ADDENDUM TO
PHASE TWO ENVIRONMENTAL SITE ASSESSMENT:
SITE REMEDIATION
HALTON DISTRICT SCHOOL BOARD SURPLUS LAND
ON STONEHAVEN DRIVE
STONEHAVEN DRIVE
BURLINGTON, ONTARIO

for

HALTON DISTRICT SCHOOL BOARD

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CONSULTING ENGINEERS

September 30, 2014

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Report: 11

Mr. Domenico Renzella
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Dear Mr. Renzella

Addendum to
Phase Two Environmental Site Assessment: Site Remediation
Halton District School Board Surplus Land on Stonehaven Drive
Stonehaven Drive
Burlington, Ontario

This report presents the results of site remediation completed for portions of the property located on Stonehaven Drive in Burlington, Ontario. Authorization to proceed with this project was provided under revised Purchase Order No. 45000465725, dated January 16, 2013.

This report represents an Addendum to a Phase Two Environmental Site Assessment (ESA) and addresses the remediation at the above site and must be read in conjunction with the Phase Two ESA dated May 8, 2013 (PML Ref.: 13HX002, Report 2) and Supplemental Phase Two ESA dated August 14, 2013 (PML Ref.: 13HX002, Report 4).

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.



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1. INTRODUCTION

Site remediation to remove contaminated soil has been completed under the supervision of Peto MacCallum Ltd. (PML) for a portion of the property located at 2474 Sutton Drive in Burlington, Ontario as shown on Drawing 11-1 (referred to herein as the 'Site'). It is understood, the east approximately 0.65 ha will be sold to the City of Burlington for future parkland and the remaining west portion of the Site will be sold for future residential development.

This report constitutes an Addendum to a Phase Two Environmental Site Assessment (ESA), which addresses the remediation at the Site and which must be read in conjunction with the Phase Two ESA dated May 8, 2013 (PML Ref.: 13HX002, Report 2) and Supplemental Phase Two ESA dated August 14, 2013 (PML Ref.: 13HX002, Report 4). This report is a continuation of the mandatory Table of Contents Remediation Section as required under Part XII, Schedule E, Table 1 of O. Reg. 153/03, as amended.

In addition to the Phase Two and Supplemental Phase Two ESAs recently completed for the Site (PML Ref.: 13HX002 Reports 2 and 4), the following 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.

- Document 1: Phase I ESA, 2506 Orchard Road, Burlington, PML Ref.: 06HX011, Report 1, dated April 13, 2006;
- Document 2: Phase II ESA, 2506 Orchard Road, Burlington, PML Ref.: 06HX011A, Report 1, dated July 10, 2006;
- Document 3: Preliminary Findings, Phase I ESA Update, Bucci Property – Sutton Drive and Dundas Street, Burlington, PML Ref.: 06HX045, Report 1, dated November 23, 2006;
- Document 4: Phase I ESA, Part of Lots 3 and 4, Concession 1, S.D.S., Orchard Road and Dundas Street, Burlington, Terraprobe Ref.: 983140, dated January 11, 1999;
- Document 5: Phase I ESA, Proposed Orchard North Subdivision, Burlington, Soil-Mat Project No.: SM 021089-E, dated June 28, 2002;

- Document 6: Environmental Investigation, Contractor Access Area, Dundas Street, Ontario, Terraprobe File No. 13-12-2106, dated October 24, 2012; and
- Document 7: Phase One Environmental Site Assessment, PML Ref.: 13HX002, Report 1, dated April 24, 2013.

Pertinent information from the above mentioned reports is summarized in the Phase Two ESA.

2. REMEDIATION

2.1 Where Action has been Taken to Reduce the Concentration of Contaminants On, In or Under a Phase Two Property

The Phase Two ESA identified four areas on Site that required remediation, referred to as Areas 1 through 3 and a Topsoil Stockpile as shown on Drawing 11-1. The Phase Two ESA identified soil contamination in the four areas primarily related to the presence of fill material. Based on the results of soil sampling and chemical testing completed during the Phase Two ESA and the Supplemental Phase Two ESA, the contamination in Areas 1 through 3 was inferred to cover a total approximate plan area of 2,150 m^2 and the total in-place volume was estimated to be about 1,970 m^3 or some 3,940 tonnes (based on an average density of 2.0 tonnes/m^3). Based on a survey by an Ontario Land Surveyor (OLS), the contamination in the Topsoil Stockpile was inferred to cover an approximate plan area of about 1,000 m^2 and comprised a volume of 2,605 m^3. No ground water contamination was encountered on Site.

Site remediation of the soil has been completed and is summarized in the following sections.

2.2 Remedial Actions

Remediation activities were completed under the following two contracts:

1. Salandria Ltd. (Salandria) was retained by the Owner, who undertook all aspects of site preparation, permits, excavation work, transportation and off site disposal of the contaminated soil in Area 1, Area 3 and the Topsoil Stockpile. Excavation of the contaminated soil was completed using a John Deere 410C track mounted excavator supplied and operated by Salandria on March 3 to 7 and 24 to 26, 2014. The material was transported via Salandria's haulage subcontractor Joseph Haulage Canada Inc. (Joseph Haulage).

2. Ground Force Environmental Inc. (Ground Force) was retained by the Owner, who undertook all aspects of site preparation, permits, excavation work, transportation and off site disposal of the contaminated soil in the area of the Topsoil Stockpile, Area 2 and some of Area 3. Excavation of the contaminated soil was completed using John Deere 245G LC track mounted excavator supplied and operated by Ground Force on August 13 to 15 and 21, 2014. The material was transported via Ground Force's haulage subcontractor Joseph Haulage Canada Inc. (Joseph Haulage).

It is noted that the contamination on Site comprised select metals and inorganic parameters, namely cadmium, zinc, boron (hot water soluble) and electrical conductivity, and petroleum hydrocarbon (PHC) fractions F1 to F4. Photographs taken during the site remediation activities are included in Appendix A.

2.2.1 Soil Excavation and Soil Treatment Activities

Excavation and off-site disposal of the contaminated soil was selected as the remediation method due to the time efficiency of this method, shallow depth of contamination and nature of contaminants.

For all the excavation activities at the Site, the loading of the trucks was supervised by a member of PML's technical staff who oversaw the Bill of Lading system.

2.2.1.1 Area 1

Excavation and removal of the contaminated soil in Area 1, to a licensed landfill (Niagara Waste Systems - Walkers) was carried out on March 24, 2014 by Salandria using tri-axel trucks supplied by Joseph Haulage. Ground water was not encountered during the excavation activities; however water pooling was noted in the bottom of the excavation the following day.

2.2.1.2 Area 2

Excavation and removal of the contaminated soil in Area 2 to Niagara Waste Systems – Walkers, was carried out on August 14, 15 and 21, 2014 by Ground Force using trailer trucks supplied by Joseph Haulage. Ground water was not encountered during the excavation activities; however surface water was noted to the northwest of the excavation.

2.2.1.3 Area 3

Excavation and removal of the contaminated soil in Area 3 to Niagara Waste Systems – Walkers, was carried out on March 25 and 26, 2014 by Salandria using trailer trucks supplied by Joseph Haulage. Ground water was not encountered during the excavation activities.

Additional excavation was required in Area 3, and was carried on August 14, 15 and 21, 2014 by Ground Force. Contaminated soil was disposed of at Niagara Waste Systems landfill – Walkers using trailer trucks supplied by Joseph Haulage. Ground water was not encountered during the excavation activities.

2.2.1.4 Topsoil Stockpile

Excavation and removal of the Topsoil Stockpile to an approved receiving site (Hamilton Gun Club, located on Regional Road 20 in Stoney Creek, Ontario) was carried out on March 3 to 7, 2014 by Salandria, using tri-axel trucks supplied by Joseph Haulage. Ground water was not encountered during the excavation activities, however it is noted that surface water was observed south of the Topsoil Stockpile.

Additional excavation was required in the area of the former Topsoil Stockpile and was carried out on August 13, 14 and 21, 2014 by Ground Force. Contaminated soil was disposed of at Niagara Waste Systems landfill - Walkers using trailer trucks supplied by Joseph Haulage. Ground water was not encountered during the excavation activities, however it is noted that surface water was observed south of the former Topsoil Stockpile.

It is noted Area 2, Area 3 and the Topsoil Stockpile area required multiple stages of excavation based on the results of confirmatory sampling and chemical testing. Areas where the initial confirmatory sample results did not meet the Site Condition Standards (SCSs) were further excavated and re-sampled or additional samples were taken from within 2 m of the original exceedances to determine if averaging the results for replicate samples in accordance with O. Reg. 153/04, as amended met the SCSs. In accordance with Section 48 (2) of O. Reg. 153/04, as amended, if the average of two or more samples from the same sampling location meets the applicable SCSs, it is not considered an exceedance.

2.2.2 Estimate of the Quantity of Soil Treated and/or Removed

Based on way bill information provided by Salandria, Ground Force and Niagara Waste Systems - Walkers, the quantity of impacted soil removed from each Area is summarized in the table below:

Contamination Area	Remediation Dates	Estimated Quantity of Soil Removed
Area 1	March 24, 2014	311.24 tonnes
Area 2	August 14, 15 and 21, 2014	631.44 tonnes
Area 3	March 25 and 26, 2014 and August 14, 15 and 21, 2014	2301.49 tonnes
Topsoil Stockpile*	March 3 through 7, 2014	3,547 m^3
Topsoil Stockpile Area Excavation	August 13, 14 and 21, 2014	250.12 tonnes

Note: *Quantity based on pre and post excavation survey by an OLS.

2.2.3 Ground Water Removal or Ground Water Treatment Activities

Not applicable.

2.2.4 Estimate of the Volume of Ground Water Removed from the Phase Two Property

Not applicable.

2.2.5 Actions Taken to Reduce Contaminant Concentrations in Sediment

Not applicable.

2.2.6 Estimate of the Quantity of Sediment Treated or Removed

Not applicable.

2.2.7 Agency Permits

Two Site Alteration permits from the City of Burlington were required for completion of this remediation work, copies of the permits are included in Appendix B.

Copies of the Bills of Lading provided by Salandria, Ground Force and Niagara Waste Systems - Walkers for off Site transport and disposal of the contaminated soil from the Site have been received and reviewed by PML and will be kept on file for future reference.

2.2.8 Contaminants Created or Introduced During Remediation

The method of excavation and off Site disposal did not create or induce contaminants.

2.2.9 Establishment of Baseline and Background Conditions

PML conducted a Phase Two ESA to establish conditions at the Site, which included a soil and ground water sampling and chemical testing program to address the areas of potential environmental concern (APECs) identified during the Phase One ESA (PML Ref.: 13HX002, Report 2, dated May 8, 2013). In addition, native soil was sampled and chemically tested to establish general environmental conditions at the Site.

2.2.10 Rationale for the Selection of Monitoring Wells and Contaminants to Be Analyzed

Not applicable.

2.3 Free Flowing Product

Free flowing product was not encountered during the Phase Two ESA or the remediation activities.

2.3.1 Types and Quantities of Free Flowing Product

Not applicable.

2.3.2 Estimate of the Volume of Free Flowing Product Removed

Not applicable.

2.3.3 Free Flowing Product Recovery System(s)

Not applicable.

2.4 Confirmation Sampling and Analysis

2.4.1 Confirmation Sampling Activities Conducted During and After Remedial Actions

PML attended the Site during soil removal and cleanup activities which were carried out under two contracts as follows:

- Cleanup activities for Area 1, Area 3 and the Topsoil Stockpile were carried out on March 3 to 7, and March 24 to 26, 2014 by Salandria, and;
- Cleanup activities for Area 2, Area 3 and the southwest portion of the former Topsoil Stockpile area were carried out on August 13 to 15 and 21, 2014 by Ground Force.

The field work was supervised throughout by a member of PML's technical staff who monitored the excavation operations, and obtained and processed the recovered confirmatory soil samples. Particular attention was applied to visual and olfactory evidence of odours and staining during the course of the field work.

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

Soil vapour concentrations (SVCs) were measured in the headspace of the confirmatory samples from Area 1 and Area 3 using a RKI Eagle Portable Gas Detector. The confirmatory samples from Area 1 were screened in PML's laboratory and the samples from Area 3 were screened in the field. 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).

There are no regulatory criteria for soil vapours; however, soil vapours are often used as a screening tool to identify PHC impacted soils. 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. The measured concentrations on the headspace of recovered soil samples in Area 1 and Area 3 were 0 parts per million (ppm), which are not considered to be significant.

Selected soil samples were submitted for chemical analysis to Maxxam Analytics (Maxxam), a Canadian Association for Laboratory Accreditation Inc. (CALA) accredited laboratory in Mississauga, Ontario. The chemical analysis conducted by Maxxam was 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.

Laboratory certificates of analysis compared to the applicable SCS, namely Table 3 residential/ parkland/institutional (T3 RPI) are included in Appendix C. It is noted that the Laboratory certificates of analysis are organized by remediation area and where not applicable, the results have been struck out.

A summary of confirmatory samples submitted for chemical testing including locations, depths and descriptions is included in Table 1, appended.

2.4.1.1 Area 1

During clean-up activities in Area 1, a total of nine soil samples including one duplicate sample were secured from the floor and walls of the excavation areas and submitted for chemical testing for the contaminants of concern (COC), namely Petroleum Hydrocarbons (PHCs).

2.4.1.2 Area 2

Remediation activities in Area 2 took place in four stages:

Stage 1

During Stage 1, four soil samples were secured from the east wall of the proposed excavation to establish a 'clean' limit along the west side of an underground Bell utility line, and submitted for chemical testing for the COC, boron (HWS).

Stage 2

Stage 2 involved sampling and chemical testing to determine the suitability of the soil for off-site re-use at Nelson Aggregate Co. (Nelson). The results were provided in PML Ref.: 13HX002, Report 9, dated June 27, 2014 and chemical testing included two samples submitted for metals, PHCs and polychlorinated biphenyls (PCBs).

Stage 3

Stage 3 involved excavation of contaminated soil followed by confirmatory sampling and chemical testing. During Stage 3 a total of ten soil samples were secured from the floor and walls of the excavation and submitted for chemical testing for boron (HWS).

Stage 4

Based on the results of chemical testing from Stage 2 and 3, additional excavation was required in the area of sample Area 2 J4. Additional excavation took place and one confirmatory soil sample was secured and submitted for chemical testing for boron (HWS).

2.4.1.3 Area 3

Remediation activities in Area 3 took place in three stages:

Stage 1

Stage 1 involved excavation of contaminated soil followed by confirmatory sampling and chemical testing. During Stage 1, twenty soil samples including one duplicate were secured from the floor and walls of the excavation and submitted for chemical testing for the COCs, namely metals, boron (HWS) and PHCs. During the excavation a hydrocarbon odour was noted in the west side of the excavation. In this regard, Samples Area 3 E9, Area 3 G6 and Area 3 I4 were secured from the floor to address the olfactory evidence of PHC impacted soil.

Stage 2

Based on the results of chemical testing from Stage 1, additional excavation was required in the area of Samples Area 3 G6, Area 3 E9, Area 3 C8, Area 3 D3, Area 3 B1, Area 3 J10, Area 3 J3 and Area 3 A15. Additional excavation took place and eight samples were secured and submitted for chemical testing for metals, boron (HWS) and PHCs.

Stage 3

Based on the results of Stage 2, additional excavation was required in the area of Sample Area 3 J3-1. Additional excavation took place and one confirmatory soil sample was secured and submitted for chemical testing for PHCs.

2.4.1.4 Topsoil Stockpile

Clean-up activities related to the Topsoil Stockpile were completed in five stages:

Stage 1

Stage 1 involved removing the topsoil for off site re-use at the Hamilton Gun Club. Once the stockpile was removed, six confirmatory soil samples, including one duplicate were taken from below the former stockpile and submitted for chemical testing for the COC, namely electrical conductivity (EC).

Stage 2

Based on the results of chemical testing from Stage 1, additional sampling in the area of Sample GS4 was recommended in order to determine if averaging of the replicate samples in accordance with O. Reg. 153/03 would meet the T3 RPI SCSs. During Stage 2, ten replicate samples from within 2 m of Sample GS4 were submitted for chemical testing for EC.

Stage 3

The results of chemical testing from Stage 2 indicated that the replicate samples could not be averaged to meet the T3 RPI SCSs as outlined in O. Reg. 153/04. Additional excavation work was required in the southwest portion of the former Topsoil Stockpile due to EC exceedances. Stage 3 involved sampling and chemical testing to determine the suitability of the soil for off-site re-use at Nelson Aggregate Co. (Nelson). The results were provided in PML Ref.: 13HX002 Report 9, dated June 27, 2014 and chemical testing included one sample submitted for metals, PHCs and polychlorinated biphenyls (PCBs).

