		3	3	NA	< 1	113%	70%	130%	103%	80%	120%	107%	70%	130%
Barium	8227165		189	191	1.1%	< 2	104%	70%	130%	98%	80%	120%	109%	70%	130%
Beryllium	8227165		0.7	0.6	NA	< 0.5	94%	70%	130%	102%	80%	120%	91%	70%	130%
Boron	8227165		9	10	NA	< 5	73%	70%	130%	105%	80%	120%	109%	70%	130%
Boron (Hot Water Soluble)	8224071		0.34	0.36	NA	< 0.10	107%	60%	140%	101%	70%	130%	99%	60%	140%
Cadmium	8227165		<0.5	<0.5	NA	< 0.5	110%	70%	130%	104%	80%	120%	107%	70%	130%
Chromium	8227165		29	29	0.0%	< 2	89%	70%	130%	103%	80%	120%	123%	70%	130%
Chromium VI	8220906		<0.2	<0.2	NA	< 0.2	94%	70%	130%	101%	80%	120%	94%	70%	130%
Cobalt	8227165		10.9	11.1	1.8%	< 0.5	97%	70%	130%	100%	80%	120%	99%	70%	130%
Copper	8227165		22	22	0.0%	< 1	96%	70%	130%	108%	80%	120%	98%	70%	130%
Cyanide	8221087		<0.040	<0.040	NA	< 0.040	107%	70%	130%	107%	80%	120%	97%	70%	130%
Electrical Conductivity	8221287		0.747	0.748	0.1%	< 0.005	93%	90%	110%	NA			NA		
Lead	8227165		8	8	0.0%	< 1	104%	70%	130%	107%	80%	120%	100%	70%	130%
Mercury	8227165		<0.10	<0.10	NA	< 0.10	112%	70%	130%	93%	80%	120%	94%	70%	130%
Molybdenum	8227165		<0.5	<0.5	NA	< 0.5	113%	70%	130%	106%	80%	120%	114%	70%	130%
Nickel	8227165		22	22	0.0%	< 1	96%	70%	130%	99%	80%	120%	97%	70%	130%
Selenium	8227165		<0.4	<0.4	NA	< 0.4	127%	70%	130%	104%	80%	120%	112%	70%	130%
Silver	8227165		<0.2	<0.2	NA	< 0.2	107%	70%	130%	113%	80%	120%	113%	70%	130%
Sodium Adsorption Ratio	8232019		76.3	74.1	2.9%	NA	NA			NA			NA		
Thallium	8227165		<0.4	<0.4	NA	< 0.4	101%	70%	130%	103%	80%	120%	99%	70%	130%
Uranium	8227165		<0.5	<0.5	NA	< 0.5	90%	70%	130%	92%	80%	120%	87%	70%	130%
Vanadium	8227165		41	42	2.4%	< 1	96%	70%	130%	100%	80%	120%	116%	70%	130%
Zinc	8227165		54	55	1.8%	< 5	99%	70%	130%	107%	80%	120%	111%	70%	130%
pH, 2:1 CaCl2 Extraction	8215993	8215993	7.14	7.29	2.1%	NA	100%	80%	120%	NA			NA		

Comments: NA signifies Not Applicable.
Duplicate Qualifier: 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.

Certified By: Amanjot Bhela

AGAT Laboratories is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA) and/or Standards Council of Canada (SCC) for specific tests listed on the scope of accreditation. AGAT Laboratories (Mississauga) is also accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) for specific drinking water tests. Accreditations are location and parameter specific. A complete listing of parameters for each location is available from www.cala.ca and/or www.scc.ca. The tests in this report may not necessarily be included in the scope of accreditation.

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Quality Assurance

CLIENT NAME: PETO MACCALLUM LIMITED

AGAT WORK ORDER: 17T190760

PROJECT: 17HX001

ATTENTION TO: Danika Durish

SAMPLING SITE:Burlington

SAMPLED BY:K. Pettitt

Trace Organics Analysis

RPT Date: Mar 08, 2017			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - PAHs (Soil)															
Acenaphthene	8223035		< 0.05	< 0.05	NA	< 0.05	71%	50%	140%	122%	50%	140%	126%	50%	140%
Acenaphthylene	8223035		< 0.05	< 0.05	NA	< 0.05	66%	50%	140%	134%	50%	140%	132%	50%	140%
Anthracene	8223035		< 0.05	< 0.05	NA	< 0.05	83%	50%	140%	109%	50%	140%	108%	50%	140%
Benz(a)anthracene	8223035		< 0.05	< 0.05	NA	< 0.05	74%	50%	140%	96%	50%	140%	99%	50%	140%
Benzo(a)pyrene	8223035		< 0.05	< 0.05	NA	< 0.05	110%	50%	140%	123%	50%	140%	127%	50%	140%
Benzo(b)fluoranthene	8223035		< 0.05	< 0.05	NA	< 0.05	100%	50%	140%	127%	50%	140%	132%	50%	140%
Benzo(g,h,i)perylene	8223035		< 0.05	< 0.05	NA	< 0.05	81%	50%	140%	131%	50%	140%	127%	50%	140%
Benzo(k)fluoranthene	8223035		< 0.05	< 0.05	NA	< 0.05	138%	50%	140%	121%	50%	140%	137%	50%	140%
Chrysene	8223035		< 0.05	< 0.05	NA	< 0.05	109%	50%	140%	95%	50%	140%	95%	50%	140%
Dibenz(a,h)anthracene	8223035		< 0.05	< 0.05	NA	< 0.05	136%	50%	140%	116%	50%	140%	122%	50%	140%
Fluoranthene	8223035		< 0.05	< 0.05	NA	< 0.05	97%	50%	140%	101%	50%	140%	99%	50%	140%
Fluorene	8223035		< 0.05	< 0.05	NA	< 0.05	86%	50%	140%	121%	50%	140%	123%	50%	140%
Indeno(1,2,3-cd)pyrene	8223035		< 0.05	< 0.05	NA	< 0.05	136%	50%	140%	129%	50%	140%	131%	50%	140%
Naphthalene	8223035		< 0.05	< 0.05	NA	< 0.05	79%	50%	140%	136%	50%	140%	132%	50%	140%
Phenanthrene	8223035		< 0.05	< 0.05	NA	< 0.05	96%	50%	140%	115%	50%	140%	111%	50%	140%
Pyrene	8223035		< 0.05	< 0.05	NA	< 0.05	108%	50%	140%	98%	50%	140%	97%	50%	140%
2-and 1-methyl Naphthalene	8223035		< 0.05	< 0.05	NA	< 0.05	80%	50%	140%	124%	50%	140%	129%	50%	140%
O. Reg. 153(511) - PHC F1 - F4 / VOCs (Soil)															
Acetone	8231555		< 0.50	< 0.50	NA	< 0.50	109%	50%	140%	112%	50%	140%	93%	50%	140%
Benzene	8231555		< 0.02	< 0.02	NA	< 0.02	83%	50%	140%	85%	60%	130%	93%	50%	140%
Bromodichloromethane	8231555		< 0.05	< 0.05	NA	< 0.05	114%	50%	140%	83%	60%	130%	90%	50%	140%
Bromoform	8231555		< 0.05	< 0.05	NA	< 0.05	115%	50%	140%	92%	60%	130%	106%	50%	140%
Bromomethane	8231555		< 0.05	< 0.05	NA	< 0.05	91%	50%	140%	89%	50%	140%	96%	50%	140%
Carbon Tetrachloride	8231555		< 0.05	< 0.05	NA	< 0.05	76%	50%	140%	88%	60%	130%	87%	50%	140%
Chlorobenzene	8231555		< 0.05	< 0.05	NA	< 0.05	119%	50%	140%	98%	60%	130%	111%	50%	140%
Chloroform	8231555		< 0.04	< 0.04	NA	< 0.04	116%	50%	140%	117%	60%	130%	122%	50%	140%
Cis- 1,2-Dichloroethylene	8231555		< 0.02	< 0.02	NA	< 0.02	93%	50%	140%	95%	60%	130%	101%	50%	140%
Dibromochloromethane	8231555		< 0.05	< 0.05	NA	< 0.05	117%	50%	140%	103%	60%	130%	104%	50%	140%
1,2-Dichlorobenzene	8231555		< 0.05	< 0.05	NA	< 0.05	122%	50%	140%	104%	60%	130%	120%	50%	140%
1,4-Dichlorobenzene	8231555		< 0.05	< 0.05	NA	< 0.05	123%	50%	140%	88%	60%	130%	120%	50%	140%
1,3-Dichlorobenzene	8231555		< 0.05	< 0.05	NA	< 0.05	119%	50%	140%	97%	60%	130%	118%	50%	140%
Dichlorodifluoromethane	8231555		< 0.05	< 0.05	NA	< 0.05	119%	50%	140%	114%	50%	140%	122%	50%	140%
1,2-Dichloroethane	8231555		< 0.03	< 0.03	NA	< 0.03	102%	50%	140%	94%	60%	130%	97%	50%	140%
1,1-Dichloroethane	8231555		< 0.02	< 0.02	NA	< 0.02	93%	50%	140%	87%	60%	130%	90%	50%	140%
1,1-Dichloroethylene	8231555		< 0.05	< 0.05	NA	< 0.05	97%	50%	140%	92%	60%	130%	91%	50%	140%
1,2-Dichloropropane	8231555		< 0.03	< 0.03	NA	< 0.03	104%	50%	140%	86%	60%	130%	92%	50%	140%
1,3-Dichloropropene	8231555		< 0.04	< 0.04	NA	< 0.04	116%	50%	140%	107%	60%	130%	85%	50%	140%
Ethylbenzene	8231555		< 0.05	< 0.05	NA	< 0.05	112%	50%	140%	101%	60%	130%	99%	50%	140%

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AGAT Laboratories

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http://www.agatlabs.com

Quality Assurance

CLIENT NAME: PETO MACCALLUM LIMITED

AGAT WORK ORDER: 17T190760

PROJECT: 17HX001

ATTENTION TO: Danika Durish

SAMPLING SITE:Burlington

SAMPLED BY:K. Pettitt

Trace Organics Analysis (Continued)

RPT Date: Mar 08, 2017			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Ethylene Dibromide	8231555		< 0.04	< 0.04	NA	< 0.04	116%	50%	140%	98%	60%	130%	105%	50%	140%
F1 (C6 to C10)	8221087		< 5	< 5	NA	< 5	90%	60%	140%	96%	60%	140%	85%	60%	140%
F2 (C10 to C16)	8224876		< 10	< 10	NA	< 10	99%	60%	130%	104%	80%	120%	108%	70%	130%
F3 (C16 to C34)	8224876		< 50	< 50	NA	< 50	102%	60%	130%	104%	80%	120%	103%	70%	130%
F4 (C34 to C50)	8224876		< 50	< 50	NA	< 50	89%	60%	130%	89%	80%	120%	80%	70%	130%
Methyl Ethyl Ketone	8231555		< 0.50	< 0.50	NA	< 0.50	107%	50%	140%	104%	50%	140%	108%	50%	140%
Methyl Isobutyl Ketone	8231555		< 0.50	< 0.50	NA	< 0.50	106%	50%	140%	109%	50%	140%	112%	50%	140%
Methyl tert-butyl Ether	8231555		< 0.05	< 0.05	NA	< 0.05	98%	50%	140%	101%	60%	130%	104%	50%	140%
Methylene Chloride	8231555		< 0.05	< 0.05	NA	< 0.05	85%	50%	140%	112%	60%	130%	115%	50%	140%
Styrene	8231555		< 0.05	< 0.05	NA	< 0.05	106%	50%	140%	99%	60%	130%	94%	50%	140%
1,1,2,2-Tetrachloroethane	8231555		< 0.05	< 0.05	NA	< 0.05	120%	50%	140%	87%	60%	130%	114%	50%	140%
1,1,1,2-Tetrachloroethane	8231555		< 0.04	< 0.04	NA	< 0.04	113%	50%	140%	97%	60%	130%	105%	50%	140%
Tetrachloroethylene	8231555		< 0.05	< 0.05	NA	< 0.05	106%	50%	140%	100%	60%	130%	100%	50%	140%
Toluene	8231555		< 0.05	< 0.05	NA	< 0.05	115%	50%	140%	99%	60%	130%	105%	50%	140%
Trans- 1,2-Dichloroethylene	8231555		< 0.05	< 0.05	NA	< 0.05	81%	50%	140%	86%	60%	130%	91%	50%	140%
1,1,1-Trichloroethane	8231555		< 0.05	< 0.05	NA	< 0.05	85%	50%	140%	92%	60%	130%	91%	50%	140%
1,1,2-Trichloroethane	8231555		< 0.04	< 0.04	NA	< 0.04	122%	50%	140%	107%	60%	130%	112%	50%	140%
Trichloroethylene	8231555		< 0.03	< 0.03	NA	< 0.03	84%	50%	140%	74%	60%	130%	78%	50%	140%
Trichlorofluoromethane	8231555		< 0.05	< 0.05	NA	< 0.05	93%	50%	140%	95%	50%	140%	107%	50%	140%
Vinyl Chloride	8231555		< 0.02	< 0.02	NA	< 0.02	99%	50%	140%	96%	50%	140%	78%	50%	140%
m & p-Xylene	8231555		< 0.05	< 0.05	NA	< 0.05	116%	50%	140%	89%	60%	130%	101%	50%	140%
n-Hexane	8231555		< 0.05	< 0.05	NA	< 0.05	93%	50%	140%	94%	60%	130%	80%	50%	140%
o-Xylene	8231555		< 0.05	< 0.05	NA	< 0.05	121%	50%	140%	120%	60%	130%	106%	50%	140%