Stage 4

Based on the results of Stage 2 (elevated EC) and Stage 3 (elevated PHCs), additional excavation was required in the southwest portion of the former Topsoil Stockpile. Six soil samples were secured from the floors and walls of the excavation and submitted for chemical testing for EC and PHCs.

Stage 5

Based on the results of chemical testing of samples from Stage 4, additional excavation was required in the areas of Samples Topsoil Area A1, Topsoil Area B0, Topsoil Area B2, Topsoil Area C1, Topsoil Area D1 and Topsoil Area E2.5 due to EC and/or PHC exceedances. Additional excavation was completed and six soil samples were secured and submitted for chemical testing for EC and/or PHCs.

2.4.2 Rationale for Confirmation Sampling Locations, Depths and Contaminants Analyzed

The rationale for confirmatory sample selection locations was based on Table 3 - Minimum Confirmation Sampling Requirements for Excavation found in O. Reg. 153/04, as amended and based on visual and olfactory evidence of potential contamination and/or for general coverage requirements.

To facilitate sampling and documentation, each of the excavation areas were divided into a grid with variable spacing to accommodate a minimum floor grid area of 10 m^2 and wall grid area of 5 m^2 in the north-south and east-west directions as shown on Drawings 11-2 to 11-4 and 11-6.

2.4.2.1 Area 1

Soil contamination in Area 1 was identified in the surficial fill soil at a depth of 0.0 to 0.8 m below grade in TP9 completed during the 2006 Phase II ESA, SA-6 from a 2012 report by others and BH111 completed during the Phase Two ESA. Contamination was delineated during the Supplemental Phase Two ESA to establish clean boundaries for the excavation and indicated that the inferred depth of contamination extended from the ground surface to depths between 0.3 and 0.4 m and covering an estimated plan area of 225 m^2.

For Area 1 remediation excavation, the lines oriented north to south were labeled with letters beginning with A and the east to west lines were labeled with numbers beginning with 1. Each grid line intersection for the walls and floors was sampled was sampled for vapour screening and each grab sample (GS) was labelled in order of sampling using GS1 through GS8 for the wall samples and GS9 through GS11 for the floor samples.

Based on a final excavation floor area of 225 m^2 for the Area 1 cleanup, five wall samples and three floor samples, plus one duplicate were submitted to Maxxam for the COCs. The results of the chemical testing indicated that the measured concentrations of PHCs met the SCSs.

2.4.2.2 Area 2

Soil contamination in Area 2 was identified in the surficial fill soil at a depth of 0.4 to 1.7 m below grade in TP14 completed during the 2006 Phase II ESA and TP109 and TP111 completed during the Phase Two ESA. For the purposes of estimating a total area, the maximum extent of historical surficial granular fill, as shown on a 2005 aerial photograph was used, since the contamination is thought to be associated with this fill material. The contamination was estimated to cover an approximate plan area of 525 m^2 at depths of 0.4 to 1.7 m below grade.

For Area 2 remediation excavation, the lines oriented north to south were labeled with letters beginning with A and the east to west lines were labeled with numbers beginning with 0. Select grid line intersections for the walls were sampled and each sample was labelled with the corresponding location (for example, the sample from the intersection of grid line J and grid line 4 was labelled Sample J4). Floor samples were collected from within the floor grid cells. Additionally, samples from each remediation area were prefixed with the corresponding area number and samples from additional stages were suffixed with the associated sample number (for example Area 2 J4-1 is the confirmatory sample for additional soil that was removed near Sample Area 2 J4).

It is noted that an underground Bell utility line was located within the east portion of the excavation area and four confirmatory samples were taken from 1 m west of the underground Bell line in Stage 1 and submitted for chemical analysis for boron (HWS) to establish a new 'clean' limit for the Area 2 excavation. Based on the results of chemical testing the new clean limit for the east wall of the Area 2 excavation was determined to be 1 m west of the Bell line. The updated contamination area for Area 2 was 445 m^2.

For the Area 2 cleanup, six wall samples and four floor samples were submitted to Maxxam for the COCs during Stage 3. The results of the Stage 3 testing indicated that one floor sample exceeded the SCSs. The measured concentration of boron (HWS) from Sample Area 2 J4 was 4 µg/g which is greater than the T3 RPI SCS of 1.5 µg/g.

Excavation of an additional 0.5 m depth in the area of Sample Area 2 J4 was subsequently completed during Stage 4 and the area was re-sampled. Since the total area of the excavation was unchanged, one additional sample was considered sufficient and the results of testing indicated the measured concentration of boron (HWS) in Sample Area 2 J4-1 met the SCSs.

It is noted that exceedances of PHC Fractions F2 and F3 were identified in Sample Area 2 GS6, taken during Stage 2, further information regarding the PHC exceedance is discussed in Section 2.4.4.

2.4.2.3 Area 3

Soil contamination in Area 3 was identified in the surficial fill/topsoil at a depth of 0.0 to 0.6 m below grade in test pits and boreholes completed during the 2006 Phase II ESA, 2012 report by others and the 2013 Phase Two ESA. Contamination was delineated during the Supplemental Phase Two ESA to establish clean boundaries for the excavation and indicated that the inferred depth of contamination extended from the ground surface to depths of 0.3 to 1.4 m. The contamination covered an approximate plan area of 1,400 m^2.

For Area 3 remediation excavation, the lines oriented north to south were labeled with numbers beginning with 1 and the east to west lines were labeled with letters beginning with A. Each grid line intersection for the walls was sampled for vapour screening and each sample was labelled with the corresponding location (for example, the sample from the intersection of grid line J and grid line 3 was labelled Sample J3). Floor samples were collected from within the floor grid cells. Additionally, samples from each remediation area were prefixed with the corresponding area number and samples from additional stages were suffixed with the associated sample number (for example Area 3 J3-3 is the confirmatory sample for additional soil that was removed near Sample Area 3 J3).

Based on a final excavation floor area of greater than 1,000 m^2 for the Area 3 cleanup, ten wall samples and nine floor samples, including one duplicate sample were submitted to Maxxam for the COCs for Stage 1. It is noted that three additional samples were submitted from the floor of the excavation, due to visual and olfactory evidence of contamination in the west central portion of the excavation.

The results of the Stage 1 testing indicated that four floor sample and four wall samples exceeded the SCSs. The non conforming sample results are summarized in the table below:

Sample Location	**Sample ID**	**Exceedance** (Parameter – Result vs. Standard)
Area 3 Excavation Floor	Area 3 C8	PHC Fraction F3 – 730 µg/g vs. 300 µg/g
Area 3 Excavation Floor	Area 3 Duplicate (Area 3 D3)	PHC Fraction F2 – 200 µg/g vs. 98 µg/g PHC Fraction F3 – 420 µg/g vs. 300 µg/g
Area 3 Excavation Floor	Area 3 E9	Boron (HWE) – 1.9 µg/g vs. 1.5 µg/g
Area 3 Excavation Floor	Area 3 G6	Boron (HWE) – 1.6 µg/g vs. 1.5 µg/g
Area 3 North Excavation Wall	Area 3 J3	PHC Fraction F3 – 2,300 µg/g vs. 300 µg/g
Area 3 North Excavation Wall	Area 3 J10	Cadmium – 2.1 µg/g vs. 1.2 µg/g
Area 3 South Excavation Wall	Area 3 A15	PHC Fraction 4G – 7,800 µg/g vs. 2,800 µg/g Cadmium – 2.1 µg/g vs. 1.2 µg/g
Area 3 West Excavation Wall	Area 3 B1	PHC Fraction F3 – 360 µg/g vs. 300 µg/g

Excavation of an additional 0.5 m depth in the area of Samples Area 3 C8, Area 3 Duplicate (Area 3 D3), Area 3 E9 and Area 3 G6, and 0.3 m further into the wall in the area of Sample Area 3 A15 and 1 m further into the wall in the areas of Samples Area 3 B1, Area 3 J3 and Area 3 J10 was subsequently completed in Stage 2 and the areas were re-sampled and re-tested for the COCs.

The results of the Stage 2 testing indicated that one wall sample exceeded the SCSs. The measured concentrations of PHC Fractions F3 and F4 gravimetric in Sample Area 3 J3-1 were 360 and 5,800 µg/g, respectively, which is greater than the SCSs of 300 and 2,800 µg/g, respectively.

Excavation of an additional 2.0 m further into the wall in the area of Sample Area 3 J3-1 was subsequently completed in Stage 3 and the area was re-sampled and re-tested for PHCs. The measured concentration of PHC Fraction F3 in Sample Area 3 J3-2 was 390 µg/g, which is greater than the SCS of 300 µg/g.

Further discussion of the PHC exceedance is provided in Section 2.4.4.

It is noted that, various pipes and debris were uncovered during the Area 3 excavation including; a 12 inch concrete pipe extending from Stonehaven Drive to the northwest corner of the excavation, corrugated steel pipe pieces, pieces of transit pipe and a piece of sheet metal. The debris was removed from the excavation and set aside to be left on Site.

2.4.2.4 Topsoil Stockpile

EC contamination was identified in the topsoil fill material comprising the Topsoil Stockpile in Test Pit (TP) 10 and TP11 completed during the 2006 Phase II ESA. Additional samples (GS1 and GS3) were taken during the 2013 Supplemental Phase Two ESA from the area of the original exceedances and the results were averaged. The results did not meet the T3 RPI SCSs.

Once the Topsoil Stockpile was removed from the Site, six grab samples, including one duplicate were secured from below the stockpile during Stage 1.

The results of Stage 1 indicated that soil within the southwest portion of the former stockpile did not meet the T3 RPI SCS for EC. It was recommended that replicate samples be taken from within 2 m of the exceedance (GS4) in order to determine if averaging of the replicate samples in accordance with O. Reg. 153/03 would meet the T3 RPI SCSs. During Stage 2, ten replicate samples were taken from within 2 m of GS4 and submitted for chemical testing for EC. The results of Stage 2 indicated additional excavation in the area of Sample GS4 was required.

Additional excavation was completed for the Topsoil Stockpile Area and three wall samples and three floor samples were submitted to Maxxam for the COCs. The results of the Stage 4 testing indicated that all six sampled did not meet the T3 RPI SCS. The non conforming sample results are summarized in the table below:

Sample Location	**Sample ID**	**Exceedance** (Parameter – Result vs. Standard)
Topsoil Stockpile Area Excavation Floor	Topsoil Area C1	EC – 2.7 mS/cm vs. 0.7 mS/cm
Topsoil Stockpile Area Excavation Floor	Topsoil Area B2	EC – 0.82 mS/cm vs. 0.7 mS/cm
Topsoil Stockpile Area Former Soil Berm Area	Topsoil Area E2.5	EC – 0.85 mS/cm vs. 0.7 mS/cm PHC Fraction F3 – 320 µg/g vs. 300 µg/g
Topsoil Stockpile Area North Excavation Wall	Topsoil Area B0	EC – 1.1 mS/cm vs. 0.7 mS/cm
Topsoil Stockpile Area East Excavation Wall	Topsoil Area D1	EC – 0.85 mS/cm vs. 0.7 mS/cm
Topsoil Stockpile Area West Excavation Wall	Topsoil Area A1	EC – 0.83 mS/cm vs. 0.7 mS/cm

Further discussion of the PHC exceedance can be found in Section 2.4.4.

Excavation of an additional 0.5 m depth in the area of Samples Topsoil Area B2 and Topsoil Area C1 was subsequently completed in Stage 5 and the areas were re-sampled and re-tested. Excavation to native soil (0.9 m depth) was completed in the area of Sample Topsoil Area E2.5 and the area was re-sampled and re-tested. Excavation of an additional 1.0 m further into the wall in the area of Samples Topsoil Area B0, Topsoil Area D1 and Topsoil Area A1 was also completed in Stage 5 and the areas were re-sampled and re-tested.

The results of the Stage 5 testing indicated that four of the six sampled did not meet the T3 RPI SCS for EC. The non conforming sample results are summarized in the table below:

Sample Location	**Sample ID**	**Exceedance** (Parameter – Result vs. Standard)
Topsoil Stockpile Area Excavation Floor	Topsoil Area C1-1	EC – 0.9 mS/cm vs. 0.7 mS/cm
Topsoil Stockpile Area Excavation Floor	Topsoil Area B2-1	EC – 0.89 mS/cm vs. 0.7 mS/cm
Topsoil Stockpile Area North Excavation Wall	Topsoil Area B0-1	EC – 0.88 mS/cm vs. 0.7 mS/cm
Topsoil Stockpile Area East Excavation Wall	Topsoil Area D1-1	EC – 0.74 mS/cm vs. 0.7 mS/cm

It is noted that EC is physical, nonhealth related parameter typically affecting vegetation and elevated levels of this parameter is relevant to soils that must support plant growth. Elevated EC levels are usually an indication of salts within the soil (typically de-icing salts used in parking lots and roadways). The former Topsoil Stockpile area is located south of Dundas Street, at the base of the embankment and it is PML's opinion the remaining elevated EC is due to runoff and overspray of de-icing salt used along the roadway (Dundas Street/Highway 5) in the winter.

Under O. Reg. 153/04, as amended, where a site condition standard 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 tested soil samples would not be considered "contaminated" if re-used on site as part of road reconstruction or in locations not requiring vegetation growth, such as landscaped areas and lawns.

It is important to note that continued application of de-icing salt is expected to occur on Dundas Street/Highway 5 and thus the source of the contamination will remain; elevated levels of EC are to be anticipated at the Site.

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.

2.4.3 Lateral and Vertical Dimensions of the Excavations

The remediation excavations were irregular in shape and not consistent in depth. The following table provides a summary of the approximate lateral and vertical dimensions and area of the excavations:

Remediation Area	**Maximum Lateral Dimension** (east-west direction)	**Maximum Lateral Dimension** (north-south direction)	**Range of Vertical Dimensions**	**Final Excavation Area**
Area 1	17 m	24 m	0.6 to 0.8 m	200 m^2
Area 2	31 m	22 m	0.3 to 1.1 m	450 m^2
Area 3	58 m	29 m	0.3 to 1.5 m	1,500 m^2
Topsoil Stockpile Area Excavation	17 m	9 m	0.0 to 0.9 m	110 m^2

2.4.4 Petroleum Hydrocarbon Contamination Associated with Asphalt Materials

Asphalt and pulverised asphalt material was encountered during remediation in the Area 2, Area 3 and the Topsoil Stockpile Area excavations.

During the Area 2 excavation, a layer of asphalt material was encountered below the topsoil throughout the excavation. Asphalt material within the excavation limits was removed, however the layer of asphalt material was observed and remains on Site along the final south, west and west portion of the north excavation walls.

A layer of pulverized asphalt was encountered at the surface along the north wall of the Area 3 excavation and remains on Site.

During the Topsoil Stockpile Area excavation, a layer of asphalt material was encountered below the topsoil along the south, west and northwest portions of the excavation and remains on Site.

It is PML's opinion the elevated PHC concentrations in Samples Area 2 GS6 and Area 3 J3-2 are due to the presence of asphalt material within the soil/fill material samples.

The presence of the asphalt material is not uncommon for this type of land use (former residential dwelling, landscape/garden centre business and trucking/hauling company) and is common on most developed properties. Removal of the asphalt material was not within the terms of reference for this soil remediation assignment.

PML presumes that future development of the Site will involve grading and grubbing work, at which time the asphalt material and underlying fill with asphalt pieces will be removed and appropriately recycled/disposed of off Site.

2.4.5 Locations and Dimensions of Excavations

Refer to Drawings 11-2 through 11-6 for figures of Areas 1 through 3 and the Topsoil Stockpile excavation, showing the locations and dimensions of the four excavations.

2.4.6 Ground Water Removal or Treatment Activities

Not Applicable.

2.4.7 Location of Sediment Removal

Not Applicable.

2.4.8 Results of Quarterly Sampling Events

Not Applicable.

2.4.9 Soil, Ground Water and Sediment Quality Data

Refer to Tables 2 through 6 for a comparison of the soil quality data to the applicable SCSs for each contaminant, the sample identification number, sample depth, date of sample collection, date of sample analysis, and laboratory certificate of analysis or analytical report reference number.

The measured concentrations of boron HWS, metal parameters and PHCs in the tested confirmatory samples from the final remediation areas, following the final stages, were below the method detection limit (not detected) and/or met the respective T3 RPI Standards, with the exception of EC in the Topsoil Stockpile Area and PHCs in Area 2 and Area 3 as explained above in Sections 2.4.2.4 and 2.4.4.

Regarding EC, as previously noted it is PML's opinion that the elevated levels of EC in the Topsoil Stockpile area is due to runoff and overspray of de-icing salt used along Dundas Street/Highway 5 in winter. In this regard, the elevated EC is not considered contamination.

Regarding PHCs, it is PML's opinion that the elevated levels of PHCs are related to the presence of asphalt material on Site. As previously noted, the presence of the asphalt material is not uncommon for this type of land use (former residential dwelling, landscape/garden centre business and trucking/hauling company) and is common on most developed properties. PML presumes that future development of the Site will involve grading and grubbing work, at which time the asphalt material and underlying fill with asphalt pieces will be removed and appropriately recycled/disposed of off Site.

2.4.10 Results of Analyses for Confirmation Samples

Refer to Drawings 11-2 through 11-4 and 11-6 for cross sections and plan view showing the results of analyses for all confirmatory samples of soil, including the delineation of the lateral and vertical extent of contaminations in soil.

2.4.11 Construction Details and Elevations for Monitoring Wells Used in Ground Water Remediation

Not applicable.

2.4.12 Water Level Measurements for Monitoring Events

Not applicable.

3. SOIL EXCAVATED AT OR BROUGHT TO THE PHASE TWO ESA PROPERTY

3.1 Soil Brought to the Phase Two Property

No additional soil was brought to the property.

3.1.1 Rationale for the Selection of Chemical Parameters Analyzed by a Laboratory

Not applicable.

3.1.2 Soil Sampling Activities Conducted

Not applicable.

3.2 Segregation of Soil

Not applicable.

3.2.1 Rationale for the Choice of Contaminants to be Analyzed

Not applicable.

3.2.2 Methods Used To Ensure Uniform and Representative Sample Collection

Not applicable.

3.2.3 Number of Soil Samples Collected and the Volume of Each Stockpile

Not applicable.

3.2.4 Comparison of the Results of Analysis to the Applicable SCSs for Contaminants Analyzed

Not applicable.

3.3 Stockpiles

Not applicable.

4. QUALITY ASSURANCE AND QUALITY CONTROL RESULTS

Soil samples were analysed by using standard reference methods and the testing methods were referenced in Maxxam Certificate of Analysis, as required by the MOE's protocol. Laboratory QA/QC data is included with the Certificates of Analysis provided by in Appendix C. 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 the sample homogeneity, the relative percentage differences (RPD) between analyzed values for original and duplicate samples were calculated.

For sample reproducibility calculations, maximum relative percent difference (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 Maxxam; the maximum RPD values were as follows:

Sample ID(s)	Parameters	Maximum RPD Values (%)
GS1 and Duplicate A	Electrical Conductivity	3
Area 1 GS10 and Area 1 Duplicate	PHCs Fraction F1 to F4	NA
Area 3 D3 and Area 3 Duplicate	Metals	53
	Boron (HWS)	15
	PHCs Fraction F1 to F4	85

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 three of the five duplicate samples were within the acceptable statistical variation of 30 to 40%. The remaining replicate sample was over 40%, specifically for PHC Fraction F2 in soil Samples Area 3 D3 and Area 3 Duplicate and cadmium in soil Samples Area 3 D3 and Area 3 Duplicate.

Regarding PHC Fraction F2 in Area 3 D3 and Area 3 Duplicate, these results were considered anomalous since the results of laboratory duplicate sampling discussed in earlier in the section yielded acceptable data. Maxxam performed laboratory duplicate analysis on Sample Area 3 D3 (Lab Area 3 D3 Duplicate) and the RPD value was within the acceptable statistical variation of 30 to 40%.

Regarding cadmium in Area 3 D3 and Area 3 Duplicate, per O. Reg. 153 protocol, the RPD acceptance criteria only applies if the average value of the sample and duplicate is greater or equal to 5 times the reported detection limit (RDL). For the case in question, the RDL of cadmium is 0.1 µg/g, the cadmium values for Area 3 D3 and Area 3 Duplicate were 0.18 µg/g and 0.31 µg/g respectively. The average value of the two samples is 0.25 µg/g, which is less than 5 times the RDL (0.50 µg/g). Therefore, the RPD acceptance criterion does not apply in this instance. The rationale behind this is that as the measured result approaches the RDL, the uncertainty associated with the value increases dramatically, thus the duplicate acceptance limits (RPD acceptance criteria) apply only where the average of the two duplicates is greater than 5 times the RDL.

5. MODIFIED GENERIC RISK ASSESSMENT

Not applicable

6. CONCLUSIONS

Site remediation was completed for a portion of the property located at 2474 Sutton Drive in Burlington, Ontario. It is understood, the east approximately 0.65 ha of the Site will be sold to the City of Burlington for future parkland and the remaining west portion of the Site will be sold for future residential development. The remediation was required in order to facilitate these transactions and to satisfy the conditions for sale of a portion of the Site to the City of Burlington.

This report constitutes an Addendum to a Phase Two Environmental Site Assessment (ESA), which addresses the remediation at the Site and which must be read in conjunction with the Phase Two ESA dated May 8, 2013 (PML Ref.: 13HX002, Report 2) and a Supplemental Phase Two ESA dated August 14, 2013 (PML Ref.: 13HX002, Report 4). This report is a continuation of the mandatory Table of Contents Remediation Section as required under Part XII, Schedule E, Table 1 of O. Reg. 153/04, as amended.

The findings of this report indicate the soil contamination identified during the Phase Two ESAs has been remediated and no further investigation work related to the areas of concern from the Phase Two ESA is required. No ground water contamination was encountered.

Electrical Conductivity (EC)

Elevated levels of EC remain on Site, in the area of the former Topsoil Stockpile. EC is physical, nonhealth related parameter typically affecting vegetation and elevated levels of this parameter is relevant to soils that must support plant growth. Elevated EC levels are usually an indication of salts within the soil (typically de-icing salts used in parking lots and roadways). The former Topsoil Stockpile area is located south of Dundas Street, at the base of the embankment and it is PML's opinion the elevated EC is due to runoff and overspray of de-icing salt used along the roadway (Dundas Street/Highway 5) in the winter.

Under O. Reg. 153/04, as amended, where a site condition standard 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 tested soil samples would not be considered "contaminated" if re-used on site as part of road reconstruction or in locations not requiring vegetation growth, such as landscaped areas and lawns.

It is important to note that continued application of de-icing salt is expected to occur on Dundas Street/Highway 5 and thus the source of the contamination will remain; elevated levels of EC are to be anticipated at the Site.

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.

Petroleum Hydrocarbons (PHCs)

Exceedances of PHCs were identified at one location in Area 2 and one location in Area 3. It is PML's opinion the elevated PHC concentrations in Samples Area 2 GS6 and Area 3 J3-2 are due to the presence of asphalt material within the soil/fill material samples.

The presence of the asphalt material is not uncommon for this type of land use (former residential dwelling, landscape/garden centre business and trucking/hauling company) and is common on most developed properties. Removal of the asphalt material was not within the terms of reference for this soil remediation assignment.

PML presumes that future development of the Site will involve grading and grubbing work, at which time the asphalt material will be removed and appropriately recycled/disposed of off Site.

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

It should be noted that the 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.

6.1 Signatures

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.

For Sarah Murray, BSc., M.Env.Sc.
Project Supervisor, Geoenvironmental Services



Melissa King, P.Geo., QP_{ESA}
Associate
Manager, Geoenvironmental Services

SM:lad

Table 1

Summary of Samples Submitted for Chemical Testing

Location	Sample ID	Approx. Depth (m)	Description	Type of Chemical Analysis
Area 1				
Remediation Area 1 Excavation Wall	Area 1 GS1	0.0 to 0.8	FILL: Dark brown sand and gravel fill, occasional pieces of asphalt	PHCs Fraction F1 to F4
Remediation Area 1 Excavation Wall	Area 1 GS2	0.0 to 0.8	FILL: Dark brown sand and gravel fill, occasional pieces of asphalt	PHCs Fraction F1 to F4
Remediation Area 1 Excavation Wall	Area 1 GS4	0.0 to 0.6	FILL: Brown, silty sand fill, numerous pieces of red brick, trace gravel	PHCs Fraction F1 to F4
Remediation Area 1 Excavation Wall	Area 1 GS5	0.0 to 0.6	TOPSOIL: Brown silty sand topsoil, some roots, trace gravel	PHCs Fraction F1 to F4
Remediation Area 1 Excavation Wall	Area 1 GS6	0.0 to 0.6	TOPSOIL: Brown silty sand topsoil, some roots, trace gravel	PHCs Fraction F1 to F4
Remediation Area 1 Excavation Floor	Area 1 GS9	0.8	SILT TILL: Brown clayey silt till, trace sand and gravel	PHCs Fraction F1 to F4
Remediation Area 1 Excavation Floor	Area 1 GS10	0.6	SILT TILL: Brown clayey silt till, trace sand and gravel	PHCs Fraction F1 to F4
Remediation Area 1 Excavation Floor	Area 1 Dup	0.6	Duplicate of Area 1 GS10	PHCs Fraction F1 to F4
Remediation Area 1 Excavation Floor	Area 1 GS11	0.6	SILT TILL: Brown clayey silt till, trace sand and gravel	PHCs Fraction F1 to F4

Table 1

Summary of Samples Submitted for Chemical Testing

Location	Sample ID	Approx. Depth (m)	Description	Type of Chemical Analysis
Area 2 (Stage 1)				
Remediation Area 2 Excavation East Wall	Area 2 GS1	0.0 to 0.5	TOPSOIL: Brown silty sand topsoil, some roots, trace gravel	Boron HWS
Remediation Area 2 Excavation East Wall	Area 2 GS2	0.0 to 0.5	TOPSOIL: Brown silty sand topsoil, some roots, trace gravel	Boron HWS
Remediation Area 2 Excavation East Wall	Area 2 GS3	0.0 to 0.6	FILL: Brown silty sand and clayey silt fill, trace gravel, occasional pieces of asphalt, red brick and wood	Boron HWS
Remediation Area 2 Excavation East Wall	Area 2 GS4	0.0 to 0.6	FILL: Brown silty sand and clayey silt fill, trace gravel, occasional pieces of asphalt, red brick and wood	Boron HWS
Area 2 (Stage 2)				
Remediation Area 2	Area 2 GS5	0.0 to 0.6	FILL: Brown silty sand and clayey silt fill, trace gravel, occasional pieces of asphalt, red brick and wood	Metals and Inorganics PHC Fractions F1 to F4 PCBs
Remediation Area 2	Area 2 GS6	0.0 to 0.3	FILL: Greyish black to dark brown sand and gravel fill, occasional pieces of asphalt	Metals and Inorganics PHC Fractions F1 to F4 PCBs

Table 1

Summary of Samples Submitted for Chemical Testing

Location	Sample ID	Approx. Depth (m)	Description	Type of Chemical Analysis
Area 2 (Stage 3)				
Remediation Area 2 Excavation Floor	Area 2 H1	0.4	SILT TILL: Reddish brown clayey silt till, trace sand and gravel, with occasional shale fragments	Boron HWS PHC Fractions F1 to F4
Remediation Area 2 Excavation Floor	Area 2 E3	0.4	SILT TILL: Reddish brown clayey silt till, trace sand and gravel, with occasional shale fragments	Boron HWS PHC Fractions F1 to F4
Remediation Area 2 Excavation Floor	Area 2 J4	0.6	SILT: Greyish brown clayey silt, trace sand and gravel, with organics	Boron HWS PHC Fractions F1 to F4
Remediation Area 2 Excavation Floor	Area 2 I6	0.6	SAND: Brown silty sand fill, trace gravel	Boron HWS PHC Fractions F1 to F4
Remediation Area 2 Excavation North Wall	Area 2 K1	0.3 to 0.4	FILL: Brown sand and gravel fill	Boron HWS
Remediation Area 2 Excavation North Wall	Area 2 F1	0.3 to 0.4	FILL: Brown sand and gravel fill	Boron HWS
Remediation Area 2 Excavation North Wall	Area 2 C3	0.3 to 0.4	FILL: Brown sand and gravel fill	Boron HWS
Remediation Area 2 Excavation South Wall	Area 2 C5	0.3 to 0.4	FILL: Brown sand and gravel fill	Boron HWS
Remediation Area 2 Excavation South Wall	Area 2 E6	0.3 to 0.4	FILL: Brown sand and gravel fill	Boron HWS

Table 1

Summary of Samples Submitted for Chemical Testing

Location	Sample ID	Approx. Depth (m)	Description	Type of Chemical Analysis
Remediation Area 2 Excavation South Wall	Area 2 K7	0.3 to 0.4	FILL: Brown sand and gravel fill	Boron HWS
Area 2 (Stage 4)				
Remediation Area 2 Excavation Floor	Area 2 J4-1	1.1	SILT TILL: Reddish brown clayey silt till, trace sand and gravel, with occasional shale fragments	Boron HWS
Area 3 (Stage 1)				
Remediation Area 3 Excavation Floor	Area 3 E9	0.8	TOPSOIL: Brown silty sand topsoil, some roots, trace gravel	PHC Fractions F1 to F4 Boron HWS Metals
Remediation Area 3 Excavation Floor	Area 3 G6	0.6	SILT TILL: Dark brown to blackish brown clayey silt till, trace sand and gravel	PHC Fractions F1 to F4 Boron HWS Metals
Remediation Area 3 Excavation Floor	Area 3 I4	0.5	SILT TILL: Dark brown to blackish brown clayey silt till, trace sand and gravel	PHC Fractions F1 to F4 Boron HWS Metals
Remediation Area 3 Excavation Floor	Area 3 D3	0.4	SILT: Brown and grey sandy silt	PHC Fractions F1 to F4 Boron HWS Metals
Remediation Area 3 Excavation Floor	Area 3 Duplicate	0.4	Duplicate of Area 3 D3	PHC Fractions F1 to F4 Boron HWS Metals
Remediation Area 3 Excavation Floor	Area 3 C8	1.0	SILT TILL: Brown clayey silt till, trace sand and gravel	PHC Fractions F1 to F4 Boron HWS Metals

Table 1

Summary of Samples Submitted for Chemical Testing

Location	Sample ID	Approx. Depth (m)	Description	Type of Chemical Analysis
Remediation Area 3 Excavation Floor	Area 3 I8	0.6	SILT TILL: Dark brown to blackish brown clayey silt till, trace sand and gravel	PHC Fractions F1 to F4 Boron HWS Metals
Remediation Area 3 Excavation Floor	Area 3 I14	0.6	SILT TILL: Brown clayey silt till, trace sand and gravel	PHC Fractions F1 to F4 Boron HWS Metals
Remediation Area 3 Excavation Floor	Area 3 F15	0.6	SILT TILL: Brown clayey silt till, trace sand and gravel	PHC Fractions F1 to F4 Boron HWS Metals
Remediation Area 3 Excavation Floor	Area 3 C18	0.4	FILL: Brown clayey silt fill	PHC Fractions F1 to F4 Boron HWS Metals
Remediation Area 3 Excavation Wall	Area 3 A3	0.0 to 0.3	TOPSOIL: Brown silty sand topsoil, some roots and gravel	PHC Fractions F1 to F4 Boron HWS Metals
Remediation Area 3 Excavation Wall	Area 3 A9	0.0 to 0.4	TOPSOIL: Brown silty sand topsoil, some roots and gravel	PHC Fractions F1 to F4 Boron HWS Metals
Remediation Area 3 Excavation Wall	Area 3 A15	0.0 to 0.4	FILL: Brown clayey silt fill, occasional pieces of wood, metal and plastic	PHC Fractions F1 to F4 Boron HWS Metals
Remediation Area 3 Excavation Wall	Area 3 B1	0.0 to 0.3	TOPSOIL: Brown silty sand topsoil, some roots and gravel	PHC Fractions F1 to F4 Boron HWS Metals
Remediation Area 3 Excavation Wall	Area 3 F1	0.0 to 0.4	FILL: Brown clayey silt fill	PHC Fractions F1 to F4 Boron HWS Metals
Remediation Area 3 Excavation Wall	Area 3 H19	0.2 to 0.5	FILL: Brown sand and gravel fill	PHC Fractions F1 to F4 Boron HWS Metals