Comments: When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Certified By:

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Method Summary

CLIENT NAME: PETO MACCALLUM LIMITED

AGAT WORK ORDER: 17T190760

PROJECT: 17HX001

ATTENTION TO: Danika Durish

SAMPLING SITE:Burlington

SAMPLED BY:K. Pettitt

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Antimony	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Arsenic	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Barium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Beryllium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Boron	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Boron (Hot Water Soluble)	MET-93-6104	EPA SW 846 6010C; MSA, Part 3, Ch.21	ICP/OES
Cadmium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Chromium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Chromium VI	INOR-93-6029	SM 3500 B; MSA Part 3, Ch. 25	SPECTROPHOTOMETER
Cobalt	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Copper	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Cyanide	INOR-93-6052	MOE CN-3015 & E 3009 A;SM 4500 CN	TECHNICON AUTO ANALYZER
Electrical Conductivity	INOR-93-6036	McKeague 4.12, SM 2510 B	EC METER
Lead	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Mercury	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Molybdenum	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Nickel	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Selenium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Silver	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Sodium Adsorption Ratio	INOR-93-6007	McKeague 4.12 & 3.26 & EPA SW-846 6010B	ICP/OES
Thallium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Uranium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Vanadium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Zinc	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
pH, 2:1 CaCl2 Extraction	INOR-93-6031	MSA part 3 & SM 4500-H+ B	PH METER

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Method Summary

CLIENT NAME: PETO MACCALLUM LIMITED

AGAT WORK ORDER: 17T190760

PROJECT: 17HX001

ATTENTION TO: Danika Durish

SAMPLING SITE:Burlington

SAMPLED BY:K. Pettitt

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Acenaphthene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Acenaphthylene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Anthracene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benz(a)anthracene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benzo(a)pyrene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benzo(b)fluoranthene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benzo(g,h,i)perylene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benzo(k)fluoranthene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Chrysene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Chrysene-d12	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Dibenz(a,h)anthracene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Fluoranthene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Fluorene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Moisture Content	ORG-91-5106	EPA SW-846 3541 & 8270	BALANCE
Naphthalene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Phenanthrene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Pyrene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
2-and 1-methyl Naphthalene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Acetone	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Benzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Bromodichloromethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
4-Bromofluorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Bromoform	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Bromomethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Carbon Tetrachloride	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Chlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Chloroform	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Cis- 1,2-Dichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Dibromochloromethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,2-Dichlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,4-Dichlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,3-Dichlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Dichlorodifluoromethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,2-Dichloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1-Dichloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1-Dichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,2-Dichloropropane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,3-Dichloropropene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Ethylbenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Ethylene Dibromide	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
F1 (C6 to C10)	VOL-91-5009	CCME Tier 1 Method, SW846 5035	P &T GC / FID
F1 (C6 to C10) minus BTEX	VOL-91-5009	CCME Tier 1 Method, SW846 5035	P &T GC / FID
F2 (C10 to C16)	VOL-91-5009	CCME Tier 1 Method	GC/FID
F3 (C16 to C34)	VOL-91-5009	CCME Tier 1 Method	GC/FID
F4 (C34 to C50)	VOL-91-5009	CCME Tier 1 Method	GC/FID
Gravimetric Heavy Hydrocarbons	VOL-91-5009	CCME Tier 1 Method	BALANCE
Methyl Ethyl Ketone	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Methyl Isobutyl Ketone	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS

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Method Summary

CLIENT NAME: PETO MACCALLUM LIMITED

AGAT WORK ORDER: 17T190760

PROJECT: 17HX001

ATTENTION TO: Danika Durish

SAMPLING SITE:Burlington

SAMPLED BY:K. Pettitt

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Methyl tert-butyl Ether	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Methylene Chloride	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Moisture Content	VOL-91-5009	CCME Tier 1 Method, SW846 5035,8015	BALANCE
Styrene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Terphenyl (F2-F4)	VOL-91-5009	CCME Tier 1 Method	GC/FID
1,1,2,2-Tetrachloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1,1,2-Tetrachloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Tetrachloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Toluene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Toluene-d8	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Trans- 1,2-Dichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1,1-Trichloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1,2-Trichloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Trichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Trichlorofluoromethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Vinyl Chloride	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Xylene Mixture	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
m & p-Xylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
n-Hexane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
o-Xylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
F2 (C10 to C16) minus Naphthalene	VOL-91-5009	CCME Tier 1 Method	GC/FID
F3 (C16 to C34) minus PAHs	VOL-91-5009	CCME Tier 1 Method	GC/FID

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AGAT Laboratories

5835 Coopers Avenue
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webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water intended for human consumption)

Laboratory Use Only

Work Order #: 17T190760

Cooler Quantity:

Arrival Temperatures: 4.9 | 5.1 | 5.1
3.9 | 4.1 | 4.1

Custody Seal Intact: ☐ Yes ☐ No ☐ N/A

Notes:

Report Information:

Company: Peto MacCallum Ltd.
Contact: Danika Durish
Address: 45 Burford Road
Hamilton, ON L8E 3C6
Phone: 905-561-2231 Fax: 905-561-6366
Reports to be sent to:
1. Email: ddurish@petomaccallum.com
2. Email: mking@petomaccallum.com

Regulatory Requirements: ☐ No Regulatory Requirement

(Please check all applicable boxes)

☒ Regulation 153/04
Table 3 (Indicate One)
☐ Ind/Com
☒ Res/Park
☐ Agriculture
Soil Texture (Check One)
☒ Coarse
☐ Fine

☐ Sewer Use
☐ Sanitary
☐ Storm
Region ____ (Indicate One)

☐ Regulation 558
☐ CCME
☐ Prov. Water Quality Objectives (PWQO)
☐ Other
____ (Indicate One)

Is this submission for a **Record of Site Condition?** ☒ Yes ☐ No

Report Guideline on Certificate of Analysis ☒ Yes ☐ No

Turnaround Time (TAT) Required:

Regular TAT ☒ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

☐ 3 Business Days ☐ 2 Business Days ☐ Next Business Day

OR Date Required (Rush Surcharges May Apply): ____

Please provide prior notification for rush TAT
TAT is exclusive of weekends and statutory holidays

For 'Same Day' analysis, please contact your AGAT CPM

Project Information:

Project: 17HX001
Site Location: Burlington
Sampled By: K. Pettitt
AGAT Quote #: ____ PO: ____
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: ☒ Yes ☐ No

Company:
Contact:
Address:
Email:

Sample Matrix Legend

B	Biota
GW	Ground Water
O	Oil
P	Paint
S	Soil
SD	Sediment
SW	Surface Water

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI (Y/N)	O. Reg 153: Metals and Inorganics (☐ All Metals ☐ 153 Metals (excl. Hydrides) ☐ Hydride Metals)	O. Reg 153: ORPs: ☐ B-HWS ☐ Cr ☐ CN ☐ Cr6+ ☐ EC ☐ FOC ☐ Hg ☐ pH ☐ SAR	Full Metals Scan	Regulation/Custom Metals	Nutrients: ☐ TP ☐ NH_3 ☐ TKN ☐ NO_3 ☐ NO_2 ☐ NO_3+NO_2	Volatiles: ☒ VOC ☒ BTEX ☒ THM	CCME Fractions 1 to 4	ABNs	PAHs	PCBs: ☐ Total ☐ Aroclors	Organochlorine Pesticides	TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs	Sewer Use
BH1MW201 SS1B	Feb 23'17	12:20-2:15	1	Soil	HOLD	N	X								X				
BH1MW201 SS2	"	↓	2	Soil	HOLD	N						X	X						
BH1MW202 SS2		10:25-12:10	2	Soil	HOLD	N	X					X	X		X				
BH1MW203 SS2		8:20-10:10	2	Soil	HOLD	N	X					X	X		X				
Duplicate 1		8:30-2:15	1	Soil	HOLD	N	X (OK)					X			X				
Duplicate 2	↓	"	2	Soil	HOLD							X	X						

Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time
Danika Durish	Feb 24 17	10:30 am	2017/02/24		1:00
2017/02/24		5:00			

Page 1 of 1

N°: T 042317

Stage Two

AGAT Laboratories

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http://www.agatlabs.com

CLIENT NAME: PETO MACCALLUM LIMITED
45 BURFORD ROAD
HAMILTON, ON L8E3C5
(905) 561-2231

ATTENTION TO: Danika Durish

PROJECT: 17HX001

AGAT WORK ORDER: 17T201854

TRACE ORGANICS REVIEWED BY: Neli Popnikolova, Senior Chemist

DATE REPORTED: Apr 10, 2017

PAGES (INCLUDING COVER): 8

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

*NOTES

All samples will be disposed of within 30 days following analysis. Please contact the lab if you require additional sample storage time.

Member of: Association of Professional Engineers and Geoscientists of Alberta (APEGA)
Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

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All reportable information as specified by ISO 17025:2005 is available from AGAT Laboratories upon request

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 17T201854

PROJECT: 17HX001

CLIENT NAME: PETO MACCALLUM LIMITED

ATTENTION TO: Danika Durish

SAMPLING SITE:Burlington

SAMPLED BY:Kurtis Pettitt

O. Reg. 153(511) - PHCs F1 - F4 (Soil)

DATE RECEIVED: 2017-03-31

DATE REPORTED: 2017-04-10

					SAMPLE DESCRIPTION:	BH301 AS1	BH301 AS2	BH302 AS1	BH302 AS2	BH303 AS1	BH304 AS1
					SAMPLE TYPE:	Soil	Soil	Soil	Soil	Soil	Soil
					DATE SAMPLED:	2017-03-30	2017-03-30	2017-03-30	2017-03-30	2017-03-30	2017-03-28
Parameter	Unit	G / S	RDL	Date Prepared	Date Analyzed	8292225	8292226	8292228	8292230	8292232	8292234
Benzene	µg/g	0.21	0.02	2017-07-10	2017-07-10	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Ethylbenzene	µg/g	1.1	0.05	2017-07-10	2017-07-10	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
F1 (C6 to C10)	µg/g	55	5	2017-07-10	2017-07-10	<5	<5	<5	<5	<5	<5
F1 (C6 to C10) minus BTEX	µg/g	55	5	2017-07-10	2017-07-10	<5	<5	<5	<5	<5	<5
F2 (C10 to C16)	µg/g	98	10	2017-04-07	2017-04-07	<10	<10	<10	<10	<10	<10
F3 (C16 to C34)	µg/g	300	50	2017-04-07	2017-04-07	<50	<50	<50	<50	<50	<50
F4 (C34 to C50)	µg/g	2800	50	2017-04-07	2017-04-07	<50	<50	<50	<50	<50	<50
Gravimetric Heavy Hydrocarbons	µg/g	2800	50	2017-04-07	2017-04-07	NA	NA	NA	NA	NA	NA
Moisture Content	%		0.1	2017-04-10	2017-04-10	28.8	18.7	22.7	20	21	31.3
Toluene	µg/g	2.3	0.08	2017-07-10	2017-07-10	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08
Xylene Mixture	µg/g	3.1	0.05	2017-07-10	2017-07-10	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Surrogate	Unit	Acceptable Limits									
Terphenyl	%	60-140		2017-04-07	2017-04-07	75	85	118	112	100	84

Certified By:

Results relate only to the items tested and to all the items tested

AGAT Laboratories

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 17T201854

PROJECT: 17HX001

CLIENT NAME: PETO MACCALLUM LIMITED

ATTENTION TO: Danika Durish

SAMPLING SITE:Burlington

SAMPLED BY:Kurtis Pettitt

O. Reg. 153(511) - PHCs F1 - F4 (Soil)

DATE RECEIVED: 2017-03-31

DATE REPORTED: 2017-04-10

					SAMPLE DESCRIPTION:	BH304 AS2	BH305 AS1	BH305 AS2	BH306 AS1	BH306 AS2	BH307 AS1
					SAMPLE TYPE:	Soil	Soil	Soil	Soil	Soil	Soil
					DATE SAMPLED:	2017-03-28	2017-03-28	2017-03-28	2017-03-28	2017-03-28	2017-03-28
Parameter	Unit	G / S	RDL	Date Prepared	Date Analyzed	8292236	8292238	8292240	8292242	8292246	8292248
Benzene	µg/g	0.21	0.02	2017-07-10	2017-07-10	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Ethylbenzene	µg/g	1.1	0.05	2017-07-10	2017-07-10	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
F1 (C6 to C10)	µg/g	55	5	2017-07-10	2017-07-10	<5	<5	<5	<5	<5	<5
F1 (C6 to C10) minus BTEX	µg/g	55	5	2017-07-10	2017-07-10	<5	<5	<5	<5	<5	<5
F2 (C10 to C16)	µg/g	98	10	2017-04-07	2017-04-07	<10	<10	<10	<10	<10	<10
F3 (C16 to C34)	µg/g	300	50	2017-04-07	2017-04-07	<50	<50	<50	130	<50	53
F4 (C34 to C50)	µg/g	2800	50	2017-04-07	2017-04-07	<50	<50	<50	51	<50	<50
Gravimetric Heavy Hydrocarbons	µg/g	2800	50	2017-04-07	2017-04-07	NA	NA	NA	NA	NA	NA
Moisture Content	%		0.1	2017-04-10	2017-04-10	20.4	21.8	20.3	15.5	21.8	18.6
Toluene	µg/g	2.3	0.08	2017-07-10	2017-07-10	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08
Xylene Mixture	µg/g	3.1	0.05	2017-07-10	2017-07-10	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Surrogate	Unit	Acceptable Limits									
Terphenyl	%	60-140		2017-04-07	2017-04-07	120	130	128	78	120	130

Certified By: N Popnikolof

Results relate only to the items tested and to all the items tested

AGAT Laboratories

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http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 17T201854

PROJECT: 17HX001

CLIENT NAME: PETO MACCALLUM LIMITED

ATTENTION TO: Danika Durish

SAMPLING SITE:Burlington

SAMPLED BY:Kurtis Pettitt

O. Reg. 153(511) - PHCs F1 - F4 (Soil)

DATE RECEIVED: 2017-03-31

DATE REPORTED: 2017-04-10

				SAMPLE DESCRIPTION:		Duplicate 1
				SAMPLE TYPE:		Soil
				DATE SAMPLED:		2017-03-30
Parameter	Unit	G / S	RDL	Date Prepared	Date Analyzed	8292251
Benzene	µg/g	0.21	0.02	2017-07-10	2017-07-10	<0.02
Ethylbenzene	µg/g	1.1	0.05	2017-07-10	2017-07-10	<0.05
F1 (C6 to C10)	µg/g	55	5	2017-07-10	2017-07-10	<5
F1 (C6 to C10) minus BTEX	µg/g	55	5	2017-07-10	2017-07-10	<5
F2 (C10 to C16)	µg/g	98	10	2017-04-07	2017-04-07	<10
F3 (C16 to C34)	µg/g	300	50	2017-04-07	2017-04-07	<50
F4 (C34 to C50)	µg/g	2800	50	2017-04-07	2017-04-07	<50
Gravimetric Heavy Hydrocarbons	µg/g	2800	50	2017-04-07	2017-04-07	NA
Moisture Content	%		0.1	2017-04-10	2017-04-10	20.4
Toluene	µg/g	2.3	0.08	2017-07-10	2017-07-10	<0.08
Xylene Mixture	µg/g	3.1	0.05	2017-07-10	2017-07-10	<0.05
Surrogate	Unit	Acceptable Limits				
Terphenyl	%	60-140		2017-04-07	2017-04-07	120

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soils

8292225-8292251 Results are based on sample dry weight.
The C6-C10 fraction is calculated using Toluene response factor.
The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and n-C34.
Gravimetric Heavy Hydrocarbons are not included in the Total C16-C50 and are only determined if the chromatogram of the C34 - C50 hydrocarbons indicates that hydrocarbons >C50 are present.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6 - C50 results are corrected for BTEX contributions.
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
nC6 and nC10 response factors are within 30% of Toluene response factor.
nC10, nC16 and nC34 response factors are within 10% of their average.
C50 response factor is within 70% of nC10 + nC16 + nC34 average.
Linearity is within 15%.
Extraction and holding times were met for this sample.
Fractions 1-4 are quantified with the contribution of PAHs. Under Ontario Regulation 153, results are considered valid without determining the PAH contribution if not requested by the client.
Quality Control Data is available upon request.

Certified By: N Popnikolof

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Quality Assurance

CLIENT NAME: PETO MACCALLUM LIMITED

AGAT WORK ORDER: 17T201854

PROJECT: 17HX001

ATTENTION TO: Danika Durish

SAMPLING SITE:Burlington

SAMPLED BY:Kurtis Pettitt

Trace Organics Analysis

RPT Date: Apr 10, 2017			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - PHCs F1 - F4 (Soil)															
F2 (C10 to C16)	8295108		< 10	< 10	NA	< 10	99%	60%	130%	86%	80%	120%	86%	70%	130%
F3 (C16 to C34)	8295108		< 50	< 50	NA	< 50	98%	60%	130%	99%	80%	120%	84%	70%	130%
F4 (C34 to C50)	8295108		< 50	< 50	NA	< 50	84%	60%	130%	105%	80%	120%	94%	70%	130%

Comments: When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

O. Reg. 153(511) - PHCs F1 - F4 (Soil)															
Benzene	8293710		< 0.02	< 0.02	NA	< 0.02	109%	60%	130%	108%	60%	130%	84%	60%	130%
Ethylbenzene	8293710		< 0.05	< 0.05	NA	< 0.05	112%	60%	130%	113%	60%	130%	82%	60%	130%
F1 (C6 to C10)	8293710		< 5	< 5	NA	< 5	79%	60%	130%	90%	85%	115%	83%	70%	130%
Toluene	8293710		< 0.08	< 0.08	NA	< 0.08	114%	60%	130%	115%	60%	130%	84%	60%	130%
Xylene Mixture	8293710		< 0.05	< 0.05	NA	< 0.05	109%	60%	130%	112%	60%	130%	86%	60%	130%

Certified By: N Popnikolof

AGAT Laboratories is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA) and/or Standards Council of Canada (SCC) for specific tests listed on the scope of accreditation. AGAT Laboratories (Mississauga) is also accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) for specific drinking water tests. Accreditations are location and parameter specific. A complete listing of parameters for each location is available from www.cala.ca and/or www.scc.ca. The tests in this report may not necessarily be included in the scope of accreditation.

Results relate only to the items tested and to all the items tested

AGAT Laboratories

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MISSISSAUGA, ONTARIO
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Method Summary

CLIENT NAME: PETO MACCALLUM LIMITED

AGAT WORK ORDER: 17T201854

PROJECT: 17HX001

ATTENTION TO: Danika Durish

SAMPLING SITE:Burlington

SAMPLED BY:Kurtis Pettitt

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Benzene	VOL-91-5009	EPA SW-846 5035 & 8260	P & T GC/MS
Ethylbenzene	VOL-91-5009	EPA SW-846 5035 & 8260	P & T GC/MS
F1 (C6 to C10)	VOL-91-5009	CCME Tier 1 Method	P & T GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5009	CCME Tier 1 Method	P & T GC/FID
F2 (C10 to C16)	VOL-91-5009	CCME Tier 1 Method, EPA SW846 8015	GC / FID
F3 (C16 to C34)	VOL-91-5009	CCME Tier 1 Method, EPA SW846 8015	GC / FID
F4 (C34 to C50)	VOL-91-5009	CCME Tier 1 Method, EPA SW846 8015	GC / FID
Gravimetric Heavy Hydrocarbons	VOL-91-5009	CCME Tier 1 Method	BALANCE
Moisture Content	VOL-91-5009	CCME Tier 1 Method	BALANCE
Terphenyl	VOL-91-5009		GC/FID
Toluene	VOL-91-5009	EPA SW-846 5035 & 8260	P & T GC/MS
Xylene Mixture	VOL-91-5009	EPA SW-846 5035 & 8260	P & T GC/MS

Results relate only to the items tested and to all the items tested

AGAT Laboratories

ILS (3) Soil

5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
Ph: 905.712.5100 Fax: 905.712.5122
webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water intended for human consumption)

Laboratory Use Only
Work Order #: 17T201554
Cooler Quantity:
Arrival Temperatures: 6.9 | 7.1 | 7.1
5.5 | 6.1 | 6.4
Custody Seal Intact: ☐Yes ☐No ☐N/A
Notes:

Report Information:
Company: Peto MacCallum Ltd.
Contact: Danika Durish
Address: 45 Burford Road
Hamilton, ON L8E3C6
Phone: 905-561-2231 Fax: 905-561-6366
Reports to be sent to:
1. Email: ddurish@petomaccallum.com
2. Email: mking@petomaccallum.com

Project Information:
Project: 17HX001
Site Location: Burlington
Sampled By: Kurtis Pettitt
AGAT Quote #: PO:
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:
Bill To Same: Yes ☒ No ☐
Company:
Contact:
Address:
Email:

Regulatory Requirements:
☐ No Regulatory Requirement
(Please check all applicable boxes)

☒ Regulation 153/04
Table 2 (Indicate One)
☐ Ind/Com
☒ Res/Park
☐ Agriculture
Soil Texture (Check One)
☒ Coarse
☐ Fine

☐ Sewer Use
☐ Sanitary
☐ Storm
Region (Indicate One)

☐ Regulation 558
☐ CCME
☐ Prov. Water Quality Objectives (PWQO)
☐ Other
(Indicate One)

Is this submission for a Record of Site Condition? ☒ Yes ☐ No

Report Guideline on Certificate of Analysis ☒ Yes ☐ No

Turnaround Time (TAT) Required:
Regular TAT ☒ 5 to 7 Business Days
Rush TAT (Rush Surcharges Apply)
☐ 3 Business Days ☐ 2 Business Days ☐ Next Business Day
OR Date Required (Rush Surcharges May Apply):
Please provide prior notification for rush TAT
**TAT is exclusive of weekends and statutory holidays*
For 'Same Day' analysis, please contact your AGAT CPM

Sample Matrix Legend
B Biota
GW Ground Water
O Oil
P Paint
S Soil
SD Sediment
SW Surface Water

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Y/N	Field Filtered - Metals, Hg, CrVI	O. Reg 153: Metals and Inorganics	All Metals ☐ 153 Metals (excl. Hydrides)	Hydride Metals	ORPs: ☐ B-HWS ☐ Cl⁻ ☐ CN	☐ Cr⁶⁺ ☐ EC ☐ FOC ☐ Hg	☐ pH ☐ SAR	Full Metals Scan	Regulation/Custom Metals	Nutrients: ☐ TP ☐ NH_3 ☐ TKN	☐ NO_3 ☐ NO_2 ☐ NO_3+NO_2	Volatiles: ☐ VOC ☐ BTEX ☐ THM	CCME Fractions 1 to 4	ABNs	PAHs	PCBs: ☐ Total ☐ Aroclors	Organochlorine Pesticides	TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs	Sewer Use
TP201 GS1	March 30 '17	10:10	2	Soil	Includes methanol vial	N												X	X						
TP201 GS2	"	10:25	2	"		N												X	X						
TP202 GS1	"	8:45	2	"		N												X	X						
TP202 GS2	"	9:00	2	"		N												X	X						
TP203 GS1	"	12:15	2	"		N												X	X						
TP204 GS1	March 29 '17	9:20	2	"		N												X	X						
TP204 GS2	"	9:35	2	"		N												X	X						
TP205 GS1	"	10:00	2	"		N												X	X						
TP205 GS2	"	10:20	2	"		N												X	X						
TP206 GS1	"	12:25	2	"		N												X	X						
TP206 GS2	"	12:55	2	"		N												X	X						

Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time
Danika Durish	30-03-17	3:30pm	D. Durish 2017/03/31		12:35
D. Durish 2017/03/31		4:15			

Page 1 of 2
No: T 046794

AGAT Laboratories

(3) Soil

5835 Coopers Avenue
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webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water intended for human consumption)

Report Information:

Company: Peto MacCallum Ltd.
Contact: Danika Durish
Address: 95 Burford Road
Hamilton, ON L8E3C6
Phone: 905-561-2231 Fax: 905-561-6366
Reports to be sent to:
1. Email: ddurish@petomaccallum.com
2. Email: mking@petomaccallum.com

Project Information:

Project: 17HX001
Site Location: Burlington
Sampled By: Kurtis Pettitt
AGAT Quote #: PO:
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes [X] No [ ]
Company:
Contact:
Address:
Email:

Regulatory Requirements:

[ ] No Regulatory Requirement
(Please check all applicable boxes)

[X] Regulation 153/04
Table 2 *Indicate One*
[ ] Ind/Com
[X] Res/Park
[ ] Agriculture
Soil Texture *(Check One)*
[X] Coarse
[ ] Fine

[ ] Sewer Use
[ ] Sanitary
[ ] Storm
Region *Indicate One*

[ ] Regulation 558
[ ] CCME
[ ] Prov. Water Quality Objectives (PWQO)
[ ] Other
Indicate One

Is this submission for a **Record of Site Condition?** [X] Yes [ ] No

Report Guideline on *Certificate of Analysis* [X] Yes [ ] No

Laboratory Use Only

Work Order #:
Cooler Quantity:
Arrival Temperatures: 6.9 | 7.1 | 7.1 / 5.9 | 6.1 | 6.1
Custody Seal Intact: [ ] Yes [ ] No [ ] N/A
Notes:

Turnaround Time (TAT) Required:

Regular TAT [X] 5 to 7 Business Days
Rush TAT (Rush Surcharges Apply)
[ ] 3 Business Days [ ] 2 Business Days [ ] Next Business Day
OR Date Required (Rush Surcharges May Apply):
Please provide prior notification for rush TAT
**TAT is exclusive of weekends and statutory holidays*
For 'Same Day' analysis, please contact your AGAT CPM

Sample Matrix Legend

B	Biota
GW	Ground Water
O	Oil
P	Paint
S	Soil
SD	Sediment
SW	Surface Water

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Y / N (Field Filtered - Metals, Hg, CrVI)	O. Reg 153: Metals and Inorganics	All Metals / 153 Metals (excl. Hydrides)	Hydride Metals	ORPs: B-HWS, Cl, CN, Cr6+, EC, FOC, Hg, pH, SAR	Full Metals Scan	Regulation/Custom Metals	Nutrients: TP, NH3, TKN, NO3, NO2, NO3+NO2	Volatiles: VOC, BTEX, THM	CCME Fractions 1 to 4	ABNs	PAHs	PCBs: Total, Aroclors	Organochlorine Pesticides	TCLP: M&I, VOCs, ABNs, B(a)P, PCBs	Sewer Use
TP207 GS 1	March 28 2017	11:55	2	Soil	includes methanol (via)	N								X	X						
Duplicate #1	March 28/30 2017	-	2	Soil	"	N								X	X						

Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time
Danika Durish	30/03/17	3:30pm			
D. Brodoo 2017/03/31		9:15	D. Brodoo 2017/03/31		12:55

Page 2 of 2
N°: T 046795

Toxicity Characteristic Leaching Procedure (TCLP)

Waste Characterization

AGAT Laboratories

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MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
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FAX (905)712-5122
http://www.agatlabs.com

CLIENT NAME: PETO MACCALLUM LIMITED
45 BURFORD ROAD
HAMILTON, ON L8E3C5
(905) 561-2231

ATTENTION TO: Danika Durish

PROJECT: 17HX001

AGAT WORK ORDER: 17T190758

SOIL ANALYSIS REVIEWED BY: Amanjot Bhela, Inorganic Coordinator

TRACE ORGANICS REVIEWED BY: Oksana Gushyla, Trace Organics Lab Supervisor

DATE REPORTED: Mar 08, 2017

PAGES (INCLUDING COVER): 9

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

*NOTES

All samples will be disposed of within 30 days following analysis. Please contact the lab if you require additional sample storage time.

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Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

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Results relate only to the items tested and to all the items tested
All reportable information as specified by ISO 17025:2005 is available from AGAT Laboratories upon request

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 17T190758

PROJECT: 17HX001

CLIENT NAME: PETO MACCALLUM LIMITED

ATTENTION TO: Danika Durish

SAMPLING SITE:Burlington

SAMPLED BY:K. Pettitt

Ignitability in Soil

DATE RECEIVED: 2017-02-24

DATE REPORTED: 2017-03-08

			SAMPLE DESCRIPTION:	TCLP
			SAMPLE TYPE:	Soil
			DATE SAMPLED:	2017-02-23
Parameter	Unit	G / S	RDL	8216046
Ignitability				N

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

8216046 N = Non-Flammable Solid
Wet Soil Sample with Pebbles

Certified By: Amanjot Bhela

Results relate only to the items tested and to all the items tested

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 17T190758

PROJECT: 17HX001

CLIENT NAME: PETO MACCALLUM LIMITED

ATTENTION TO: Danika Durish

SAMPLING SITE:Burlington

SAMPLED BY:K. Pettitt

O. Reg. 558 Metals and Inorganics

DATE RECEIVED: 2017-02-24

DATE REPORTED: 2017-03-08

		SAMPLE DESCRIPTION:		TCLP
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2017-02-23
Parameter	Unit	G / S	RDL	8216046
Arsenic Leachate	mg/L	2.5	0.010	<0.010
Barium Leachate	mg/L	100	0.100	0.705
Boron Leachate	mg/L	500	0.050	0.096
Cadmium Leachate	mg/L	0.5	0.010	<0.010
Chromium Leachate	mg/L	5	0.010	<0.010
Cyanide Leachate	mg/L	20	0.05	<0.05
Fluoride Leachate	mg/L	150	0.05	0.17
Lead Leachate	mg/L	5	0.010	0.024
Mercury Leachate	mg/L	0.1	0.01	<0.01
(Nitrate + Nitrite) as N Leachate	mg/L	1000	0.70	<0.70
Selenium Leachate	mg/L	1	0.010	<0.010
Silver Leachate	mg/L	5	0.010	<0.010
Uranium Leachate	mg/L	10	0.050	<0.050

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg. 558 - Schedule IV Leachate Quality Criteria

Certified By: Amanjot Bhela

Results relate only to the items tested and to all the items tested

AGAT Laboratories

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 17T190758

PROJECT: 17HX001

CLIENT NAME: PETO MACCALLUM LIMITED

ATTENTION TO: Danika Durish

SAMPLING SITE:Burlington

SAMPLED BY:K. Pettitt

O. Reg. 558 - PCBs

DATE RECEIVED: 2017-02-24

DATE REPORTED: 2017-03-08

		SAMPLE DESCRIPTION:		TCLP
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2017-02-23
Parameter	Unit	G / S	RDL	8216046
Polychlorinated Biphenyls	mg/L	0.3	0.005	<0.005
Surrogate	Unit	Acceptable Limits		
Decachlorobiphenyl	%	60-130		95

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Regulation 558

8216046 The soil sample was leached using the Regulation 558 procedure. Analysis was performed on the leachate.

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 17T190758

PROJECT: 17HX001

CLIENT NAME: PETO MACCALLUM LIMITED

ATTENTION TO: Danika Durish

SAMPLING SITE:Burlington

SAMPLED BY:K. Pettitt

O. Reg. 558 - VOCs

DATE RECEIVED: 2017-02-24

DATE REPORTED: 2017-03-08

		SAMPLE DESCRIPTION:		TCLP
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2017-02-23
Parameter	Unit	G / S	RDL	8216046
Benzene	mg/L	0.5	0.020	<0.020
Carbon Tetrachloride	mg/L	0.5	0.020	<0.020
Chlorobenzene	mg/L	8.0	0.010	<0.010
Chloroform	mg/L	10.0	0.020	<0.020
1,4-Dichlorobenzene	mg/L	0.5	0.010	<0.010
1,2-Dichlorobenzene	mg/L	20.0	0.010	<0.010
1,2-Dichloroethane	mg/L	0.5	0.020	<0.020
1,1 Dichloroethene	mg/L	1.4	0.020	<0.020
Dichloromethane	mg/L	5.0	0.030	<0.030
Methyl Ethyl Ketone	mg/L	200	0.090	<0.090
Tetrachloroethene	mg/L	3.0	0.050	<0.050
Trichloroethene	mg/L	5.0	0.020	<0.020
Vinyl Chloride	mg/L	0.2	0.030	<0.030
Surrogate	Unit	Acceptable Limits		
Toluene-d8	% Recovery	60-130		93

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg. 558 - Schedule IV Leachate Quality Criteria

8216046 Sample was prepared using Regulation 558 protocol and a zero headspace extractor.

Certified By:

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Quality Assurance

CLIENT NAME: PETO MACCALLUM LIMITED

AGAT WORK ORDER: 17T190758

PROJECT: 17HX001

ATTENTION TO: Danika Durish

SAMPLING SITE:Burlington

SAMPLED BY:K. Pettitt

Soil Analysis

RPT Date: Mar 08, 2017			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 558 Metals and Inorganics															
Arsenic Leachate	8216695		<0.010	<0.010	NA	< 0.010	102%	90%	110%	105%	80%	120%	106%	70%	130%
Barium Leachate	8216695		0.609	0.583	4.4%	< 0.100	101%	90%	110%	105%	80%	120%	106%	70%	130%
Boron Leachate	8216695		0.061	0.063	NA	< 0.050	102%	90%	110%	106%	80%	120%	111%	70%	130%
Cadmium Leachate	8216695		<0.010	<0.010	NA	< 0.010	99%	90%	110%	100%	80%	120%	98%	70%	130%
Chromium Leachate	8216695		<0.010	<0.010	NA	< 0.010	91%	90%	110%	102%	80%	120%	94%	70%	130%
Cyanide Leachate	8216695		<0.05	<0.05	NA	< 0.05	104%	90%	110%	91%	90%	110%	110%	70%	130%
Fluoride Leachate	8216695		0.16	0.16	NA	< 0.05	99%	90%	110%	93%	90%	110%	83%	70%	130%
Lead Leachate	8216695		<0.010	<0.010	NA	< 0.010	103%	90%	110%	97%	80%	120%	98%	70%	130%
Mercury Leachate	8216695		<0.01	<0.01	NA	< 0.01	96%	90%	110%	93%	80%	120%	87%	70%	130%
(Nitrate + Nitrite) as N Leachate	8216695		<0.70	<0.70	NA	< 0.70	100%	80%	120%	100%	80%	120%	101%	70%	130%
Selenium Leachate	8216695		<0.010	<0.010	NA	< 0.010	96%	90%	110%	97%	80%	120%	96%	70%	130%
Silver Leachate	8216695		<0.010	<0.010	NA	< 0.010	98%	90%	110%	109%	80%	120%	108%	70%	130%
Uranium Leachate	8216695		<0.050	<0.050	NA	< 0.050	98%	90%	110%	91%	80%	120%	86%	70%	130%

Comments: NA signifies Not Applicable.
Duplicate Qualifier: 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.

Certified By: Amanjot Bhela

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Quality Assurance

CLIENT NAME: PETO MACCALLUM LIMITED

AGAT WORK ORDER: 17T190758

PROJECT: 17HX001

ATTENTION TO: Danika Durish

SAMPLING SITE:Burlington

SAMPLED BY:K. Pettitt

Trace Organics Analysis

RPT Date: Mar 08, 2017			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 558 - PCBs															
Polychlorinated Biphenyls	8212578		< 0.005	< 0.005	NA	< 0.005	112%	60%	130%	111%	60%	130%	NA	60%	130%
O. Reg. 558 - VOCs															
Benzene	8217398		< 0.020	< 0.020	NA	< 0.020	104%	70%	130%	109%	70%	130%	NA	60%	140%
Carbon Tetrachloride	8217398		< 0.020	< 0.020	NA	< 0.020	110%	70%	130%	85%	70%	130%	NA	60%	140%
Chlorobenzene	8217398		< 0.010	< 0.010	NA	< 0.010	114%	70%	130%	112%	70%	130%	NA	60%	140%
Chloroform	8217398		< 0.020	< 0.020	NA	< 0.020	96%	70%	130%	119%	70%	130%	NA	60%	140%
1,4-Dichlorobenzene	8217398		< 0.010	< 0.010	NA	< 0.010	109%	70%	130%	116%	70%	130%	NA	60%	140%
1,2-Dichlorobenzene	8217398		< 0.010	< 0.010	NA	< 0.010	110%	70%	130%	116%	70%	130%	NA	60%	140%
1,2-Dichloroethane	8217398		< 0.020	< 0.020	NA	< 0.020	112%	70%	130%	111%	70%	130%	NA	60%	140%
1,1 Dichloroethene	8217398		< 0.020	< 0.020	NA	< 0.020	72%	70%	130%	114%	70%	130%	NA	60%	140%
Dichloromethane	8217398		< 0.030	< 0.030	NA	< 0.030	93%	70%	130%	114%	70%	130%	NA	60%	140%
Methyl Ethyl Ketone	8217398		< 0.090	< 0.090	NA	< 0.090	96%	70%	130%	113%	70%	130%	NA	60%	140%
Tetrachloroethene	8217398		< 0.050	< 0.050	NA	< 0.050	112%	70%	130%	117%	70%	130%	NA	60%	140%
Trichloroethene	8217398		< 0.020	< 0.020	NA	< 0.020	101%	70%	130%	94%	70%	130%	NA	60%	140%
Vinyl Chloride	8217398		< 0.030	< 0.030	NA	< 0.030	81%	60%	140%	85%	60%	140%	NA	60%	140%