Table 1

Summary of Samples Submitted for Chemical Testing

Location	Sample ID	Approx. Depth (m)	Description	Type of Chemical Analysis
Remediation Area 3 Excavation Wall	Area 3 D20	0.2 to 0.4	FILL: Brown to dark brown silty sand fill, some gravel	PHC Fractions F1 to F4 Boron HWS Metals
Remediation Area 3 Excavation Wall	Area 3 J3	0.1 to 0.4	FILL: Brown to blackish brown sand and gravel fill	PHC Fractions F1 to F4 Boron HWS Metals
Remediation Area 3 Excavation Wall	Area 3 J10	0.2 to 0.4	FILL: Brown silty sand fill, some gravel	PHC Fractions F1 to F4 Boron HWS Metals
Remediation Area 3 Excavation Wall	Area 3 J16	0.2 to 0.5	FILL: Brown silty sand fill, some gravel	PHC Fractions F1 to F4 Boron HWS Metals
Area 3 (Stage 2)				
Remediation Area 3 Excavation Floor	Area 3 G6-1	1.1	SILT TILL: Dark brown clayey silt till, trace sand and gravel	PHC Fractions F1 to F4 Boron HWS Metals
Remediation Area 3 Excavation Floor	Area 3 E9-1	1.3	SILT TILL: Greyish brown clayey silt till, trace sand and gravel	PHC Fractions F1 to F4 Boron HWS Metals
Remediation Area 3 Excavation Floor	Area 3 C8-1	1.5	SILT TILL: Brown clayey silt till, trace sand and gravel	PHC Fractions F1 to F4 Boron HWS Metals
Remediation Area 3 Excavation Floor	Area 3 D3-1	0.9	SILT TILL: Brown clayey silt till, trace sand and gravel	PHC Fractions F1 to F4 Boron HWS Metals
Remediation Area 3 Excavation Wall	Area 3 B1-1	0.0 to 0.3	TOPSOIL: Brown silty sand topsoil, some roots and gravel	PHC Fractions F1 to F4 Boron HWS Metals

Table 1

Summary of Samples Submitted for Chemical Testing

Location	Sample ID	Approx. Depth (m)	Description	Type of Chemical Analysis
Remediation Area 3 Excavation Wall	Area 3 J10-1	0.2 to 0.4	FILL: Brown sand and gravel fill	PHC Fractions F1 to F4 Boron HWS Metals
Remediation Area 3 Excavation Wall	Area 3 J3-1	0.1 to 0.4	FILL: Brown to blackish brown sand and gravel fill	PHC Fractions F1 to F4 Boron HWS Metals
Remediation Area 3 Excavation Wall	Area 3 A15-1	0.0 to 0.4	FILL: Brown clayey silt fill, occasional pieces of wood, metal and plastic	PHC Fractions F1 to F4 Boron HWS Metals
Area 3 (Stage 3)				
Remediation Area 3 Excavation Wall	Area 3 J3-2	0.1 to 0.4	FILL: Brown to blackish brown sand and gravel fill	PHC Fractions F1 to F4
Topsoil Stockpile (Stage 1)				
Topsoil Stockpile Remediation Area Excavation Floor	GS1	0.0	SILT TILL: Brown clayey silt till, trace sand and gravel	Electrical Conductivity
Topsoil Stockpile Remediation Area Excavation Floor	GS2	0.0	SILT TILL: Brown clayey silt till, trace sand and gravel	Electrical Conductivity
Topsoil Stockpile Remediation Area Excavation Floor	GS3	0.0	SILT TILL: Brown clayey silt till, trace sand and gravel	Electrical Conductivity
Topsoil Stockpile Remediation Area Excavation Floor	Duplicate 1	0.0	Duplicate of GS3	Electrical Conductivity

Table 1

Summary of Samples Submitted for Chemical Testing

Location	Sample ID	Approx. Depth (m)	Description	Type of Chemical Analysis
Topsoil Stockpile Remediation Area Excavation Floor	GS4	0.0	TOPSOIL FILL: Brown silty sand topsoil, trace gravel	Electrical Conductivity
Topsoil Stockpile Remediation Area Excavation Floor	GS5	0.0	SILT TILL: Brown clayey silt till, trace sand and gravel	Electrical Conductivity
Topsoil Stockpile (Stage 2)				
Topsoil Stockpile Remediation Area Excavation Floor	GS4-1	0.0	SILT FILL: Brown clayey silt fill, trace sand and gravel, occasional pieces of asphalt and red brick	Electrical Conductivity
Topsoil Stockpile Remediation Area Excavation Floor	GS4-2	0.0	SILT FILL: Brown clayey silt fill, trace sand and gravel, occasional pieces of asphalt and red brick	Electrical Conductivity
Topsoil Stockpile Remediation Area Excavation Floor	GS4-3	0.0	SILT FILL: Brown clayey silt fill, trace sand and gravel, occasional pieces of asphalt and red brick	Electrical Conductivity
Topsoil Stockpile Remediation Area Excavation Floor	GS4-4	0.0	SILT FILL: Brown clayey silt fill, trace sand and gravel, occasional pieces of asphalt and red brick	Electrical Conductivity
Topsoil Stockpile Soil Berm	GS4-5	0.6	TOPSOIL FILL: Brown silty sand topsoil, trace gravel	Electrical Conductivity
Topsoil Stockpile Soil Berm	GS4-6	0.6	TOPSOIL FILL: Brown silty sand topsoil, trace gravel	Electrical Conductivity
Topsoil Stockpile Soil Berm	GS4-7	0.6	TOPSOIL FILL: Brown silty sand topsoil, trace gravel	Electrical Conductivity

Table 1

Summary of Samples Submitted for Chemical Testing

Location	Sample ID	Approx. Depth (m)	Description	Type of Chemical Analysis
Topsoil Stockpile Remediation Area Excavation Floor	GS4-8	0.0	SILT FILL: Brown clayey silt fill, trace sand and gravel, occasional pieces of asphalt and red brick	Electrical Conductivity
Topsoil Stockpile Remediation Area Excavation Floor	GS4-9	0.0	SILT FILL: Brown clayey silt fill, trace sand and gravel, occasional pieces of asphalt and red brick	Electrical Conductivity
Topsoil Stockpile Remediation Area Excavation Floor	GS4-10	0.0	SILT FILL: Brown clayey silt fill, trace sand and gravel, occasional pieces of asphalt and red brick	Electrical Conductivity
Topsoil Stockpile (Stage 3)				
Topsoil Stockpile Remediation Area Excavation Floor	GS4-11	0.0	SILT FILL: Brown clayey silt fill, trace sand and gravel, occasional pieces of asphalt and red brick	Metals and Inorganics PHC Fractions F1 to F4 PCBs
Topsoil Stockpile (Stage 4)				
Topsoil Stockpile Remediation Area Excavation Wall	Topsoil Area A1	0.0 to 0.1	SILT FILL: Brown clayey silt fill, trace sand and gravel, occasional pieces of asphalt and red brick	Electrical Conductivity PHC Fractions F1 to F4
Topsoil Stockpile Remediation Area Excavation Wall	Topsoil Area B0	0.0 to 0.2	SILT FILL: Brown clayey silt fill, trace sand and gravel, occasional pieces of asphalt and red brick	Electrical Conductivity PHC Fractions F1 to F4
Topsoil Stockpile Remediation Area Excavation Wall	Topsoil Area D1	0.0 to 0.3	SILT FILL: Brown clayey silt fill, trace sand and gravel, occasional pieces of asphalt and red brick	Electrical Conductivity PHC Fractions F1 to F4
Topsoil Stockpile Former Soil Berm Area	Topsoil Area E2.5	0.0	TOPSOIL FILL: Brown silty sand topsoil, trace gravel	Electrical Conductivity PHC Fractions F1 to F4

Table 1

Summary of Samples Submitted for Chemical Testing

Location	Sample ID	Approx. Depth (m)	Description	Type of Chemical Analysis
Topsoil Stockpile Remediation Area Excavation Floor	Topsoil Area B2	0.3	SILT FILL: Brown clayey silt fill, trace sand and gravel, occasional pieces of asphalt and red brick	Electrical Conductivity PHC Fractions F1 to F4
Topsoil Stockpile Remediation Area Excavation Floor	Topsoil Area C1	0.2	SILT FILL: Brown clayey silt fill, trace sand and gravel, occasional pieces of asphalt and red brick	Electrical Conductivity PHC Fractions F1 to F4
Topsoil Stockpile (Stage 5)				
Topsoil Stockpile Remediation Area Excavation Wall	Topsoil Area A1-1	0.0 to 0.3	SILT FILL: Brown clayey silt fill, trace sand and gravel, occasional pieces of asphalt and red brick	Electrical Conductivity
Topsoil Stockpile Remediation Area Excavation Wall	Topsoil Area B0-1	0.0 to 0.2	SILT FILL: Brown clayey silt fill, trace sand and gravel, occasional pieces of asphalt and red brick	Electrical Conductivity
Topsoil Stockpile Remediation Area Excavation Floor	Topsoil Area B2-1	0.8	SILT: Greyish brown clayey silt, trace sand and gravel	Electrical Conductivity
Topsoil Stockpile Remediation Area Excavation Floor	Topsoil Area C1-1	0.7	SILT: Greyish brown clayey silt, trace sand and gravel	Electrical Conductivity
Topsoil Stockpile Remediation Area Excavation Wall	Topsoil Area D1-1	0.0 to 0.3	SILT FILL: Brown clayey silt fill, trace sand and gravel, occasional pieces	Electrical Conductivity
Topsoil Stockpile Former Soil Berm Area	Topsoil Area E2.5-1	0.9	SILT: Greyish brown clayey silt, trace sand and gravel	Electrical Conductivity PHC Fractions F1 to F4

Notes:

PHC – Petroleum Hydrocarbon
HWS – Hot Water Soluble

Table 2: Boron (Hot Water Soluble) in Soil

Results of Chemical Testing Compared to the Table 3 Standards for Residential/Parkland/Institutional Property Use

Sample ID				**Area 2 GS1**	**Area 2 GS2**	**Area 2 GS3**	**Area 2 GS4**	**Area 2 H1**	**Area 2 E3**	**Area 2 J4**	**Area 2 I6**	**Area 2 K1**
Depth (At Time of Sampling)				0.0 to 0.5 m	0.0 to 0.5 m	0.0 to 0.6 m	0.0 to 0.6 m	0.4 m	0.4 m	0.6 m	0.6 m	0.3 to 0.4 m
Sample Date (Year/Month/Day)				2014-03-24	2014-03-24	2014-03-24	2014-03-24	2014-08-14	2014-08-14	2014-08-14	2014-08-14	2014-08-14
Description				Topsoil	Topsoil	Fill	Fill	Silt Till	Silt Till	Silt	Fill	Fill
Contaminant	**Table 3 RPI SCS**	**Units**	**RDL**	**VH6905**	**VH6906**	**VH6907**	**VH6908**	**XD3759**	**XD3760**	**XD3761**	**XD3762**	**XD3763**
Boron (Hot Water Soluble)	1.5	µg/g	0.050	0.84	0.76	0.79	1.3	0.33	0.44	**4.1**	0.47	1.4

Sample ID				**Area 2 F1**	**Area 2 C3**	**Area 2 C5**	**Area 2 E6**	**Area 2 K7**	**Area 2 J4-1**
Depth (At Time of Sampling)				0.3 to 0.4 m	0.3 to 0.4 m	0.3 to 0.4 m	0.3 to 0.4 m	0.3 to 0.4 m	1.1 m
Sample Date (Year/Month/Day)				2014-08-14	2014-08-14	2014-08-14	2014-08-14	2014-08-14	2014-08-21
Description				Fill	Fill	Fill	Fill	Fill	Silt Till
Contaminant	**Table 3 RPI SCS**	**Units**	**RDL**	**XD3764**	**XD3765**	**XD3766**	**XD3767**	**XD3768**	**XG2016**
Boron (Hot Water Soluble)	1.5	µg/g	0.050	0.8	0.45	0.96	0.85	0.54	0.26

Notes:
RDL = Reported Detection Limit; "()" = Standard in parenthesis applies to medium and fine textured soils; "-" = not analyzed; NL = Not Listed; NV = No Value; NA = Not Applicable; SCS = Site Condition Standards
Green fill Sample IDs represent soil exceeding SCSs and removed during remediation; red fill sample results show remaining SCS exceedances.

Table 3: Metals and Inorganics in Soil

Results of Chemical Testing Compared to the Table 3 Standards for Residential/Parkland/Institutional Property Use

Sample ID				**Area 3 E9**	**Area 3 G6**	**Area 3 I4**	**Area 3 D3**	**Area 3 Duplicate (Area 3 D3)**	**Area 3 C8**	**Area 3 I8**	**Area 3 I14**	**Area 3 F15**
Depth (At Time of Sampling)				0.8 m	0.6 m	0.5 m	0.4 m	0.4 m	1.0 m	0.6 m	0.6 m	0.6 m
Sample Date (Year/Month/Day)				2014-03-25	2014-03-25	2014-03-25	2014-03-26	2014-03-26	2014-03-26	2014-03-26	2014-03-26	2014-03-26
Description				Topsoil	Silt Till	Silt Till	Silt	Silt	Silt Till	Silt Till	Silt Till	Silt Till
Contaminant	**Table 3 RPI SCS**	**Units**	**RDL**	**VI0768**	**VI0769**	**VI0770**	**VI4545**	**VI4561**	**VI4546**	**VI4547**	**VI4548**	**VI4549**
Antimony	7.5	µg/g	0.20	0.28	<0.20	<0.20	0.22	0.26	0.58	<0.20	0.28	0.34
Arsenic	18	µg/g	1.0	7	4.7	3.7	4.6	5.2	5.9	5.4	6.9	4.6
Barium	390	µg/g	0.50	120	83	84	78	79	84	170	120	65
Beryllium	4	µg/g	0.20	0.93	0.64	0.64	0.56	0.59	0.61	1.3	0.99	0.54
Boron (Hot Water Soluble)	1.5	µg/g	0.050	**1.9**	**1.6**	1.4	0.85	0.73	0.71	0.65	0.15	0.78
Cadmium	1.2	µg/g	0.10	0.77	0.32	0.36	0.18	0.31	0.43	0.53	0.18	0.23
Chromium	160	µg/g	1.0	22	18	17	16	16	18	26	25	21
Cobalt	22	µg/g	0.10	9.2	7.9	9.8	9	9.7	8.9	12	14	9.2
Copper	140	µg/g	0.50	31	19	20	16	24	30	27	40	17
Lead	120	µg/g	1.0	45	30	24	22	32	54	23	17	20
Mercury	0.27	µg/g	0.050	0.075	<0.050	<0.050	<0.050	<0.050	0.068	0.071	<0.050	<0.050
Molybdenum	6.9	µg/g	0.50	0.65	0.5	0.64	<0.50	0.54	1.1	0.78	<0.50	0.84
Nickel	100	µg/g	0.50	21	15	15	15	16	18	21	34	15
Selenium	2.4	µg/g	0.50	0.59	<0.50	<0.50	<0.50	<0.50	<0.50	0.63	<0.50	<0.50
Silver	20	µg/g	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Thallium	1	µg/g	0.050	0.16	0.14	0.12	0.13	0.11	0.12	0.16	0.15	0.099
Vanadium	86	µg/g	5.0	30	26	27	27	27	26	40	34	26
Zinc	340	µg/g	5.0	130	99	70	57	80	110	90	78	76
Boron (Total)	120	µg/g	5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.7	<5.0	<5.0	<5.0

Notes:

RDL = Reported Detection Limit; "()" = Standard in parenthesis applies to medium and fine textured soils; "-" = not analyzed; NL = Not Listed; NV = No Value; NA = Not Applicable; SCS = Site Condition Standards

Green fill Sample IDs represent soil exceeding SCSs and removed during remediation; red fill sample results show remaining SCS exceedances.