Comments: When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Certified By:

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Method Summary

CLIENT NAME: PETO MACCALLUM LIMITED

AGAT WORK ORDER: 17T190758

PROJECT: 17HX001

ATTENTION TO: Danika Durish

SAMPLING SITE:Burlington

SAMPLED BY:K. Pettitt

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Ignitability		EPA SW-846 1030	BURN MOLD
Arsenic Leachate	MET-93-6103	EPA SW-846 1311 & 3010A & 6020A	ICP-MS
Barium Leachate	MET-93-6103	EPA SW-846 1311 & 3010A & 6020A	ICP-MS
Boron Leachate	MET-93-6103	EPA SW-846 1311 & 3010A & 6020A	ICP-MS
Cadmium Leachate	MET-93-6103	EPA SW-846 1311 & 3010A & 6020A	ICP-MS
Chromium Leachate	MET-93-6103	EPA SW-846 1311 & 3010A & 6020A	ICP-MS
Cyanide Leachate	INOR-93-6052	EPA SW-846-1311 & MOE 3015 & SM 4500 CN- I	TECHNICON AUTO ANALYZER
Fluoride Leachate	INOR-93-6018	EPA SW-846-1311 & SM4500-F- C	ION SELECTIVE ELECTRODE
Lead Leachate	MET-93-6103	EPA SW-846 1311 & 3010A & 6020A	ICP-MS
Mercury Leachate	MET-93-6103	EPA SW-846 1311 & 3010A & 6020A	ICP-MS
(Nitrate + Nitrite) as N Leachate	INOR-93-6053	EPA SW 846-1311 & SM 4500 - NO3- I	LACHAT FIA
Selenium Leachate	MET-93-6103	EPA SW-846 1311 & 3010A & 6020A	ICP-MS
Silver Leachate	MET-93-6103	EPA SW-846 1311 & 3010A & 6020A	ICP-MS
Uranium Leachate	MET-93-6103	EPA SW-846 1311 & 3010A & 6020A	ICP-MS
Trace Organics Analysis			
Polychlorinated Biphenyls	ORG-91-5112	Regulation 558, EPA SW846 3510C/8082	GC/ECD
Decachlorobiphenyl	ORG-91-5112	EPA SW846 3510C/8082	GC/ECD
Benzene	VOL-91-5001	EPA SW-846 5230B & 8260	(P&T)GC/MS
Carbon Tetrachloride	VOL-91-5001	EPA SW-846 5230B & 8260	(P&T)GC/MS
Chlorobenzene	VOL-91-5001	EPA SW-846 5230B & 8260	(P&T)GC/MS
Chloroform	VOL-91-5001	EPA SW-846 5230B & 8260	(P&T)GC/MS
1,4-Dichlorobenzene	VOL-91-5001	EPA SW-846 5230B & 8260	(P&T)GC/MS
1,2-Dichlorobenzene	VOL-91-5001	EPA SW-846 5230B & 8260	(P&T)GC/MS
1,2-Dichloroethane	VOL-91-5001	EPA SW-846 5230B & 8260	(P&T)GC/MS
1,1 Dichloroethene	VOL-91-5001	EPA SW-846 5230B & 8260	(P&T)GC/MS
Dichloromethane	VOL-91-5001	EPA SW-846 5230B & 8260	(P&T)GC/MS
Methyl Ethyl Ketone	VOL-91-5001	EPA SW-846 5230B & 8260	(P&T)GC/MS
Tetrachloroethene	VOL-91-5001	EPA SW-846 5230B & 8260	(P&T)GC/MS
Toluene-d8	VOL-91-5001	EPA SW-846 5230B & 8260	(P&T)GC/MS
Trichloroethene	VOL-91-5001	EPA SW-846 5230B & 8260	(P&T)GC/MS
Vinyl Chloride	VOL-91-5001	EPA SW-846 5230B & 8260	(P&T)GC/MS

Results relate only to the items tested and to all the items tested

AGAT Laboratories

5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
Ph: 905.712.5100 Fax: 905.712.5122
webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water intended for human consumption)

Laboratory Use Only

Work Order #: 17T190758

Cooler Quantity:

Arrival Temperatures: 4.9 | 5.1 | 5.1 / 3.9 | 4.1 | 4.1

Custody Seal Intact: ☐Yes ☐No ☐N/A

Notes:

Report Information:

Company: Peto MacCallum Ltd.
Contact: Danika Durish
Address: 45 Burford Road, Hamilton, ON L8E 3C6
Phone: 905-561-2231 Fax: 905-561-6366
Reports to be sent to:
1. Email: ddurish@petomaccallum.com
2. Email: mking@petomaccallum.com

Regulatory Requirements:
(Please check all applicable boxes)

☐ No Regulatory Requirement

☐ Regulation 153/04 — Table (Indicate One): ☐Ind/Com ☐Res/Park ☐Agriculture
Soil Texture (Check One): ☐Coarse ☐Fine

☐ Sewer Use: ☐Sanitary ☐Storm
Region ______ (Indicate One)

☒ Regulation 558
☐ CCME
☐ Prov. Water Quality Objectives (PWQO)
☐ Other ______ (Indicate One)

Is this submission for a Record of Site Condition? ☒ Yes ☐ No

Report Guideline on Certificate of Analysis: ☒ Yes ☐ No

Turnaround Time (TAT) Required:

Regular TAT ☒ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)
☐ 3 Business Days ☐ 2 Business Days ☐ Next Business Day

OR Date Required (Rush Surcharges May Apply):

Please provide prior notification for rush TAT
**TAT is exclusive of weekends and statutory holidays*

For 'Same Day' analysis, please contact your AGAT CPM

Project Information:

Project: 17HX001
Site Location: Burlington
Sampled By: K. Pettitt
AGAT Quote #: PO:
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes ☒ No ☐

Company:
Contact:
Address:
Email:

Sample Matrix Legend

B	Biota
GW	Ground Water
O	Oil
P	Paint
S	Soil
SD	Sediment
SW	Surface Water

Analysis columns: Field Filtered - Metals, Hg, CrVI (Y / N); O. Reg 153: Metals and Inorganics; ☐ All Metals ☐ 153 Metals (excl. Hydrides); ☐ Hydride Metals; ORPs: ☐ B-HWS ☐ Cl⁻ ☐ CN ☐ Cr⁶⁺ ☐ EC ☐ FOC ☐ Hg ☐ pH ☐ SAR; Full Metals Scan; Regulation/Custom Metals; Nutrients: ☐ TP ☐ NH_3 ☐ TKN ☐ NO_3 ☐ NO_2 ☐ NO_3+NO_2; Volatiles: ☐ VOC ☐ BTEX ☐ THM; CCME Fractions 1 to 4; ABNs; PAHs; PCBs: ☐ Total ☐ Aroclors; Organochlorine Pesticides; TCLP: ☒ M&I ☒ VOCs ☐ ABNs ☐ B(a)P ☒ PCBs; Sewer Use; TCLP-ignitability

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	TCLP	TCLP-ignitability
TCLP	Feb.23'17	10²⁵-12¹⁰	3	Soil	HOLD	X	X

Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time
Danika Durish [signature]	Feb.23'17	10:45	[signature] 2017/02/24		1:00
[signature] 2017/02/24		3:00			

Page 1 of 1

Nº: T 042320

Document ID: DIV-78-1511.013

Pink Copy - Client | Yellow Copy - AGAT | White Copy - AGAT

Date Issued: September 20, 2016

O. Reg. 153/04, As Amended, Table 2 All Types of Property Uses

Site Condition Standards

Ground Water

AGAT Laboratories

5835 COOPERS AVENUE
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http://www.agatlabs.com

CLIENT NAME: PETO MACCALLUM LIMITED
45 BURFORD ROAD
HAMILTON, ON L8E3C5
(905) 561-2231

ATTENTION TO: Danika Durish

PROJECT: 17HX001

AGAT WORK ORDER: 17T190941

TRACE ORGANICS REVIEWED BY: Oksana Gushyla, Trace Organics Lab Supervisor

WATER ANALYSIS REVIEWED BY: Sofka Pehlyova, Senior Analyst

DATE REPORTED: Mar 08, 2017

PAGES (INCLUDING COVER): 14

VERSION*: 3

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

*NOTES

VERSION 3:March 7, 2017: T2 RPI SCSs applied as per client's request.
March 8, 2017: 1,3-Dichloropropene RDL has been adjusted for sample 8218487.

All samples will be disposed of within 30 days following analysis. Please contact the lab if you require additional sample storage time.

Member of: Association of Professional Engineers and Geoscientists of Alberta (APEGA)
Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

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All reportable information as specified by ISO 17025:2005 is available from AGAT Laboratories upon request

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Certificate of Analysis

AGAT WORK ORDER: 17T190941

PROJECT: 17HX001

CLIENT NAME: PETO MACCALLUM LIMITED

ATTENTION TO: Danika Durish

SAMPLING SITE:Burlington

SAMPLED BY:K. Pettitt

O. Reg. 153(511) - PAHs (Water)

DATE RECEIVED: 2017-02-27

DATE REPORTED: 2017-03-08

		SAMPLE DESCRIPTION:		BH/MW201	BH/MW202	BH/MW203	Duplicate A
		SAMPLE TYPE:		Water	Water	Water	Water
		DATE SAMPLED:		2017-02-24	2017-02-24	2017-02-24	2017-02-24
Parameter	Unit	G / S	RDL	8218483	8218487	8218507	8218533
Acenaphthene	µg/L	4.1	0.20	<0.20	<0.20	<0.20	<0.20
Acenaphthylene	µg/L	1	0.20	<0.20	<0.20	<0.20	<0.20
Anthracene	µg/L	2.4	0.10	<0.10	<0.10	<0.10	<0.10
Benz(a)anthracene	µg/L	1	0.20	<0.20	<0.20	<0.20	<0.20
Benzo(a)pyrene	µg/L	0.01	0.01	<0.01	<0.01	<0.01	<0.01
Benzo(b)fluoranthene	µg/L	0.1	0.10	<0.10	<0.10	<0.10	<0.10
Benzo(g,h,i)perylene	µg/L	0.2	0.20	<0.20	<0.20	<0.20	<0.20
Benzo(k)fluoranthene	µg/L	0.1	0.10	<0.10	<0.10	<0.10	<0.10
Chrysene	µg/L	0.1	0.10	<0.10	<0.10	<0.10	<0.10
Dibenz(a,h)anthracene	µg/L	0.2	0.20	<0.20	<0.20	<0.20	<0.20
Fluoranthene	µg/L	0.41	0.20	<0.20	<0.20	<0.20	<0.20
Fluorene	µg/L	120	0.20	<0.20	<0.20	<0.20	<0.20
Indeno(1,2,3-cd)pyrene	µg/L	0.2	0.20	<0.20	<0.20	<0.20	<0.20
Naphthalene	µg/L	11	0.20	<0.20	<0.20	<0.20	<0.20
Phenanthrene	µg/L	1	0.10	<0.10	<0.10	<0.10	<0.10
Pyrene	µg/L	4.1	0.20	<0.20	<0.20	<0.20	<0.20
2-and 1-methyl Naphthalene	µg/L	3.2	0.20	<0.20	<0.20	<0.20	<0.20
Surrogate	Unit	Acceptable Limits					
Chrysene-d12	%	50-140		78	89	83	111

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Potable Ground Water - All Types of Property Uses - Coarse Textured Soils

8218483-8218533 Note: The result for Benzo(b)Flouranthene is the total of the Benzo(b)&(j)Flouranthene isomers because the isomers co-elute on the GC column.