Table 3: Metals and Inorganics in Soil

Results of Chemical Testing Compared to the Table 3 Standards for Residential/Parkland/Institutional Property Use

Sample ID				**Area 2 GS5**	**Area 2 GS6**	**Area 3 C18**	**Area 3 A3**	**Area 3 A9**	**Area 3 A15**	**Area 3 B1**
Depth (At Time of Sampling)				0.0 to 0.6 m	0.0 to 0.3	0.4 m	0.0 to 0.3 m	0.0 to 0.4 m	0.0 to 0.4 m	0.0 to 0.3 m
Sample Date (Year/Month/Day)				2014-06-11	2014-06-11	2014-03-26	2014-03-26	2014-03-26	2014-03-26	2014-03-26
Description				Fill	Fill	Fill	Topsoil	Topsoil	Fill	Topsoil
Contaminant	**Table 3 RPI SCS**	**Units**	**RDL**	**WH8832**	**WH8833**	**VI4553**	**VI4551**	**VI4552**	**VI4553**	**VI4554**
Antimony	7.5	µg/g	0.20	0.32	0.21	<0.20	0.72	0.42	0.7	0.34
Arsenic	18	µg/g	1.0	6.4	5	2.8	5.5	5.3	5.5	4.7
Barium	390	µg/g	0.50	63	30	40	93	80	100	57
Beryllium	4	µg/g	0.20	0.49	0.25	0.56	0.52	0.6	0.51	0.48
Boron (Hot Water Soluble)	1.5	µg/g	0.050	1.1	1.2	0.33	0.8	0.67	1.4	1.1
Cadmium	1.2	µg/g	0.10	0.3	0.3	<0.10	0.58	0.47	**2.4**	0.68
Chromium	160	µg/g	1.0	33	31	14	18	18	20	22
Chromium IV	8	µg/g	0.2	<0.2	<0.2	-	-	-	-	-
Cobalt	22	µg/g	0.10	11	4.5	6.4	8	8.1	8.1	7.5
Copper	140	µg/g	0.50	27	28	11	26	28	33	26
Lead	120	µg/g	1.0	26	38	11	40	51	120	59
Mercury	0.27	µg/g	0.050	<0.050	<0.050	<0.050	0.07	0.053	0.18	<0.050
Molybdenum	6.9	µg/g	0.50	1	0.75	<0.50	0.75	0.72	0.68	0.72
Nickel	100	µg/g	0.50	19	9.6	12	17	18	22	16
Selenium	2.4	µg/g	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Silver	20	µg/g	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Thallium	1	µg/g	0.050	0.096	0.078	0.096	0.12	0.11	0.12	0.11
Vanadium	86	µg/g	5.0	33	34	22	23	23	20	25
Zinc	340	µg/g	5.0	100	94	43	150	110	270	130
pH (pH Units)	NV	pH		7.59	7.39	-	-	-	-	-
Conductivity (ms/cm)	0.7	mS/cm	0.002	0.31	0.5	-	-	-	-	-
Sodium Adsorption Ratio	5	N/A		1.1	2	-	-	-	-	-

Table 3: Metals and Inorganics in Soil

Results of Chemical Testing Compared to the Table 3 Standards for Residential/Parkland/Institutional Property Use

Sample ID				**Area 2 GS5**	**Area 2 GS6**	**Area 3 C18**	**Area 3 A3**	**Area 3 A9**	**Area 3 A15**	**Area 3 B1**
Depth (At Time of Sampling)				0.0 to 0.6 m	0.0 to 0.3	0.4 m	0.0 to 0.3 m	0.0 to 0.4 m	0.0 to 0.4 m	0.0 to 0.3 m
Sample Date (Year/Month/Day)				2014-06-11	2014-06-11	2014-03-26	2014-03-26	2014-03-26	2014-03-26	2014-03-26
Description				Fill	Fill	Fill	Topsoil	Topsoil	Fill	Topsoil
Contaminant	**Table 3 RPI SCS**	**Units**	**RDL**	**WH8832**	**WH8833**	**VI4553**	**VI4551**	**VI4552**	**VI4553**	**VI4554**
Cyanide, Free	0.051	µg/g	0.01	0.01	0.02	-	-	-	-	-
Boron (Total)	120	µg/g	5.0	12	10	<5.0	<5.0	5	8.2	5.1
Uranium	23	µg/g	0.050	0.47	0.36	-	-	-	-	-

Notes:

RDL = Reported Detection Limit; "()" = Standard in parenthesis applies to medium and fine textured soils; "-" = not analyzed; NL = Not Listed; NV = No Value; NA = Not Applicable; SCS = Site Condition Standards

Green fill Sample IDs represent soil exceeding SCSs and removed during remediation; red fill sample results show remaining SCS exceedances.

Table 3: Metals and Inorganics in Soil

Results of Chemical Testing Compared to the Table 3 Standards for Residential/Parkland/Institutional Property Use

Sample ID				**Area 3 F1**	**Area 3 H19**	**Area 3 D20**	**Area 3 J3**	**Area 3 J10**	**Area 3 J16**	**Area 3 G6-1**
Depth (At Time of Sampling)				0.0 to 0.4 m	0.2 to 0.5 m	0.2 to 0.4 m	0.1 to 0.4 m	0.2 to 0.4 m	0.2 to 0.5 m	1.1 m
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
Description				Fill	Fill	Fill	Fill	Fill	Fill	Silt Till
Contaminant	**Table 3 RPI SCS**	**Units**	**RDL**	**VI4555**	**VI4556**	**VI4557**	**VI4558**	**VI4559**	**VI4560**	**XD3769**
Antimony	7.5	µg/g	0.20	0.61	0.29	0.35	<0.20	0.45	0.27	0.2
Arsenic	18	µg/g	1.0	6.2	5.8	9.4	4.7	6.9	5.9	5.4
Barium	390	µg/g	0.50	76	40	56	86	58	72	94
Beryllium	4	µg/g	0.20	0.58	0.23	0.41	0.46	0.42	0.61	0.76
Boron (Hot Water Soluble)	1.5	µg/g	0.050	0.69	0.19	0.91	0.65	0.41	0.25	0.081
Cadmium	1.2	µg/g	0.10	0.59	0.81	0.36	0.23	**2.1**	0.21	0.16
Chromium	160	µg/g	1.0	23	10	23	12	14	17	22
Cobalt	22	µg/g	0.10	9.5	4.7	7.6	7	6.9	10	11
Copper	140	µg/g	0.50	34	23	18	33	30	20	29
Lead	120	µg/g	1.0	41	84	47	11	77	25	12
Mercury	0.27	µg/g	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	-
Molybdenum	6.9	µg/g	0.50	0.86	1.2	1	<0.50	0.86	0.58	<0.50
Nickel	100	µg/g	0.50	20	9.9	13	15	14	21	26
Selenium	2.4	µg/g	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Silver	20	µg/g	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Thallium	1	µg/g	0.050	0.12	0.1	0.095	0.097	0.12	0.099	0.13
Vanadium	86	µg/g	5.0	25	12	23	19	20	24	30
Zinc	340	µg/g	5.0	130	290	97	47	200	84	60
Boron (Total)	120	µg/g	5.0	6.5	7.6	5.9	<5.0	8	<5.0	8.7
Uranium	23	µg/g	0.050	-	-	-	-	-	-	0.7

Notes:
RDL = Reported Detection Limit; "()" = Standard in parenthesis applies to medium and fine textured soils; "-" = not analyzed; NL = Not Listed; NV = No Value; NA = Not Applicable; SCS = Site Condition Standards
Green fill Sample IDs represent soil exceeding SCSs and removed during remediation; red fill sample results show remaining SCS exceedances.

Table 3: Metals and Inorganics in Soil

Results of Chemical Testing Compared to the Table 3 Standards for Residential/Parkland/Institutional Property Use

Sample ID				**Area 3 E9-1**	**Area 3 C8-1**	**Area 3 D3-1**	**Area 3 B1-1**	**Area 3 J10-1**	**Area 3 J3-1**	**Area 3 A15-1**	**GS4-11**
Depth (At Time of Sampling)				1.3 m	1.5 m	0.9 m	0.0 to 0.3 m	0.2 to 0.4 m	0.1 to 0.4 m	0.0 to 0.4 m	0.0 m
Sample Date (Year/Month/Day)				2014-08-14	2014-08-14	2014-08-14	2014-08-15	2014-08-15	2014-08-14	2014-08-15	2014-06-11
Description				Silt Till	Silt Till	Silt Till	Topsoil	Fill	Fill	Fill	Fill
Contaminant	**Table 3 RPI SCS**	**Units**	**RDL**	**XD3770**	**XD3771**	**XD3772**	**XD9708**	**XD9709**	**XD9710**	**XD9711**	**WH8834**
Antimony	7.5	µg/g	0.20	0.25	0.22	0.34	0.59	0.28	0.5	0.93	<0.20
Arsenic	18	µg/g	1.0	8.8	6.7	6.5	5.6	7.9	5	7.6	4
Barium	390	µg/g	0.50	140	110	92	61	57	30	95	45
Beryllium	4	µg/g	0.20	1.1	0.91	0.59	0.43	0.31	<0.20	0.46	0.32
Boron (Hot Water Soluble)	1.5	µg/g	0.050	0.1	0.23	0.76	1.3	0.26	0.92	1.2	1
Cadmium	1.2	µg/g	0.10	0.13	0.12	0.35	0.63	0.37	0.71	0.94	0.32
Chromium IV	8	µg/g	0.2	-	-	-	-	-	-	-	11
Chromium	160	µg/g	1.0	16	13	9.3	6.9	5.8	3.8	7.2	<0.2
Cobalt	22	µg/g	0.10	50	37	27	26	29	25	27	4.9
Copper	140	µg/g	0.50	16	14	41	63	51	58	86	15
Lead	120	µg/g	1.0	-	-	-	-	-	-	-	14
Mercury	0.27	µg/g	0.050	0.55	0.55	0.69	0.89	0.81	1.5	0.64	<0.050
Molybdenum	6.9	µg/g	0.50	35	31	17	16	12	8.3	18	0.56
Nickel	100	µg/g	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	9.7
Selenium	2.4	µg/g	0.50	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.50
Silver	20	µg/g	0.20	0.15	0.13	0.14	0.13	0.1	0.089	0.12	<0.20
Thallium	1	µg/g	0.050	40	37	31	27	17	17	22	0.061
Vanadium	86	µg/g	5.0	78	71	110	130	120	120	160	20
Zinc	340	µg/g	5.0	16	13	5.5	8.4	9.1	12	8.2	64
pH (pH Units)	NV	pH		-	-	-	-	-	-	-	7.4
Conductivity (ms/cm)	0.7	mS/cm	0.002	-	-	-	-	-	-	-	**1.1**
Sodium Adsorption Ratio	5	N/A		-	-	-	-	-	-	-	2.4

Table 3: Metals and Inorganics in Soil

Results of Chemical Testing Compared to the Table 3 Standards for Residential/Parkland/Institutional Property Use

Sample ID				**Area 3 E9-1**	**Area 3 C8-1**	**Area 3 D3-1**	**Area 3 B1-1**	**Area 3 J10-1**	**Area 3 J3-1**	**Area 3 A15-1**	**GS4-11**
Depth (At Time of Sampling)				1.3 m	1.5 m	0.9 m	0.0 to 0.3 m	0.2 to 0.4 m	0.1 to 0.4 m	0.0 to 0.4 m	0.0 m
Sample Date (Year/Month/Day)				2014-08-14	2014-08-14	2014-08-14	2014-08-15	2014-08-15	2014-08-14	2014-08-15	2014-06-11
Description				Silt Till	Silt Till	Silt Till	Topsoil	Fill	Fill	Fill	Fill
Contaminant	**Table 3 RPI SCS**	**Units**	**RDL**	**XD3770**	**XD3771**	**XD3772**	**XD9708**	**XD9709**	**XD9710**	**XD9711**	**WH8834**
Cyanide, Free	0.051	µg/g	0.01	-	-	-	-	-	-	-	0.05
Boron (Total)	120	µg/g	5.0	8.4	8.4	0.51	0.44	0.44	0.44	0.46	7.3
Uranium	23	µg/g	0.050	0.79	0.73	-	-	-	-	-	0.46

Notes:
RDL = Reported Detection Limit; "()" = Standard in parenthesis applies to medium and fine textured soils; "-" = not analyzed; NL = Not Listed; NV = No Value; NA = Not Applicable; SCS = Site Condition Standards
Green fill Sample IDs represent soil exceeding SCSs and removed during remediation; red fill sample results show remaining SCS exceedances.

Table 4: Electrical Conductivity in Soil

Results of Chemical Testing Compared to the Table 3 Standards for Residential/Parkland/Institutional Property Use

Sample ID				GS1	GS2	GS3	Duplicate 1	GS4	GS5	GS4-1	GS4-2
Depth (At Time of Sampling)				0.0 m	0.0 m	0.0 m	0.0 m	0.0 m	0.0 m	0.0 m	0.0 m
Sample Date (Year/Month/Day)				2014-03-07	2014-03-07	2014-03-07	2014-03-07	2014-03-07	2014-03-07	2014-06-03	2014-06-03
Description				Silt Till	Silt Till	Silt Till	Silt Till	Topsoil Fill	Silt Till	Silt Fill	Silt Fill
Contaminant	**Table 3 RPI SCS**	**Units**	**RDL**	**VD5044**	**VD5045**	**VD5046**	**VD5049**	**VD5047**	**VD5048**	**WE3456**	**WE3457**
Electrical Conductivity	0.7	mS/cm	0.002	0.43	0.58	0.62	0.60	**1.5**	0.49	**1.6**	**2.1**

Sample ID				GS4-3	GS4-4	GS4-5	GS4-6	GS4-7	GS4-8	GS4-9	GS4-10
Depth (At Time of Sampling)				0.0 m	0.0 m	0.0 m	0.0 m	0.0 m	0.0 m	0.0 m	0.0 m
Sample Date (Year/Month/Day)				2014-06-03	2014-06-03	2014-06-03	2014-06-03	2014-06-03	2014-06-03	2014-06-03	2014-06-03
Description				Silt Fill	Silt Fill	Topsoil Fill	Topsoil Fill	Topsoil Fill	Silt Fill	Silt Fill	Silt Fill
Contaminant	**Table 3 RPI SCS**	**Units**	**RDL**	**WE3458**	**WE3459**	**WE3460**	**WE3461**	**WE3462**	**WE3463**	**WE3464**	**WE3465**
Electrical Conductivity	0.7	mS/cm	0.002	**1.9**	**2.1**	0.4	0.42	**0.71**	**0.93**	**1**	**1.9**

Notes:
RDL = Reported Detection Limit; "()" = Standard in parenthesis applies to medium and fine textured soils; "-" = not analyzed; NL = Not Listed; NV = No Value; NA = Not Applicable; SCS = Site Condition Standards
Green fill Sample IDs represent soil exceeding SCSs and removed during remediation; red fill sample results show remaining SCS exceedances.

Table 4: Electrical Conductivity in Soil

Results of Chemical Testing Compared to the Table 3 Standards for Residential/Parkland/Institutional Property Use

Sample ID				Topsoil Area A1	Topsoil Area B0	Topsoil Area D1	Topsoil Area E2.5	Topsoil Area B2	Topsoil Area C1
Depth (At Time of Sampling)				0.0 to 0.1 m	0.0 to 0.2 m	0.0 to 0.3 m	0.0 m	0.3 m	0.2 m
Sample Date (Year/Month/Day)				2014-08-14	2014-08-14	2014-08-14	2014-08-14	2014-08-14	2014-08-14
Description				Silt Fill	Silt Fill	Silt Fill	Topsoil Fill	Silt Fill	Silt Fill
Contaminant	**Table 3 RPI SCS**	**Units**	**RDL**	**XD3775**	**XD3776**	**XD3777**	**XD3778**	**XD3775**	**XD3776**
Electrical Conductivity	0.7	mS/cm	0.002	**0.85**	**0.85**	**0.82**	**2.7**	**0.85**	**0.85**

Sample ID				Topsoil Area A1-1	Topsoil Area B0-1	Topsoil Area D1-1	Topsoil Area B2-1	Topsoil Area C1-1	Topsoil Area E2.5-1
Depth (At Time of Sampling)				0.0 to 0.3 m	0.0 to 0.2 m	0.0 to 0.3 m	0.8 m	0.7 m	0.9 m
Sample Date (Year/Month/Day)				2014-08-21	2014-08-21	2014-08-21	2014-08-21	2014-08-21	2014-08-21
Description				Silt Fill	Silt Fill	Silt Fill	Silt	Silt	Silt
Contaminant	**Table 3 RPI SCS**	**Units**	**RDL**	**XG2010**	**XG2011**	**XG2012**	**XG2013**	**XG2014**	**XG2015**
Electrical Conductivity	0.7	mS/cm	0.002	0.65	0.88	0.89	0.90	0.74	0.69

Notes:
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Green fill Sample IDs represent soil exceeding SCSs and removed during remediation; red fill sample results show remaining SCS exceedances.