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 17T190941

PROJECT: 17HX001

CLIENT NAME: PETO MACCALLUM LIMITED

ATTENTION TO: Danika Durish

SAMPLING SITE:Burlington

SAMPLED BY:K. Pettitt

O. Reg. 153(511) - PHC F1 - F4 / VOCs (with PAH) (Water)

DATE RECEIVED: 2017-02-27

DATE REPORTED: 2017-03-08

		SAMPLE DESCRIPTION:		BH/MW201		BH/MW202		BH/MW203	Duplicate A
		SAMPLE TYPE:		Water		Water		Water	Water
		DATE SAMPLED:		2017-02-24		2017-02-24		2017-02-24	2017-02-24
Parameter	Unit	G / S	RDL	8218483	RDL	8218487	RDL	8218507	8218533
Acetone	µg/L	2700	1.0	<1.0	2.0	<2.0	1.0	<1.0	<1.0
Benzene	µg/L	5.0	0.20	<0.20	0.40	<0.40	0.20	<0.20	<0.20
Bromodichloromethane	µg/L	16	0.20	<0.20	0.40	<0.40	0.20	<0.20	<0.20
Bromoform	µg/L	25	0.10	<0.10	0.20	<0.20	0.10	<0.10	<0.10
Bromomethane	µg/L	0.89	0.20	<0.20	0.40	<0.40	0.20	<0.20	<0.20
C6 - C10 (F1 minus BTEX)	µg/L	750	25	<25	25	<25	25	<25	<25
Carbon Tetrachloride	µg/L	0.79	0.20	<0.20	0.40	<0.40	0.20	<0.20	<0.20
Chlorobenzene	µg/L	30	0.10	<0.10	0.20	<0.20	0.10	<0.10	<0.10
Chloroform	µg/L	2.4	0.20	<0.20	0.40	<0.40	0.20	<0.20	<0.20
Dibromochloromethane	µg/L	25	0.10	<0.10	0.20	<0.20	0.10	<0.10	<0.10
1,2-Dichlorobenzene	µg/L	3	0.10	<0.10	0.20	<0.20	0.10	<0.10	<0.10
1,4-Dichlorobenzene	µg/L	1	0.10	<0.10	0.20	<0.20	0.10	<0.10	<0.10
1,3-Dichlorobenzene	µg/L	59	0.10	<0.10	0.20	<0.20	0.10	<0.10	<0.10
Dichlorodifluoromethane	µg/L	590	0.20	<0.20	0.40	<0.40	0.20	<0.20	<0.20
1,1-Dichloroethane	µg/L	5	0.30	<0.30	0.60	<0.60	0.30	<0.30	<0.30
1,2-Dichloroethane	µg/L	1.6	0.20	<0.20	0.40	<0.40	0.20	<0.20	<0.20
1,1-Dichloroethylene	µg/L	1.6	0.30	<0.30	0.60	<0.60	0.30	<0.30	<0.30
1,2-Dichloropropane	µg/L	5	0.20	<0.20	0.40	<0.40	0.20	<0.20	<0.20
1,3-Dichloropropene	µg/L	0.5	0.30	<0.30	0.50	<0.50	0.30	<0.30	<0.30
Ethylbenzene	µg/L	2.4	0.10	<0.10	0.20	<0.20	0.10	<0.10	<0.10
Ethylene Dibromide	µg/L	0.2	0.10	<0.10	0.20	<0.20	0.10	<0.10	<0.10
F1 (C6 - C10)	µg/L	750	25	<25	25	<25	25	<25	<25
F2 (C10 to C16)	µg/L	150	100	<100	100	<100	100	<100	<100
F2 (C10 to C16) minus Naphthalene	µg/L		100	<100	100	<100	100	<100	<100
F3 (C16 to C34)	µg/L	500	100	<100	100	160	100	<100	<100
F3 (C16 to C34) minus PAHs	µg/L		100	<100	100	160	100	<100	<100
F4 (C34 to C50)	µg/L	500	100	<100	100	<100	100	<100	<100
Gravimetric Heavy Hydrocarbons	µg/L	500	500	NA	500	NA	500	NA	NA
Methyl Ethyl Ketone	µg/L	1800	1.0	<1.0	2.0	<2.0	1.0	<1.0	<1.0
Methyl Isobutyl Ketone	µg/L	640	1.0	<1.0	2.0	<2.0	1.0	<1.0	<1.0

Certified By:

Results relate only to the items tested and to all the items tested

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Certificate of Analysis

AGAT WORK ORDER: 17T190941

PROJECT: 17HX001

CLIENT NAME: PETO MACCALLUM LIMITED

ATTENTION TO: Danika Durish

SAMPLING SITE:Burlington

SAMPLED BY:K. Pettitt

O. Reg. 153(511) - PHC F1 - F4 / VOCs (with PAH) (Water)

DATE RECEIVED: 2017-02-27

DATE REPORTED: 2017-03-08

		SAMPLE DESCRIPTION:		BH/MW201		BH/MW202		BH/MW203	Duplicate A
		SAMPLE TYPE:		Water		Water		Water	Water
		DATE SAMPLED:		2017-02-24		2017-02-24		2017-02-24	2017-02-24
Parameter	Unit	G / S	RDL	8218483	RDL	8218487	RDL	8218507	8218533
Methyl tert-butyl ether	µg/L	15	0.20	<0.20	0.40	<0.40	0.20	<0.20	<0.20
Methylene Chloride	µg/L	50	0.30	<0.30	0.60	<0.60	0.30	<0.30	<0.30
Styrene	µg/L	5.4	0.10	<0.10	0.20	<0.20	0.10	<0.10	<0.10
1,1,1,2-Tetrachloroethane	µg/L	1.1	0.10	<0.10	0.20	<0.20	0.10	<0.10	<0.10
1,1,2,2-Tetrachloroethane	µg/L	1	0.10	<0.10	0.20	<0.20	0.10	<0.10	<0.10
Tetrachloroethylene	µg/L	1.6	0.20	<0.20	0.40	<0.40	0.20	<0.20	<0.20
Toluene	µg/L	24	0.20	<0.20	0.40	<0.40	0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	200	0.30	<0.30	0.60	<0.60	0.30	<0.30	<0.30
1,1,2-Trichloroethane	µg/L	4.7	0.20	<0.20	0.40	<0.40	0.20	<0.20	<0.20
Trichloroethylene	µg/L	1.6	0.20	<0.20	0.40	<0.40	0.20	<0.20	<0.20
Trichlorofluoromethane	µg/L	150	0.40	<0.40	0.80	<0.80	0.40	<0.40	<0.40
Vinyl Chloride	µg/L	0.5	0.17	<0.17	0.34	<0.34	0.17	<0.17	<0.17
Xylene Mixture	µg/L	300	0.20	<0.20	0.40	<0.40	0.20	<0.20	<0.20
cis- 1,2-Dichloroethylene	µg/L	1.6	0.20	<0.20	0.40	<0.40	0.20	<0.20	<0.20
m & p-Xylene	µg/L		0.20	<0.20	0.40	<0.40	0.20	<0.20	<0.20
n-Hexane	µg/L	51	0.20	<0.20	0.40	<0.40	0.20	<0.20	<0.20
o-Xylene	µg/L		0.10	<0.10	0.20	<0.20	0.10	<0.10	<0.10
trans- 1,2-Dichloroethylene	µg/L	1.6	0.20	<0.20	0.40	<0.40	0.20	<0.20	<0.20
Surrogate	Unit	Acceptable Limits							
4-Bromofluorobenzene	% Recovery	50-140		94		84		90	80
Terphenyl (F2-F4)	% Recovery	60-140		96		106		119	74
Toluene-d8	% Recovery	50-140		101		97		99	101

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 17T190941

PROJECT: 17HX001

CLIENT NAME: PETO MACCALLUM LIMITED

ATTENTION TO: Danika Durish

SAMPLING SITE:Burlington

SAMPLED BY:K. Pettitt

O. Reg. 153(511) - PHC F1 - F4 / VOCs (with PAH) (Water)

DATE RECEIVED: 2017-02-27

DATE REPORTED: 2017-03-08

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Potable Ground Water - All Types of Property Uses - Coarse Textured Soils

8218483
Some sediment was observed in the sample. Whole bottle extraction was performed.
The C6-C10 fraction is calculated using Toluene response factor.
The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and nC34.
Gravimetric Heavy Hydrocarbons are not included in the Total C16 - C50 and are only determined if the chromatogram of the C34 - C50 Hydrocarbons indicated that hydrocarbons >C50 are present.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6-C50 results are corrected for BTEX and PAH contributions.
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
nC6 and nC10 response factors are within 30% of Toluene response factor.
nC10, nC16 and nC34 response factors are within 10% of their average.
C50 response factor is within 70% of nC10 + nC16 nC34 average.
Linearity is within 15%.
Extraction and holding times were met for this sample.

8218487
Some sediment was observed in the sample. Whole bottle extraction was performed.
The C6-C10 fraction is calculated using Toluene response factor.
The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and nC34.
Gravimetric Heavy Hydrocarbons are not included in the Total C16 - C50 and are only determined if the chromatogram of the C34 - C50 Hydrocarbons indicated that hydrocarbons >C50 are present.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6-C50 results are corrected for BTEX and PAH contributions.
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
nC6 and nC10 response factors are within 30% of Toluene response factor.
nC10, nC16 and nC34 response factors are within 10% of their average.
C50 response factor is within 70% of nC10 + nC16 nC34 average.
Linearity is within 15%.
Extraction and holding times were met for this sample.

VOC Dilution factor=2
The sample was diluted because there was sediments. The reporting detection limit has been corrected for the dilution factor used.

8218507-8218533
Some sediment was observed in the sample. Whole bottle extraction was performed.
The C6-C10 fraction is calculated using Toluene response factor.
The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and nC34.
Gravimetric Heavy Hydrocarbons are not included in the Total C16 - C50 and are only determined if the chromatogram of the C34 - C50 Hydrocarbons indicated that hydrocarbons >C50 are present.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6-C50 results are corrected for BTEX and PAH contributions.
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
nC6 and nC10 response factors are within 30% of Toluene response factor.
nC10, nC16 and nC34 response factors are within 10% of their average.
C50 response factor is within 70% of nC10 + nC16 nC34 average.
Linearity is within 15%.
Extraction and holding times were met for this sample.

Certified By:

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AGAT WORK ORDER: 17T190941

PROJECT: 17HX001

CLIENT NAME: PETO MACCALLUM LIMITED

ATTENTION TO: Danika Durish

SAMPLING SITE:Burlington

SAMPLED BY:K. Pettitt

O. Reg. 153(511) - VOCs (Water)

DATE RECEIVED: 2017-02-27

DATE REPORTED: 2017-03-08

		SAMPLE DESCRIPTION:		Trip Blank
		SAMPLE TYPE:		Water
		DATE SAMPLED:		2017-02-24
Parameter	Unit	G / S	RDL	8218621
Acetone	µg/L	2700	1.0	<1.0
Benzene	µg/L	5.0	0.20	<0.20
Bromodichloromethane	µg/L	16	0.20	<0.20
Bromoform	µg/L	25	0.10	<0.10
Bromomethane	µg/L	0.89	0.20	<0.20
Carbon Tetrachloride	µg/L	0.79	0.20	<0.20
Chlorobenzene	µg/L	30	0.10	<0.10
Chloroform	µg/L	2.4	0.20	<0.20
Dibromochloromethane	µg/L	25	0.10	<0.10
1,4-Dichlorobenzene	µg/L	1	0.10	<0.10
1,2-Dichlorobenzene	µg/L	3	0.10	<0.10
1,3-Dichlorobenzene	µg/L	59	0.10	<0.10
Dichlorodifluoromethane	µg/L	590	0.20	<0.20
1,2-Dichloroethane	µg/L	1.6	0.20	<0.20
1,1-Dichloroethane	µg/L	5	0.30	<0.30
1,1-Dichloroethylene	µg/L	1.6	0.30	<0.30
1,2-Dichloropropane	µg/L	5	0.20	<0.20
1,3-Dichloropropene	µg/L	0.5	0.30	<0.30
Ethylbenzene	µg/L	2.4	0.10	<0.10
Ethylene Dibromide	µg/L	0.2	0.10	<0.10
Methyl Ethyl Ketone	µg/L	1800	1.0	<1.0
Methyl Isobutyl Ketone	µg/L	640	1.0	<1.0
Methyl tert-butyl ether	µg/L	15	0.20	<0.20
Methylene Chloride	µg/L	50	0.30	<0.30
Styrene	µg/L	5.4	0.10	<0.10
1,1,1,2-Tetrachloroethane	µg/L	1.1	0.10	<0.10
1,1,2,2-Tetrachloroethane	µg/L	1	0.10	<0.10
Tetrachloroethylene	µg/L	1.6	0.20	<0.20
Toluene	µg/L	24	0.20	<0.20
1,1,2-Trichloroethane	µg/L	4.7	0.20	<0.20

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 17T190941

PROJECT: 17HX001

CLIENT NAME: PETO MACCALLUM LIMITED

ATTENTION TO: Danika Durish

SAMPLING SITE:Burlington

SAMPLED BY:K. Pettitt

O. Reg. 153(511) - VOCs (Water)

DATE RECEIVED: 2017-02-27

DATE REPORTED: 2017-03-08

				SAMPLE DESCRIPTION:	Trip Blank
				SAMPLE TYPE:	Water
				DATE SAMPLED:	2017-02-24
Parameter	Unit	G / S	RDL		8218621
1,1,1-Trichloroethane	µg/L	200	0.30		<0.30
Trichloroethylene	µg/L	1.6	0.20		<0.20
Trichlorofluoromethane	µg/L	150	0.40		<0.40
Vinyl Chloride	µg/L	0.5	0.17		<0.17
Xylene Mixture	µg/L	300	0.20		<0.20
cis- 1,2-Dichloroethylene	µg/L	1.6	0.20		<0.20
m & p-Xylene	µg/L		0.20		<0.20
n-Hexane	µg/L	51	0.20		<0.20
o-Xylene	µg/L		0.10		<0.10
trans- 1,2-Dichloroethylene	µg/L	1.6	0.20		<0.20
Surrogate	Unit	Acceptable Limits			
4-Bromofluorobenzene	% Recovery	50-140			100
Toluene-d8	% Recovery	50-140			90