Table 5: Petroleum Hydrocarbons in Soil

Results of Chemical Testing Compared to the Table 2 Standards for Residential/Parkland/Institutional Property Use

Sample ID				**Area 1 GS1**	**Area 1 GS2**	**Area 1 GS4**	**Area 1 GS5**	**Area 1 GS6**	**Area 1 GS9**	**Area 1 GS10**	**Area 1 DUP**	**Area 1 GS11**
Depth (At Time of Sampling)				0.0 to 0.8 m	0.0 to 0.8 m	0.0 to 0.6 m	0.0 to 0.6 m	0.0 to 0.6 m	0.8 m	0.6 m	0.6 m	0.6 m
Sample Date (Year/Month/Day)				2014-03-24	2014-03-24	2014-03-24	2014-03-24	2014-03-24	2014-03-24	2014-03-24	2014-03-24	2014-03-24
Description				Fill	Fill	Fill	Topsoil	Topsoil	Silt Till	Silt Till	Silt Till	Silt Till
Contaminant	**Table 3 RPI SCS**	**Units**	**RDL**	**VH6909**	**VH6910**	**VH6911**	**VH6912**	**VH6913**	**VH6914**	**VH6915**	**VH6917**	**VH6916**
Benzene	0.21	µg/g	0.020	<0.020	<0.020	<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	<0.020	<0.020	<0.020
Ethylbenzene	2	µg/g	0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Total Xylenes	3.1	µg/g	0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040
F1 (C6-C10)	55	µg/g	10	<10	<10	<10	<10	<10	<10	<10	<10	<10
F1 (C6-C10) - BTEX	55	µg/g	10	<10	<10	<10	<10	<10	<10	<10	<10	<10
F2 (C10-C16)	98	µg/g	10	<10	<10	<10	<10	<10	<10	<10	<10	<10
F3 (C16-C34)	300	µg/g	50	81	69	<50	<50	<50	<50	<50	<50	<50
F4 (C34-C50)	2800	µg/g	50	280	53	<50	<50	<50	<50	<50	<50	<50
F4 Gravimetric	2800	µg/g	100	980	-	-	-	-	-	-	-	-

Notes:
RDL = Reported Detection Limit; "()" = Standard in parenthesis applies to medium and fine textured soils; "-" = not analyzed; NL = Not Listed; NV = No Value; NA = Not Applicable; SCS = Site Condition Standards
Green fill Sample IDs represent soil exceeding SCSs and removed during remediation; red fill sample results show remaining SCS exceedances.

Table 5: Petroleum Hydrocarbons in Soil

Results of Chemical Testing Compared to the Table 2 Standards for Residential/Parkland/Institutional Property Use

Sample ID				**Area 2 GS5**	**Area 2 GS6**	**Area 2 H1**	**Area 2 E3**	**Area 2 J4**	**Area 2 I6**		**Area 3 E9**	**Area 3 G6**	**Area 3 I4**
Depth (At Time of Sampling)				0.4 m	0.4 m	1.0 m	0.6 m	0.6 m	0.6 m		0.8 m	0.6 m	0.5 m
Sample Date (Year/Month/Day)				2014-06-11	2014-06-11	2014-08-14	2014-08-14	2014-08-14	2014-08-14		2014-03-25	2014-03-25	2014-03-25
Description				Silt	Silt	Silt Till	Silt Till	Silt Till	Silt Till		Topsoil	Silt Till	Silt Till
Contaminant	**Table 3 RPI SCS**	**Units**	**RDL**	**VI4545**	**VI4561**	**VI4546**	**VI4547**	**VI4548**	**VI4549**	**RDL**	**VI0768**	**VI0769**	**VI0770**
Benzene	0.21	µg/g	0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.020	0.040	<0.040	<0.040	<0.040
Toluene	2.3	µg/g	0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.020	0.040	<0.040	<0.040	<0.040
Ethylbenzene	2	µg/g	0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.020	0.040	<0.040	<0.040	<0.040
Total Xylenes	3.1	µg/g	0.040	<0.040	<0.040	<0.080	<0.040	<0.040	<0.040	0.080	<0.080	<0.080	<0.080
F1 (C6-C10)	55	µg/g	10	<10	<10	<20	<10	<10	<10	20	<20	<20	<20
F1 (C6-C10) - BTEX	55	µg/g	10	<10	<10	<20	<10	<10	<10	20	<20	<20	<20
F2 (C10-C16)	98	µg/g	10	81	**200**	<10	<10	<10	<10	10	<10	<10	<10
F3 (C16-C34)	300	µg/g	50	280	**420**	<50	<50	<50	<50	50	<50	<50	<50
F4 (C34-C50)	2800	µg/g	50	<50	<50	<50	<50	<50	<50	50	<50	<50	<50
F4 Gravimetric	2800	µg/g	100		-	-	-	-	-	-		-	-

Notes:
RDL = Reported Detection Limit; "()" = Standard in parenthesis applies to medium and fine textured soils; "-" = not analyzed; NL = Not Listed; NV = No Value; NA = Not Applicable; SCS = Site Condition Standards
Green fill Sample IDs represent soil exceeding SCSs and removed during remediation; red fill sample results show remaining SCS exceedances.

Table 5: Petroleum Hydrocarbons in Soil

Results of Chemical Testing Compared to the Table 2 Standards for Residential/Parkland/Institutional Property Use

Sample ID				**Area 3 D3**	**Area 3 Duplicate**	**Area 3 C8**	**Area 3 I8**	**Area 3 I14**	**Area 3 F15**	**Area 3 C18**	**Area 3 A3**	**Area 3 A9**	**Area 3 A15**
Depth (At Time of Sampling)				0.4 m	0.4 m	1.0 m	0.6 m	0.6 m	0.6 m	0.4 m	0.0 to 0.3 m	0.0 to 0.4 m	0.0 to 0.4 m
Sample Date (Year/Month/Day)				2014-03-26	2014-03-26	2014-03-26	2014-03-26	2014-03-26	2014-03-26	2014-03-26	2014-03-26	2014-03-26	2014-03-26
Description				Silt	Silt	Silt Till	Silt Till	Silt Till	Silt Till	Fill	Topsoil	Topsoil	Fill
Contaminant	**Table 3 RPI SCS**	**Units**	**RDL**	**VI4545**	**VI4561**	**VI4546**	**VI4547**	**VI4548**	**VI4549**	**VI4553**	**VI4551**	**VI4552**	**VI4553**
Benzene	0.21	µg/g	0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.020	<0.020	<0.040	<0.060	<0.040
Toluene	2.3	µg/g	0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.020	<0.020	<0.040	<0.060	<0.040
Ethylbenzene	2	µg/g	0.020	<0.020	<0.020	<0.040	<0.020	<0.020	<0.020	<0.020	<0.040	<0.060	<0.040
Total Xylenes	3.1	µg/g	0.040	<0.040	<0.040	<0.080	<0.040	<0.040	<0.040	<0.040	<0.080	<0.12	<0.080
F1 (C6-C10)	55	µg/g	10	<10	<10	<20	<10	<10	<10	<10	<20	<30	<20
F1 (C6-C10) - BTEX	55	µg/g	10	<10	<10	<20	<10	<10	<10	<10	<20	<30	<20
F2 (C10-C16)	98	µg/g	10	81	**200**	<10	<10	<10	<10	<10	<10	<10	<10
F3 (C16-C34)	300	µg/g	50	280	**420**	**730**	<50	<50	<50	<50	<50	260	180
F4 (C34-C50)	2800	µg/g	50	<50	<50	470	<50	<50	<50	<50	<50	420	950
F4 Gravimetric	2800	µg/g	100		-	-	-	-	-	-	-	2200	**7800**

Notes:
RDL = Reported Detection Limit; "()" = Standard in parenthesis applies to medium and fine textured soils; "-" = not analyzed; NL = Not Listed; NV = No Value; NA = Not Applicable; SCS = Site Condition Standards
Green fill Sample IDs represent soil exceeding SCSs and removed during remediation; red fill sample results show remaining SCS exceedances.

Table 5: Petroleum Hydrocarbons in Soil

Results of Chemical Testing Compared to the Table 2 Standards for Residential/Parkland/Institutional Property Use

Sample ID				Area 3 B1	Area 3 F1	Area 3 H19	Area 3 D20	Area 3 J3	Area 3 J10	Area 3 J16	Area 3 G6-1	Area 3 E9-1	Area 3 C8-1
Depth (At Time of Sampling)				0.0 to 0.3 m	0.0 to 0.4 m	0.2 to 0.5 m	0.2 to 0.4 m	0.1 to 0.4 m	0.2 to 0.4 m	0.2 to 0.5 m	1.1 m	1.3 m	1.5 m
Sample Date (Year/Month/Day)				2014-03-26	2014-03-26	2014-03-26	2014-03-26	2014-03-26	2014-03-26	2014-03-26	2014-08-14	2014-08-14	2014-08-14
Description				Topsoil	Fill	Fill	Fill	Fill	Fill	Fill	Silt Till	Topsoil	Silt Till
Contaminant	**Table 3 RPI SCS**	**Units**	**RDL**	**VI4554**	**VI4555**	**VI4556**	**VI4557**	**VI4558**	**VI4559**	**VI4560**	**XD3769**	**XD3770**	**XD3771**
Benzene	0.21	µg/g	0.020	<0.040	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Toluene	2.3	µg/g	0.020	<0.040	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Ethylbenzene	2	µg/g	0.020	<0.040	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Total Xylenes	3.1	µg/g	0.040	<0.080	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040
F1 (C6-C10)	55	µg/g	10	<20	<10	<10	<10	<10	<10	<10	<10	<10	<10
F1 (C6-C10) - BTEX	55	µg/g	10	<20	<10	<10	<10	<10	<10	<10	<10	<10	<10
F2 (C10-C16)	98	µg/g	10	<10	<10	<10	<10	41	<10	<10	<10	<10	<10
F3 (C16-C34)	300	µg/g	50	**360**	150	190	150	**2300**	100	110	<50	<50	<50
F4 (C34-C50)	2800	µg/g	50	690	130	210	180	590	100	<50	<50	<50	<50
F4 Gravimetric	2800	µg/g	100	2400	670	960	920	-	320	-	-	-	-

Notes:
RDL = Reported Detection Limit; "()" = Standard in parenthesis applies to medium and fine textured soils; "-" = not analyzed; NL = Not Listed; NV = No Value; NA = Not Applicable; SCS = Site Condition Standards
Green fill Sample IDs represent soil exceeding SCSs and removed during remediation; red fill sample results show remaining SCS exceedances.

Table 5: Petroleum Hydrocarbons in Soil

Results of Chemical Testing Compared to the Table 2 Standards for Residential/Parkland/Institutional Property Use

Sample ID				**Area 3 D3-1**	**Area 3 B1-1**	**Area 3 J10-1**	**Area 3 J3-1**	**Area 3 A15-1**	**Area 3 J3-2**
Depth (At Time of Sampling)				0.9 m	0.0 to 0.3 m	0.2 to 0.4 m	0.1 to 0.4 m	0.0 to 0.4 m	0.1 to 0.4 m
Sample Date (Year/Month/Day)				2014-08-14	2014-08-15	2014-08-15	2014-08-15	2014-08-15	2014-08-21
Description				Silt	Topsoil	Fill	Fill	Fill	Fill
Contaminant	**Table 3 RPI SCS**	**Units**	**RDL**	**XD3772**	**XD9708**	**XD9709**	**XD9710**	**XD9711**	**XG2017**
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	2	µg/g	0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Total Xylenes	3.1	µg/g	0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040
F1 (C6-C10)	55	µg/g	10	<10	<10	<10	<10	<10	<10
F1 (C6-C10) - BTEX	55	µg/g	10	<10	<10	<10	<10	<10	<10
F2 (C10-C16)	98	µg/g	10	<10	<10	<10	<10	<10	<10
F3 (C16-C34)	300	µg/g	50	280	160	130	**360**	51	**390**
F4 (C34-C50)	2800	µg/g	50	94	330	330	400	55	540
F4 Gravimetric	2800	µg/g	100	400	1600	1700	**5800**	310	2200

Notes:
RDL = Reported Detection Limit; "()" = Standard in parenthesis applies to medium and fine textured soils; "-" = not analyzed; NL = Not Listed; NV = No Value; NA = Not Applicable; SCS = Site Condition Standards
Green fill Sample IDs represent soil exceeding SCSs and removed during remediation; red fill sample results show remaining SCS exceedances.

Table 5: Petroleum Hydrocarbons in Soil

Results of Chemical Testing Compared to the Table 2 Standards for Residential/Parkland/Institutional Property Use

Sample ID				GS4-11	Topsoil Area A1	Topsoil Area B0	Topsoil Area D1	Topsoil Area E2.5	Topsoil Area B2	Topsoil Area C1	Topsoil Area E2.5-1
Depth (At Time of Sampling)				0.0 m	0.0 to 0.1 m	0.0 to 0.2 m	0.0 to 0.3 m	0.0 m	0.3 m	0.2 m	0.9 m
Sample Date (Year/Month/Day)				2014-06-11	2014-08-14	2014-08-14	2014-08-14	2014-08-14	2014-08-14	2014-08-14	2014-08-21
Description				Fill	Fill	Fill	Fill	Topsoil Fill	Fill	Fill	Fill
Contaminant	**Table 3 RPI SCS**	**Units**	**RDL**	**WH8834**	**XD3773**	**XD3774**	**XD3775**	**XD3776**	**XD3777**	**XD3778**	**XG2015**
Benzene	0.21	µg/g	0.020	<0.020	<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	<0.020	<0.020
Ethylbenzene	2	µg/g	0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Total Xylenes	3.1	µg/g	0.040	<0.040	0.077	<0.040	<0.040	<0.040	<0.040	<0.040	<0.020
F1 (C6-C10)	55	µg/g	10	<10	<10	<10	<10	<10	<10	<10	<0.040
F1 (C6-C10) - BTEX	55	µg/g	10	<10	<10	<10	<10	<10	<10	<10	<10
F2 (C10-C16)	98	µg/g	10	<20	<10	<10	<10	<10	18	<10	<10
F3 (C16-C34)	300	µg/g	50	**520**	<50	140	100	**320**	51	250	<10
F4 (C34-C50)	2800	µg/g	50	1500	<50	<50	91	150	<50	130	<50
F4 Gravimetric	2800	µg/g	100	**5600**	-	-	470	600	-	470	-

Notes:
RDL = Reported Detection Limit; "()" = Standard in parenthesis applies to medium and fine textured soils; "-" = not analyzed; NL = Not Listed; NV = No Value; NA = Not Applicable; SCS = Site Condition Standards
Green fill Sample IDs represent soil exceeding SCSs and removed during remediation; red fill sample results show remaining SCS exceedances.

Table 6: Polychlorinated Biphenyls (PCBs) in Soil

Results of Chemical Testing Compared to the Table 3 Standards for Residential/Parkland/Institutional Property Use

Sample ID				**Area 2 GS5**	**Area 2 GS6**	**GS4-11**
Depth (At Time of Sampling)				0.0 to 0.6 m	0.0 to 0.3	0.0 m
Sample Date (Year/Month/Day)				2014-06-11	2014-06-11	2014-06-11
Description				Fill	Fill	Fill
Contaminant	**Table 3 RPI SCS**	**Units**	**RDL**	**WH8832**	**WH8833**	**WH8834**
PCBs (Total)	0.35	µg/g	0.010	<0.010	<0.010	<0.010

Notes:
RDL = Reported Detection Limit; "()" = Standard in parenthesis applies to medium and fine textured soils; "-" = not analyzed; NL = Not Listed; NV = No Value; NA = Not Applicable; SCS = Site Condition Standards
Green fill Sample IDs represent soil exceeding SCSs and removed during remediation; red fill sample results show remaining SCS exceedances.

FUTURE RESIDENTIAL DEVELOPMENT LAND

FUTURE CITY OF BURLINGTON PARK LAND

APPROXIMATE LOCATION OF TOPSOIL STOCKPILE

STOCKPILE GS1

STOCKPILE GS2

STOCKPILE GS3

GS1

GS2

TP 11

TP 11-A

TP 101 EL. 99.5

TP 102 EL. 99.5

TP 9

TP 106 EL. 99.5

TP 104 EL. 99.5

BH 111 EL. 99.5

SA-6

TP 107 EL. 99.5

TP 103 EL. 99.5

TP 105 EL. 99.5

TP 108 EL. 99.5

SA-5

TP 10

TP 10-A

BH/MW 102 EL. 99.4

TP 8

TP 12

TP 109 EL. 99.3

TP 13

TP 113 EL. 99.3

TP 111 EL. 99.3

TP 14-B

TP 14

TP 14-A

TP 110 EL. 99.3

BH/MW 103 EL. 99.3

TP 114 EL. 99.3

TP 115 EL. 99.3

TP 116 EL. 99.3

TP 112 EL. 99.3

APPROXIMATE EXTENT OF VISIBLE SURFICIAL GRANULAR

TP 6

TP 7

TP 5

BH 105 EL. 99.1

BH 104 EL. 99.0

TP 121 EL. 99.0

TP 122 EL. 99.0

TP 128 EL. 99.0

TP 4

TP 130 EL. 99.1

BH 113 SA-4

TP 3-N1

TP 3-W1

TP 3-E1

TP 3-W2

TP 3

BH 110 EL. 99.1

SA-1

TP 133 EL. 99.1

TP 117 EL. 98.6

TP 125 EL. 98.7

TP 123 EL. 99.0

TP 1

TP 2-N1

TP 2-W2

BH 107 EL. 98.8

TP 3-N2

TP 118 EL. 98.6

BH 112 EL. 98.9

TP 2-W1

TP 2

SA-2

BH/MW 101 EL. 98.7

SA-3

TP 2-E1

TP 127 EL. 98.7

TP 129 EL. 98.7

TP 132 EL. 99.1

TP 2-W3

BH 108 EL. 98.7

TP 2-S1

TP 126 EL. 98.7

TP 3-S1

TP 119 EL. 98.6

TP 124 EL. 98.7

TP 120 EL. 98.6

CLEAN UP AREA 1
ESTIMATED AREA = 225 m²
ESTIMATED VOLUME = 145 m³
ESTIMATED MASS = 290 tonnes

CLEAN UP AREA 2
ESTIMATED AREA = 525 m²
ESTIMATED VOLUME = 625 m³
ESTIMATED MASS = 1,250 tonnes

CLEAN UP AREA 3
ESTIMATED AREA = 1,400m²
ESTIMATED VOLUME = 1,200 m³
ESTIMATED MASS = 2,400 tonnes

SOIL SAMPLE:

TP9 GS1 0.0 – 0.4m TOPSOIL FILL: GRASS AND ROOT MAT OVER BROWN SILTY TOPSOIL WITH TRACE PIECES OF RED BRICK, ASPHALT/SLAG, ROOTLETS	UNITS	MEASURED VALUE	TABLE 3 (RPI) STANDARDS
PHC FRACTION F3	ug/g	350	300

SOIL SAMPLE:

SA-6 0.0–0.3m	UNITS	MEASURED VALUE	TABLE 3 (RPI) STANDARDS
PHC FRACTION F3	ug/g	500	300
PHC FRACTION F4 (GRAVIMETRIC)	ug/g	7,500	--

SOIL SAMPLE:

TP10 GS1 & TP11 GS1 STOCKPILE COMPOSITE TOPSOIL, BROWN CLAYEY SILT, TRACE BLACK TOPSOIL, BROWN/ GREY SILTY CLAY, TRACE ROOTS AND GRAVEL, BROWN SILTY SAND	UNITS	MEASURED VALUE	TABLE 3 (RPI) STANDARDS
ELECTRICAL CONDUCTIVITY	mS/cm	0.865	0.7

SOIL SAMPLE:

TP111 GS2 0.2 – 0.7m FILL: BLACK SAND AND GRAVEL FILL, TRACE COBBLE, NUMEROUS WOOD PIECES	UNITS	MEASURED VALUE	TABLE 3 (RPI) STANDARDS
BORON (HWS)	ug/g	1.68	1.5

SOIL SAMPLE:

TP109 GS2 0.2 – 0.7m FILL: BLACK SAND AND GRAVEL FILL, NUMEROUS PIECES OF ASPHALT AND CONCRETE	UNITS	MEASURED VALUE	TABLE 3 (RPI) STANDARDS
BORON (HWS)	ug/g	6.86	1.5

SOIL SAMPLE:

TP14-B GS1 0.0 – 0.5m FILL: BROWN/BLACK SAND AND GRAVEL FILL	UNITS	MEASURED VALUE	TABLE 3 (RPI) STANDARDS
BORON (HWS)	ug/g	2.17	1.5

SOIL SAMPLE:

TP14 GS1 0.0 – 0.6m FILL: BROWN SAND AND GRAVEL FILL, TRACE PIECES OF WOOD, TRACE RED BRICK AND METAL WIRE	UNITS	MEASURED VALUE	TABLE 3 (RPI) STANDARDS
BORON (HWS)	ug/g	5.65	1.5

SOIL SAMPLE:

TP14-A GS1 0.0 – 0.45m FILL: BROWN/BLACK SAND AND GRAVEL FILL, TRACE PIECES OF WOOD, COBBLE	UNITS	MEASURED VALUE	TABLE 3 (RPI) STANDARDS
BORON (HWS)	ug/g	9.58	1.5

SOIL SAMPLE:

TP103 GS1 0.0 – 0.4m FILL: BROWN SILTY SAND TOPSOIL, NUMEROUS ROOTLETS, SURFICIAL METAL FRAGMENTS	UNITS	MEASURED VALUE	TABLE 3 (RPI) STANDARDS
PHC FRACTION F3	ug/g	500	300

SOIL SAMPLE:

TP123 GS3 0.3 – 0.8m FILL: GREY SILTY CLAY FILL, TRACE GRAVEL	UNITS	MEASURED VALUE	TABLE 3 (RPI) STANDARDS
PHC FRACTION F3	ug/g	510	300

SOIL SAMPLE:

TP2 GS1 0.0 – 0.5m FILL: BROWN CRUSHED GRAVEL AND SAND FILL WITH WOD/BROWN CLAYEY SILT, TRACE PIECES OF ASPHALT, ORGANICS	UNITS	MEASURED VALUE	TABLE 3 (RPI) STANDARDS
PHC FRACTION F2	ug/g	220	98
PHC FRACTION F3	ug/g	24,000	300
PHC FRACTION F4	ug/g	7,600	2,800

SOIL SAMPLE:

SA-4 0.0 – 0.3m	UNITS	MEASURED VALUE	TABLE 3 (RPI) STANDARDS
BORON (HWS)	ug/g	1.8	1.5

SOIL SAMPLE:

TP3 GS2 0.6–1.0m FILL: BLACK GRAVEL WITH CLAYEY SILT	UNITS	MEASURED VALUE	TABLE 3 (RPI) STANDARDS
PHC FRACTION F1	ug/g	68	55
PHC FRACTION F2	ug/g	370	98
PHC FRACTION F3	ug/g	3,300	300

SOIL SAMPLE:

TP2-W2 GS1 0.0 – 0.4m FILL: BROWN CRUSHED GRAVEL AND SAND FILL WITH BROWN/BLACK CLAYEY SILT, TRACE PIECES OF ASPHALT	UNITS	MEASURED VALUE	TABLE 3 (RPI) STANDARDS
PHC FRACTION F2	ug/g	1,300	98

SOIL SAMPLE:

BH 110 AS1 0.0 – 0.3m FILL: BROWN SAND AND GRAVEL FILL	UNITS	MEASURED VALUE	TABLE 3 (RPI) STANDARDS
PHC FRACTION F3	ug/g	500	300

SOIL SAMPLE:

BH 112 AS1 0.0 – 0.3m FILL: BROWN SAND AND GRAVEL FILL	UNITS	MEASURED VALUE	TABLE 3 (RPI) STANDARDS
CADMIUM	ug/g	1.6	1.2
PHC FRACTION F3	ug/g	2400	300

SOIL SAMPLE:

SA-3 0.0-0.3m	UNITS	MEASURED VALUE	TABLE 3 (RPI) STANDARDS
PHC FRACTION F3	ug/g	1,300	300
PHC FRACTION F4 (GRAVIMETRIC)	ug/g	9,700	--
CADMIUM	ug/g	1.4	1.2

SOIL SAMPLE:

TP2 -E1 GS1 0.0 – 0.2m FILL: BROWN CRUSHED GRAVEL AND SAND FILL	UNITS	MEASURED VALUE	TABLE 3 (RPI) STANDARDS
PHC FRACTION F2	ug/g	1,000	98

SOIL SAMPLE:

TP126 GS2 0.1 – 0.3m FILL: BROWN SILTY SAND FILL, TRACE GRAVEL	UNITS	MEASURED VALUE	TABLE 3 (RPI) STANDARDS
ZINC	ug/g	342	340
CADMIUM	ug/g	1.4	1.6

SOIL SAMPLE:

SA-2 0.0-0.3m	UNITS	MEASURED VALUE	TABLE 3 (RPI) STANDARDS
PHC FRACTION F3	ug/g	390	300
PHC FRACTION F4 (GRAVIMETRIC)	ug/g	5,400	--
BORON (HWS)	ug/g	1.8	1.5

SOIL SAMPLE:

TP129 GS2 0.2 – 0.4m FILL: LIGHT GREY SILTY SAND FILL, TRACE GRAVEL	UNITS	MEASURED VALUE	TABLE 3 (RPI) STANDARDS
CADMIUM	ug/g	1.4	1.2
ZINC	ug/g	360	340

SOIL SAMPLE:

BH 107 SS1A 0.0 – 0.3m FILL: BROWN SAND AND GRAVEL FILL	UNITS	MEASURED VALUE	TABLE 3 (RPI) STANDARDS
CADMIUM	ug/g	1.7	1.2

SOIL SAMPLE:

SA-1 0.0–0.3m	UNITS	MEASURED VALUE	TABLE 3 (RPI) STANDARDS
PHC FRACTION F3	ug/g	320	300
PHC FRACTION F4 (GRAVIMETRIC)	ug/g	5,000	--



KEY PLAN
BURLINGTON, ONTARIO

- SITE LIMITS
- APPROXIMATE LIMITS OF LAND TO BE SEVERED. EAST SIDE: CITY OF BURLINGTON PARK LAND, WEST SIDE: FUTURE RESIDENTIAL DEVELOPMENT LAND
- TP 112 EL. 99.3 — PML DELINEATION TEST PIT (TP) LOCATIONS
- GS2 — PML GRAB SAMPLE (GP) LOCATIONS
- BH 105 EL. 99.1 — PML BOREHOLE (BH) LOCATIONS
- BH/MW 102 EL. 99.4 — PML BOREHOLE/MONITORING WELL (BH/MW) LOCATIONS
- TP 11 — PML 2006 TP LOCATIONS
- TP 11-A — PML 2006 TP LOCATIONS
- SA-5 — PML 2012 SAMPLE LOCATIONS BY OTHERS
- TEMPORARY BENCHMARK (TBM)
- APPROXIMATE LIMITS OF SOIL EXCEEDING THE TABLE 3 RPI SITE CONDITION STANDARDS
- APPROXIMATE LIMITS OF HISTORICAL EXTENT OF SURFICIAL GRANULAR FILL

SAMPLE WHERE SOIL QUALITY WAS ABOVE O. REG. 153/04, AS AMENDED, TABLE 3 STANDARDS

SAMPLE MEDIUM
SAMPLE ID
SAMPLE DEPTH
SAMPLE DESCRIPTION
ANALYTE

SOIL SAMPLE:

BH/MW2 AS1 0.3 – 0.8m FILL: BROWN SAND FILL, TRACE ORGANICS	UNITS	MEASURED VALUE	TABLE 3 (RPI) STANDARDS
MERCURY	ug/g	1.94	0.27

TEMPORARY BENCHMARK:

TOP OF TOP NUT OF FIRE HYDRANT EAST SIDE OF SITE, APPROX. 4 m WEST OF CHAIN LINK FENCE, APPROX. 3 m NORTHEAST OF SANITARY MANHOLE.
ASSIGNED ELEVATION: 100.0 m

REFERENCE:

PLAN PRODUCED FROM A GIS INFORMATION FROM THE CITY OF BURLINGTON ONLINE INTERACTIVE MAPPING SERVICE AND HISTORICAL AERIAL PHOTOGRAPHS.

NOTE:

1) THE INFERRED STRATIGRAPHY REFERRED TO IN THE REPORT IS BASED ON THE DATA FROM THESE BOREHOLES SUPPLEMENTED BY GEOLOGICAL EVIDENCE. THE ACTUAL STRATIGRAPHY BETWEEN THE BOREHOLES MAY VARY.
2) EXCEEDANCES SHOWN IN RED REPRESENT SAMPLES ANALYZED IN 2013, EXCEEDANCES SHOWN IN PINK REPRESENT SAMPLES ANALYZED IN 2012 BY OTHERS AND EXCEEDANCES SHOWN IN GREEN REPRESENT SAMPLES ANALYZED IN 2006

5 0m 5 10 15
SCALE

HALTON DISTRICT SCHOOL BOARD

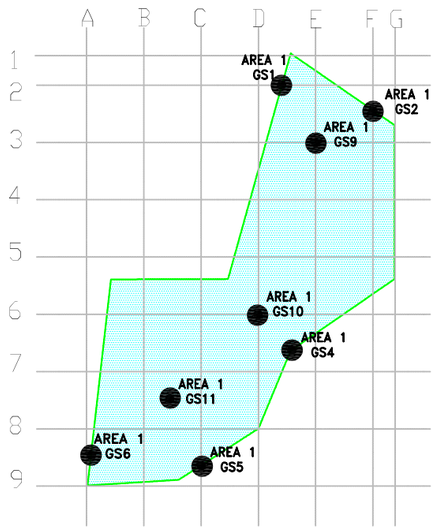
SITE REMEDIATION
HDSB SURPLUS LANDS ON STONEHAVEN DRIVE
STONEHAVEN DRIVE, BURLINGTON, ONTARIO

SITE PLAN

PML Peto MacCallum Ltd.
CONSULTING ENGINEERS

DRAWN	SM/DS	DATE	SCALE	PML REF.	DRAWING NO.
CHECKED	DS	SEPT. 2014	AS SHOWN	13HX002	11-1
APPROVED	MAK				

PLAN VIEW



NORTH



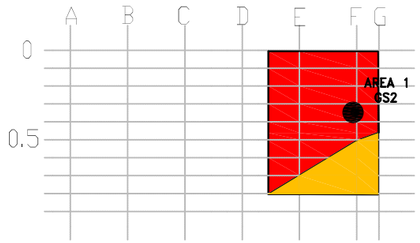
KEY PLAN
BURLINGTON, ONTARIO

LEGEND:

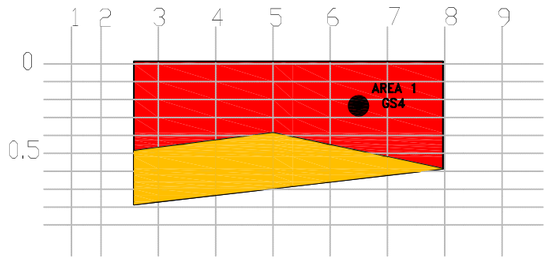
- LIMIT OF AREA 1 EXCAVATION
- PML CONFIRMATORY SAMPLE LOCATION SUBMITTED FOR CHEMICAL TESTING MEETING THE SITE CONDITION STANDARDS
- AREA 1 GS11 — PML CONFIRMATORY SAMPLE ID
- TOPSOIL
- SILT TILL
- FILL SOILS

PROFILE VIEWS

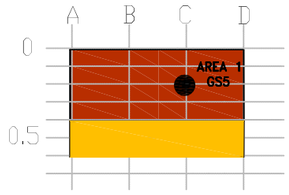
NORTH WALL (D TO E)



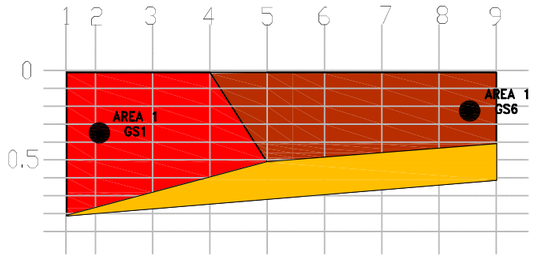
EAST WALL (2 TO 8)



SOUTH WALL (A TO D)



WEST WALL (1 TO 9)



REFERENCE:

PLAN PRODUCED FROM FIELD NOTES

NOTE:

REFER TO TABLES 2 TO 6 FOR RESULTS OF CHEMICAL TESTING OF CONFIRMATORY SAMPLES

5 0m 5 10 15
SCALE

HALTON DISTRICT SCHOOL BOARD

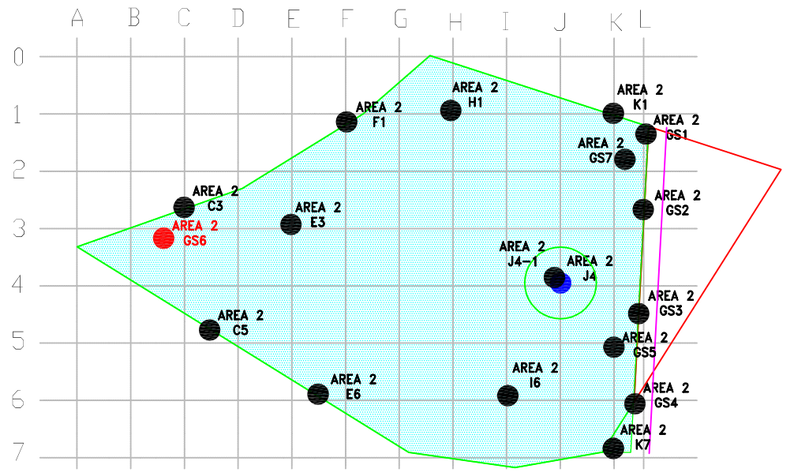
SITE REMEDIATION
HDSB SURPLUS LANDS ON STONEHAVEN DRIVE
STONEHAVEN DRIVE, BURLINGTON, ONTARIO