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Potable Ground Water - All Types of Property Uses - Coarse Textured Soils

Certified By:

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AGAT WORK ORDER: 17T190941

PROJECT: 17HX001

CLIENT NAME: PETO MACCALLUM LIMITED

ATTENTION TO: Danika Durish

SAMPLING SITE:Burlington

SAMPLED BY:K. Pettitt

O. Reg. 153(511) - Metals & Inorganics (Water)

DATE RECEIVED: 2017-02-27

DATE REPORTED: 2017-03-08

		SAMPLE DESCRIPTION:		BH/MW201	BH/MW202	BH/MW203	Duplicate A
		SAMPLE TYPE:		Water	Water	Water	Water
		DATE SAMPLED:		2017-02-24	2017-02-24	2017-02-24	2017-02-24
Parameter	Unit	G / S	RDL	8218483	8218487	8218507	8218533
Antimony	µg/L	6	1.0	<1.0	<1.0	<1.0	<1.0
Arsenic	µg/L	25	1.0	<1.0	<1.0	<1.0	<1.0
Barium	µg/L	1000	2.0	98.2	57.2	41.0	92.7
Beryllium	µg/L	4.0	0.5	<0.5	<0.5	<0.5	<0.5
Boron	µg/L	5000	10.0	106	67.5	55.8	92.7
Cadmium	µg/L	2.7	0.2	<0.2	<0.2	<0.2	<0.2
Chloride	µg/L	790000	500	53500	304000	105000	54100
Chromium	µg/L	50	2.0	<2.0	2.2	<2.0	<2.0
Chromium VI	µg/L	25	5	<5	<5	<5	<5
Cobalt	µg/L	3.8	0.5	0.6	0.9	0.7	0.6
Copper	µg/L	87	1.0	2.4	2.8	1.9	2.1
Cyanide	µg/L	66	2	<2	<2	<2	<2
Electrical Conductivity	uS/cm		2	1400	1980	1680	1400
Lead	µg/L	10	0.5	<0.5	<0.5	<0.5	<0.5
Mercury	µg/L	0.29	0.02	<0.02	<0.02	<0.02	<0.02
Molybdenum	µg/L	70	0.5	7.0	1.8	1.3	6.9
Nickel	µg/L	100	1.0	<1.0	2.1	1.8	1.2
Selenium	µg/L	10	1.0	3.6	1.9	2.6	4.6
Silver	µg/L	1.5	0.2	<0.2	<0.2	<0.2	<0.2
Sodium	µg/L	490000	1000	88400	46900	44600	90400
Thallium	µg/L	2	0.3	<0.3	<0.3	<0.3	<0.3
Uranium	µg/L	20	0.5	10.2	10.3	8.3	9.7
Vanadium	µg/L	6.2	0.4	1.5	0.5	<0.4	1.5
Zinc	µg/L	1100	5.0	<5.0	<5.0	<5.0	<5.0
pH	pH Units		NA	8.23	8.12	8.18	8.20

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Potable Ground Water - All Types of Property Uses - Coarse Textured Soils

8218483-8218533 Elevated RDLs for Chloride & Sodium indicate the degree of sample dilutions prior to analyses to keep analytes within the calibration range, reduce matrix interference and to avoid contaminating the instruments.

Certified By: Sofiya Pehlyova

Results relate only to the items tested and to all the items tested

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Quality Assurance

CLIENT NAME: PETO MACCALLUM LIMITED
AGAT WORK ORDER: 17T190941
PROJECT: 17HX001
ATTENTION TO: Danika Durish
SAMPLING SITE:Burlington
SAMPLED BY:K. Pettitt

Trace Organics Analysis

RPT Date: Mar 08, 2017

PARAMETER	Batch	Sample Id	DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
			Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - PHC F1 - F4 / VOCs (with PAH) (Water)															
Acetone	8217398		< 1.0	< 1.0	NA	< 1.0	95%	50%	140%	120%	50%	140%	118%	50%	140%
Benzene	8217398		< 0.20	< 0.20	NA	< 0.20	104%	50%	140%	109%	60%	130%	108%	50%	140%
Bromodichloromethane	8217398		< 0.20	< 0.20	NA	< 0.20	119%	50%	140%	112%	60%	130%	116%	50%	140%
Bromoform	8217398		< 0.10	< 0.10	NA	< 0.10	117%	50%	140%	117%	60%	130%	105%	50%	140%
Bromomethane	8217398		< 0.20	< 0.20	NA	< 0.20	92%	50%	140%	98%	50%	140%	128%	50%	140%
Carbon Tetrachloride	8217398		< 0.20	< 0.20	NA	< 0.20	110%	50%	140%	85%	60%	130%	86%	50%	140%
Chlorobenzene	8217398		< 0.10	< 0.10	NA	< 0.10	114%	50%	140%	112%	60%	130%	94%	50%	140%
Chloroform	8217398		< 0.20	< 0.20	NA	< 0.20	96%	50%	140%	119%	60%	130%	115%	50%	140%
Dibromochloromethane	8217398		< 0.10	< 0.10	NA	< 0.10	102%	50%	140%	120%	60%	130%	90%	50%	140%
1,2-Dichlorobenzene	8217398		< 0.10	< 0.10	NA	< 0.10	110%	50%	140%	116%	60%	130%	115%	50%	140%
1,4-Dichlorobenzene	8217398		< 0.10	< 0.10	NA	< 0.10	109%	50%	140%	116%	60%	130%	115%	50%	140%
1,3-Dichlorobenzene	8217398		< 0.10	< 0.10	NA	< 0.10	116%	50%	140%	98%	60%	130%	103%	50%	140%
Dichlorodifluoromethane	8217398		< 0.20	< 0.20	NA	< 0.20	112%	50%	140%	115%	50%	140%	110%	50%	140%
1,1-Dichloroethane	8217398		< 0.30	< 0.30	NA	< 0.30	104%	50%	140%	115%	60%	130%	106%	50%	140%
1,2-Dichloroethane	8217398		< 0.20	< 0.20	NA	< 0.20	112%	50%	140%	111%	60%	130%	117%	50%	140%
1,1-Dichloroethylene	8217398		< 0.30	< 0.30	NA	< 0.30	72%	50%	140%	114%	60%	130%	117%	50%	140%
1,2-Dichloropropane	8217398		< 0.20	< 0.20	NA	< 0.20	114%	50%	140%	119%	60%	130%	105%	50%	140%
1,3-Dichloropropene	8217398		< 0.30	< 0.30	NA	< 0.30	108%	50%	140%	103%	60%	130%	106%	50%	140%
Ethylbenzene	8217398		< 0.10	< 0.10	NA	< 0.10	114%	50%	140%	113%	60%	130%	117%	50%	140%
Ethylene Dibromide	8217398		< 0.10	< 0.10	NA	< 0.10	100%	50%	140%	118%	60%	130%	100%	50%	140%
F1 (C6 - C10)	8212730		< 25	< 25	NA	< 25	86%	60%	140%	77%	60%	140%	79%	60%	140%
F2 (C10 to C16)		TW	< 100	< 100	NA	< 100	96%	60%	140%	60%	60%	140%	60%	60%	140%
F3 (C16 to C34)		TW	< 100	< 100	NA	< 100	93%	60%	140%	75%	60%	140%	74%	60%	140%
F4 (C34 to C50)		TW	< 100	< 100	NA	< 100	92%	60%	140%	88%	60%	140%	94%	60%	140%
Methyl Ethyl Ketone	8217398		< 1.0	< 1.0	NA	< 1.0	96%	50%	140%	113%	50%	140%	111%	50%	140%
Methyl Isobutyl Ketone	8217398		< 1.0	< 1.0	NA	< 1.0	95%	50%	140%	120%	50%	140%	119%	50%	140%
Methyl tert-butyl ether	8217398		< 0.20	< 0.20	NA	< 0.20	102%	50%	140%	112%	60%	130%	116%	50%	140%
Methylene Chloride	8217398		< 0.30	< 0.30	NA	< 0.30	93%	50%	140%	114%	60%	130%	111%	50%	140%
Styrene	8217398		< 0.10	< 0.10	NA	< 0.10	98%	50%	140%	115%	60%	130%	109%	50%	140%
1,1,1,2-Tetrachloroethane	8217398		< 0.10	< 0.10	NA	< 0.10	113%	50%	140%	113%	60%	130%	107%	50%	140%
1,1,2,2-Tetrachloroethane	8217398		< 0.10	< 0.10	NA	< 0.10	116%	50%	140%	108%	60%	130%	105%	50%	140%
Tetrachloroethylene	8217398		< 0.20	< 0.20	NA	< 0.20	112%	50%	140%	117%	60%	130%	118%	50%	140%
Toluene	8217398		< 0.20	< 0.20	NA	< 0.20	110%	50%	140%	120%	60%	130%	102%	50%	140%
1,1,1-Trichloroethane	8217398		< 0.30	< 0.30	NA	< 0.30	110%	50%	140%	113%	60%	130%	110%	50%	140%
1,1,2-Trichloroethane	8217398		< 0.20	< 0.20	NA	< 0.20	117%	50%	140%	121%	60%	130%	114%	50%	140%
Trichloroethylene	8217398		< 0.20	< 0.20	NA	< 0.20	101%	50%	140%	94%	60%	130%	106%	50%	140%
Trichlorofluoromethane	8217398		< 0.40	< 0.40	NA	< 0.40	110%	50%	140%	115%	50%	140%	123%	50%	140%
Vinyl Chloride	8217398		< 0.17	< 0.17	NA	< 0.17	81%	50%	140%	85%	50%	140%	114%	50%	140%
cis- 1,2-Dichloroethylene	8217398		< 0.20	< 0.20	NA	< 0.20	111%	50%	140%	113%	60%	130%	90%	50%	140%

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Quality Assurance

CLIENT NAME: PETO MACCALLUM LIMITED
AGAT WORK ORDER: 17T190941
PROJECT: 17HX001
ATTENTION TO: Danika Durish
SAMPLING SITE:Burlington
SAMPLED BY:K. Pettitt

Trace Organics Analysis (Continued)

RPT Date: Mar 08, 2017			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
m & p-Xylene	8217398		< 0.20	< 0.20	NA	< 0.20	121%	50%	140%	120%	60%	130%	114%	50%	140%
n-Hexane	8217398		< 0.20	< 0.20	NA	< 0.20	114%	50%	140%	115%	60%	130%	98%	50%	140%
o-Xylene	8217398		< 0.10	< 0.10	NA	< 0.10	115%	50%	140%	107%	60%	130%	112%	50%	140%
trans- 1,2-Dichloroethylene	8217398		< 0.20	< 0.20	NA	< 0.20	75%	50%	140%	108%	60%	130%	106%	50%	140%
O. Reg. 153(511) - PAHs (Water)															
Acenaphthene		TW	< 0.20	< 0.20	NA	< 0.20	112%	50%	140%	132%	50%	140%	131%	50%	140%
Acenaphthylene		TW	< 0.20	< 0.20	NA	< 0.20	110%	50%	140%	134%	50%	140%	138%	50%	140%
Anthracene		TW	< 0.10	< 0.10	NA	< 0.10	105%	50%	140%	137%	50%	140%	119%	50%	140%
Benz(a)anthracene		TW	< 0.20	< 0.20	NA	< 0.20	74%	50%	140%	123%	50%	140%	138%	50%	140%
Benzo(a)pyrene		TW	< 0.01	< 0.01	NA	< 0.01	116%	50%	140%	135%	50%	140%	129%	50%	140%
Benzo(b)fluoranthene		TW	< 0.10	< 0.10	NA	< 0.10	101%	50%	140%	127%	50%	140%	131%	50%	140%
Benzo(g,h,i)perylene		TW	< 0.20	< 0.20	NA	< 0.20	104%	50%	140%	131%	50%	140%	131%	50%	140%
Benzo(k)fluoranthene		TW	< 0.10	< 0.10	NA	< 0.10	124%	50%	140%	128%	50%	140%	137%	50%	140%
Chrysene		TW	< 0.10	< 0.10	NA	< 0.10	91%	50%	140%	136%	50%	140%	120%	50%	140%
Dibenz(a,h)anthracene		TW	< 0.20	< 0.20	NA	< 0.20	86%	50%	140%	138%	50%	140%	133%	50%	140%
Fluoranthene		TW	< 0.20	< 0.20	NA	< 0.20	103%	50%	140%	130%	50%	140%	126%	50%	140%
Fluorene		TW	< 0.20	< 0.20	NA	< 0.20	109%	50%	140%	130%	50%	140%	118%	50%	140%
Indeno(1,2,3-cd)pyrene		TW	< 0.20	< 0.20	NA	< 0.20	84%	50%	140%	129%	50%	140%	136%	50%	140%
Naphthalene		TW	< 0.20	< 0.20	NA	< 0.20	118%	50%	140%	126%	50%	140%	127%	50%	140%
Phenanthrene		TW	< 0.10	< 0.10	NA	< 0.10	110%	50%	140%	135%	50%	140%	135%	50%	140%
Pyrene		TW	< 0.20	< 0.20	NA	< 0.20	99%	50%	140%	132%	50%	140%	119%	50%	140%
2-and 1-methyl Naphthalene		TW	< 0.20	< 0.20	NA	< 0.20	129%	50%	140%	133%	50%	140%	132%	50%	140%

Comments: Tap water analysis has been performed as QC sample testing for duplicate and matrix spike due to insufficient sample volume.
When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Certified By:

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Quality Assurance

CLIENT NAME: PETO MACCALLUM LIMITED

PROJECT: 17HX001

SAMPLING SITE:Burlington

AGAT WORK ORDER: 17T190941

ATTENTION TO: Danika Durish

SAMPLED BY:K. Pettitt

Water Analysis

RPT Date: Mar 08, 2017			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - Metals & Inorganics (Water)															
Antimony	8218483	8218483	<1.0	<1.0	NA	< 1.0	99%	70%	130%	100%	80%	120%	105%	70%	130%
Arsenic	8218483	8218483	<1.0	<1.0	NA	< 1.0	98%	70%	130%	94%	80%	120%	98%	70%	130%
Barium	8218483	8218483	98.2	91.5	7.1%	< 2.0	101%	70%	130%	107%	80%	120%	111%	70%	130%
Beryllium	8218483	8218483	<0.5	<0.5	NA	< 0.5	94%	70%	130%	91%	80%	120%	86%	70%	130%
Boron	8218483	8218483	106	96.7	9.2%	< 10.0	107%	70%	130%	104%	80%	120%	97%	70%	130%
Cadmium	8218483	8218483	<0.2	<0.2	NA	< 0.2	99%	70%	130%	95%	80%	120%	103%	70%	130%
Chloride	8216879		102000	101000	1.0%	< 100	95%	70%	130%	98%	70%	130%	103%	70%	130%
Chromium	8218483	8218483	<2.0	<2.0	NA	< 2.0	100%	70%	130%	102%	80%	120%	102%	70%	130%
Chromium VI	8218483	8218483	<5	<5	NA	< 5	103%	70%	130%	101%	80%	120%	102%	70%	130%
Cobalt	8218483	8218483	0.6	0.6	NA	< 0.5	96%	70%	130%	97%	80%	120%	95%	70%	130%
Copper	8218483	8218483	2.4	2.1	NA	< 1.0	100%	70%	130%	101%	80%	120%	96%	70%	130%
Cyanide	8220791		<2	<2	NA	< 2	107%	70%	130%	92%	80%	120%	106%	70%	130%
Electrical Conductivity	8216573		1160	1160	0.0%	< 2	104%	90%	110%	NA			NA		
Lead	8218483	8218483	<0.5	<0.5	NA	< 0.5	102%	70%	130%	109%	80%	120%	111%	70%	130%
Mercury	8218483	8218483	<0.02	<0.02	NA	< 0.02	99%	70%	130%	99%	80%	120%	96%	70%	130%
Molybdenum	8218483	8218483	7.0	6.6	5.9%	< 0.5	98%	70%	130%	97%	80%	120%	100%	70%	130%
Nickel	8218483	8218483	<1.0	<1.0	NA	< 1.0	98%	70%	130%	99%	80%	120%	94%	70%	130%
Selenium	8218483	8218483	3.6	4.2	NA	< 1.0	105%	70%	130%	103%	80%	120%	113%	70%	130%
Silver	8218483	8218483	<0.2	<0.2	NA	< 0.2	98%	70%	130%	104%	80%	120%	102%	70%	130%
Sodium	8216879		54900	55000	0.2%	< 500	97%	70%	130%	97%	80%	120%	114%	70%	130%
Thallium	8218483	8218483	<0.3	<0.3	NA	< 0.3	102%	70%	130%	108%	80%	120%	112%	70%	130%
Uranium	8218483	8218483	10.2	9.4	8.2%	< 0.5	100%	70%	130%	109%	80%	120%	117%	70%	130%
Vanadium	8218483	8218483	1.5	1.5	NA	< 0.4	100%	70%	130%	103%	80%	120%	102%	70%	130%
Zinc	8218483	8218483	<5.0	<5.0	NA	< 5.0	100%	70%	130%	96%	80%	120%	85%	70%	130%
pH	8216573		8.17	8.12	0.6%	NA	100%	90%	110%	NA			NA		

Comments: NA signifies Not Applicable.
Duplicate Qualifier: 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.

Certified By: Sofiya Pehlyova

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Method Summary

CLIENT NAME: PETO MACCALLUM LIMITED

AGAT WORK ORDER: 17T190941

PROJECT: 17HX001

ATTENTION TO: Danika Durish

SAMPLING SITE:Burlington

SAMPLED BY:K. Pettitt

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Acenaphthene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Acenaphthylene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Anthracene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Benz(a)anthracene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Benzo(a)pyrene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Benzo(b)fluoranthene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Benzo(g,h,i)perylene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Benzo(k)fluoranthene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Chrysene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Chrysene-d12	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Dibenz(a,h)anthracene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Fluoranthene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Fluorene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Naphthalene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Phenanthrene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Pyrene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
2-and 1-methyl Naphthalene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Acetone	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Benzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Bromodichloromethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
4-Bromofluorobenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Bromoform	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Bromomethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
C6 - C10 (F1 minus BTEX)	VOL-91-5010	MOE PHC E3421	(P&T)GC/FID
Carbon Tetrachloride	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Chlorobenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Chloroform	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Dibromochloromethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,2-Dichlorobenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,4-Dichlorobenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,3-Dichlorobenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Dichlorodifluoromethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,1-Dichloroethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,2-Dichloroethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,1-Dichloroethylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,2-Dichloropropane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,3-Dichloropropene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Ethylbenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Ethylene Dibromide	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
F1 (C6 - C10)	VOL-91-5010	MOE PHC E3421	(P&T)GC/FID
F2 (C10 to C16)	VOL-91-5010	MOE PHC E3421	GC/FID
F2 (C10 to C16) minus Naphthalene	VOL-91-5010	MOE PHC E3421	GC/FID
F3 (C16 to C34)	VOL-91-5010	MOE PHC E3421	GC/FID
F3 (C16 to C34) minus PAHs	VOL-91-5010	MOE PHC E3421	GC/FID
F4 (C34 to C50)	VOL-91-5010	MOE PHC E3421	GC/FID
Gravimetric Heavy Hydrocarbons	VOL-91-5010	MOE PHC E3421	BALANCE
Methyl Ethyl Ketone	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Methyl Isobutyl Ketone	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS

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ATTENTION TO: Danika Durish

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PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Methyl tert-butyl ether	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Methylene Chloride	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Styrene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Terphenyl (F2-F4)	VOL-91-5009		GC/FID
1,1,1,2-Tetrachloroethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,1,2,2-Tetrachloroethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Tetrachloroethylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Toluene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Toluene-d8	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,1,1-Trichloroethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,1,2-Trichloroethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Trichloroethylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Trichlorofluoromethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Vinyl Chloride	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Xylene Mixture	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
cis- 1,2-Dichloroethylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
m & p-Xylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
n-Hexane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
o-Xylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
trans- 1,2-Dichloroethylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Water Analysis			
Antimony	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Arsenic	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Barium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Beryllium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Boron	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Cadmium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Chloride	INOR-93-6004	SM 4110 B	ION CHROMATOGRAPH
Chromium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Chromium VI	INOR-93-6034	SM 3500-Cr B	SPECTROPHOTOMETER
Cobalt	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Copper	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Cyanide	INOR-93-6052	MOE METHOD CN- 3015 & SM 4500 CN- I	TECHNICON AUTO ANALYZER
Electrical Conductivity	INOR-93-6000	SM 2510 B	PC TITRATE
Lead	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Mercury	MET-93-6100	EPA SW-846 7470 & 245.1	CVAAS
Molybdenum	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Nickel	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Selenium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Silver	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Sodium	MET-93-6105	EPA SW-846 6010C & 200.7	ICP/OES
Thallium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Uranium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Vanadium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Zinc	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
pH	INOR-93-6000	SM 4500-H+ B	PC TITRATE

Results relate only to the items tested and to all the items tested

AGAT Laboratories
5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
Ph: 905.712.5100 Fax: 905.712.5122
webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water intended for human consumption)

Laboratory Use Only
Work Order #: 17T190941
Cooler Quantity: LG cooler
Arrival Temperatures: ~~7.8~~ ~~7.1~~ ~~17.9~~ 6.8 16.1 16.9
Custody Seal Intact: ☐Yes ☐No ☐N/A
Notes:

Report Information:
Company: Peto MacCallum Ltd.
Contact: Danika Durish
Address: 45 Burford Road
Hamilton, ON L8E 3C6
Phone: 905-561-2231 Fax: 905-561-6364
Reports to be sent to:
1. Email: ddurish@petomaccallum.com
2. Email: mking@petomaccallum.com

Regulatory Requirements: ☐ No Regulatory Requirement
(Please check all applicable boxes)
☒ Regulation 153/04 Table 3 All (Indicate One) ☐ Ind/Com ☐ Res/Park ☐ Agriculture
Soil Texture (Check One) ☒ Coarse ☐ Fine
☐ Sewer Use ☐ Sanitary ☐ Storm
Region ____ (Indicate One)
☐ Regulation 558 ☐ CCME ☐ Prov. Water Quality Objectives (PWQO) ☐ Other ____ (Indicate One)

Turnaround Time (TAT) Required:
Regular TAT ☒ 5 to 7 Business Days
Rush TAT (Rush Surcharges Apply)
☐ 3 Business Days ☐ 2 Business Days ☐ Next Business Day
OR Date Required (Rush Surcharges May Apply): ____
Please provide prior notification for rush TAT
**TAT is exclusive of weekends and statutory holidays*
For 'Same Day' analysis, please contact your AGAT CPM

Project Information:
Project: 17HX001
Site Location: Burlington
Sampled By: K. Pettitt
AGAT Quote #: ____ PO: ____
Please note: If quotation number is not provided, client will be billed full price for analysis.

Is this submission for a Record of Site Condition? ☒ Yes ☐ No
Report Guideline on Certificate of Analysis ☒ Yes ☐ No

Invoice Information: Bill To Same: Yes ☒ No ☐
Company:
Contact:
Address:
Email:

Sample Matrix Legend
B Biota
GW Ground Water
O Oil
P Paint
S Soil
SD Sediment
SW Surface Water

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI (Y/N)	O. Reg 153: Metals and Inorganics (☐ All Metals ☐ 153 Metals (excl. Hydrides) ☐ Hydride Metals)	ORPs: ☐ B-HWS ☐ Cl⁻ ☐ CN⁻ ☐ Cr⁶⁺ ☐ EC ☐ FOC ☐ Hg ☐ pH ☐ SAR	Full Metals Scan	Regulation/Custom Metals	Nutrients: ☐ TP ☐ NH_3 ☐ TKN ☐ NO_3 ☐ NO_2 ☐ NO_3+NO_2	Volatiles: ☒ VOC ☒ BTEX ☒ THM	CCME Fractions 1 to 4	ABNs	PAHs	PCBs: ☐ Total ☐ Aroclors	Organochlorine Pesticides	TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs	Sewer Use
BH/mw201	Feb. 24'17	10:55-11:10AM	13	g.w.	HOLD	Y	X					X	X	X			
BH/mw202	"	11:20-11:40AM	13	g.w.	HOLD	Y	X					X	X	X			
BH/mw203	"	11:55-12:15PM	13	g.w.	HOLD	Y	X					X	X	X			
Duplicate A	"	10AM-1PM	13	g.w.	HOLD	Y	X					X	X	X			

Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time
Danika Durish	Feb. 24'17	2:25pm	Daniella Jarc	2:25pm	2/27/17
Daniella Jarc	2/27/17	2:30pm	Sharmin	Feb27/17	3:33pm
2017/02/27		3:33			

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Date Issued: September 20, 2016

Appendix C

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.