REMEDIATION AREA 1 SAMPLE LOCATION PLAN

PML Peto MacCallum Ltd.
CONSULTING ENGINEERS

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APPROVED	MAK				

PLAN VIEW



NORTH



KEY PLAN
BURLINGTON, ONTARIO

LEGEND:

- LIMITS OF AREA 2 EXCAVATIONS
- PROPOSED LIMITS OF AREA 2 EXCAVATION
- APPROXIMATE LOCATION OF UNDERGROUND BELL LINE
- PML CONFIRMATORY SAMPLE LOCATION SUBMITTED FOR CHEMICAL TESTING MEETING THE SITE CONDITION STANDARDS
- PML CONFIRMATORY SAMPLE LOCATION SUBMITTED FOR CHEMICAL TESTING NOT MEETING THE SITE CONDITION STANDARDS AND REMOVED DURING SITE CLEAN-UP
- PML CONFIRMATORY SAMPLE LOCATION SUBMITTED FOR CHEMICAL TESTING NOT MEETING THE SITE CONDITION STANDARDS
- AREA 2 K7 — PML CONFIRMATORY SAMPLE ID
- TOPSOIL FILL
- SILT TILL
- FILL SOILS
- ASPHALT MATERIAL

REFERENCE:

PLAN PRODUCED FROM FIELD NOTES

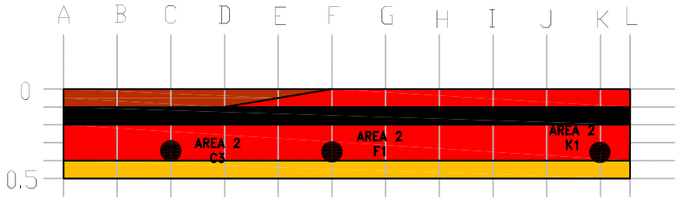
NOTE:

REFER TO TABLES 2 TO 6 FOR RESULTS OF CHEMICAL TESTING OF CONFIRMATORY SAMPLES

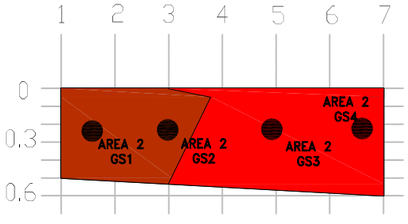
5 0m 5 10 15
SCALE

PROFILE VIEWS

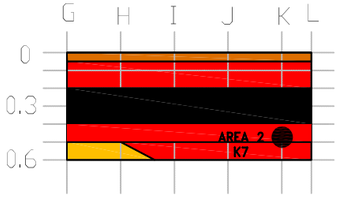
NORTH WALL (A3 TO L0)



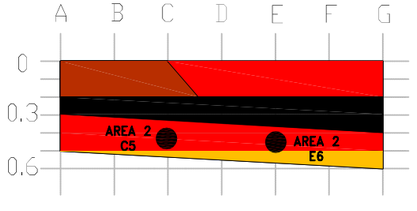
EAST WALL (L1 TO L7)



SOUTH WALL (G7 TO L7)



WEST WALL (A3 TO G7)



HALTON DISTRICT SCHOOL BOARD

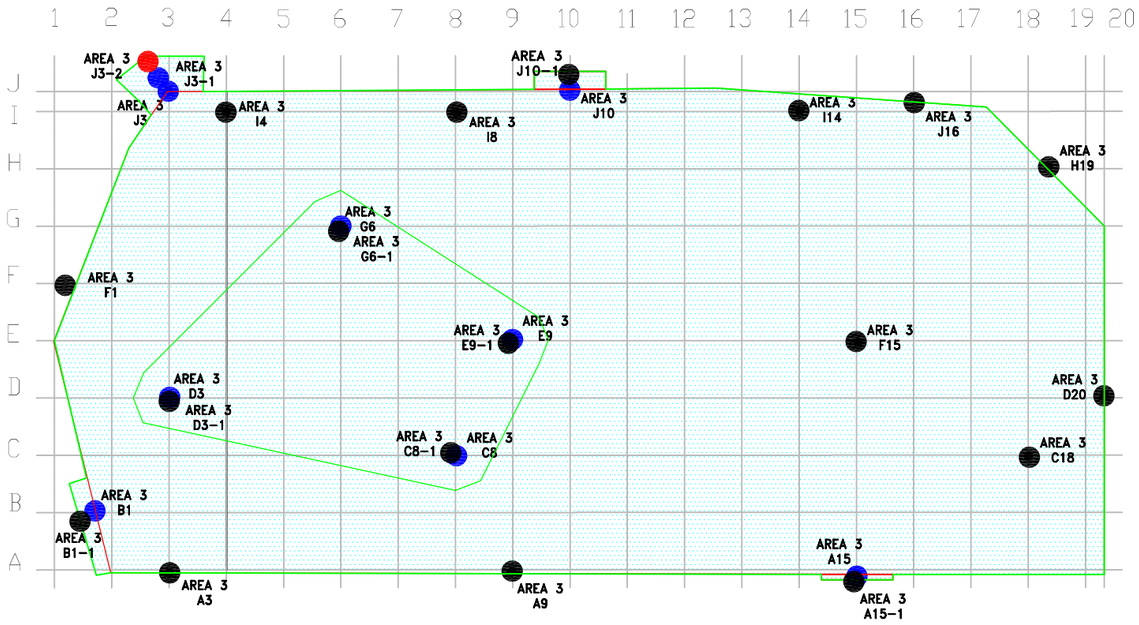
SITE REMEDIATION
HDSB SURPLUS LANDS ON STONEHAVEN DRIVE
STONEHAVEN DRIVE, BURLINGTON, ONTARIO

REMEDIATION AREA 2 SAMPLE LOCATION PLAN

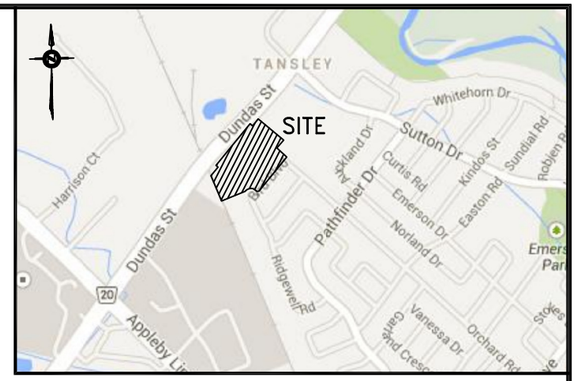
PML Peto MacCallum Ltd.
CONSULTING ENGINEERS

		DATE	SCALE	PML REF.	DRAWING NO.
DRAWN	SM	SEPT. 2014	AS SHOWN	13HX002	11-3
CHECKED	MAK				
APPROVED	MAK				

PLAN VIEW



NORTH



KEY PLAN
BURLINGTON, ONTARIO

LEGEND:

- LIMITS OF AREA 3 EXCAVATIONS
- PROPOSED LIMITS OF AREA 3 EXCAVATION
- PML CONFIRMATORY SAMPLE LOCATION SUBMITTED FOR CHEMICAL TESTING MEETING THE SITE CONDITION STANDARDS
- PML CONFIRMATORY SAMPLE LOCATION SUBMITTED FOR CHEMICAL TESTING NOT MEETING THE SITE CONDITION STANDARDS AND REMOVED DURING SITE CLEAN-UP
- PML CONFIRMATORY SAMPLE LOCATION SUBMITTED FOR CHEMICAL TESTING NOT MEETING THE SITE CONDITION STANDARDS
- AREA 3 J10 — PML CONFIRMATORY SAMPLE ID
- TOPSOIL FILL
- SILT TILL
- FILL SOILS

REFERENCE:

PLAN PRODUCED FROM FIELD NOTES

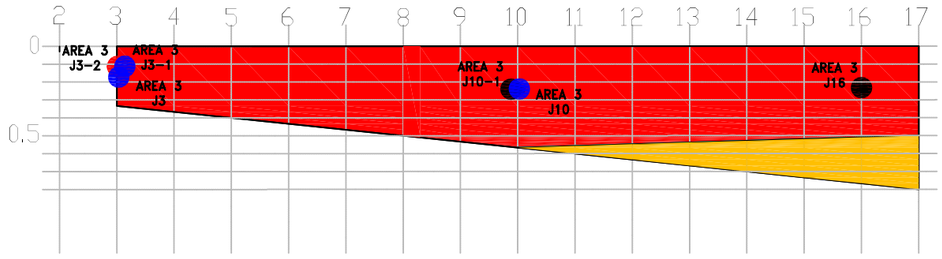
NOTE:

REFER TO TABLES 2 TO 6 FOR RESULTS OF CHEMICAL TESTING OF CONFIRMATORY SAMPLES

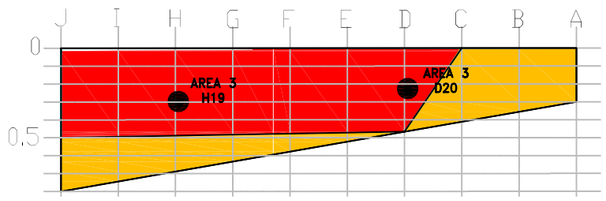
5 0m 5 10 15
SCALE

PROFILE VIEWS

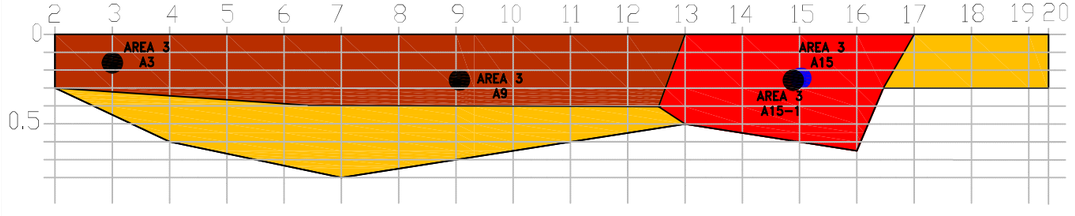
NORTH WALL (J3 TO J17)



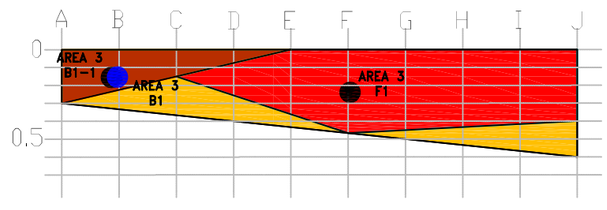
EAST WALL (A20 TO J17)



SOUTH WALL (A20 TO A2)

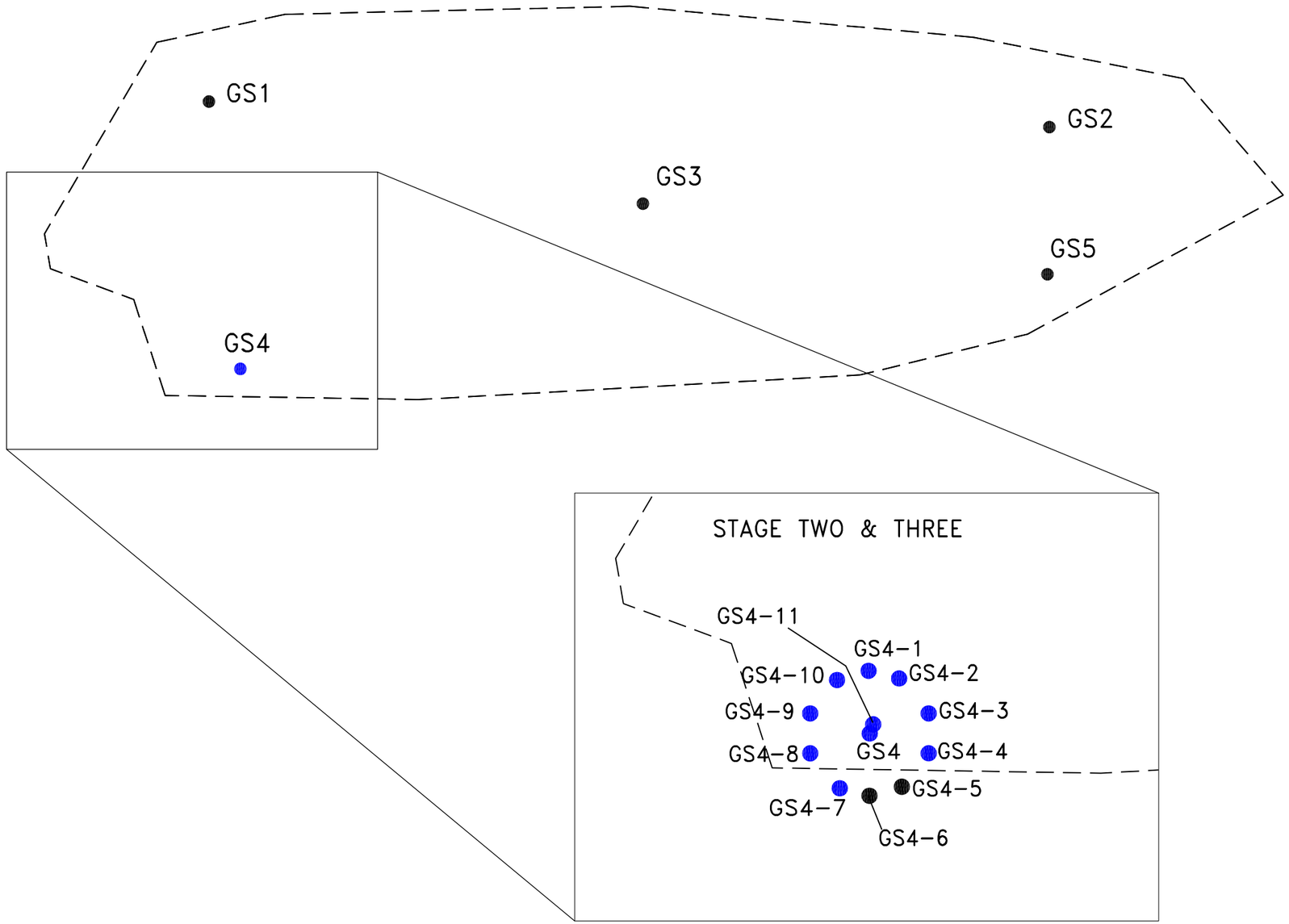


WEST WALL (A2 TO J2)



HALTON DISTRICT SCHOOL BOARD	
SITE REMEDIATION HDSB SURPLUS LANDS ON STONEHAVEN DRIVE STONEHAVEN DRIVE, BURLINGTON, ONTARIO	
REMEDIATION AREA 3 SAMPLE LOCATION PLAN	
Peto MacCallum Ltd. CONSULTING ENGINEERS	

DRAWN	SM	DATE	SCALE	PML REF.	DRAWING NO.
CHECKED	MAK	SEPT. 2014	AS SHOWN	13HX002	11-4
APPROVED	MAK				





KEY PLAN
BURLINGTON, ONTARIO

LEGEND:

..... LOCATION OF FORMER TOPSOIL STOCKPILE

● PML CONFIRMATORY SAMPLE LOCATION SUBMITTED FOR CHEMICAL TESTING MEETING THE SITE CONDITION STANDARDS

● PML CONFIRMATORY SAMPLE LOCATION SUBMITTED FOR CHEMICAL TESTING NOT MEETING THE SITE CONDITION STANDARDS AND SUBSEQUENTLY REMOVED DURING CLEAN-UP

GS1 PML CONFIRMATORY SAMPLE ID

REFERENCE:

PLAN PRODUCED FROM FIELD NOTES

NOTE:

REFER TO TABLES 2 TO 6 FOR RESULTS OF CHEMICAL TESTING OF CONFIRMATORY SAMPLES

2.5 0m 2.5 5 10
SCALE

HALTON DISTRICT SCHOOL BOARD

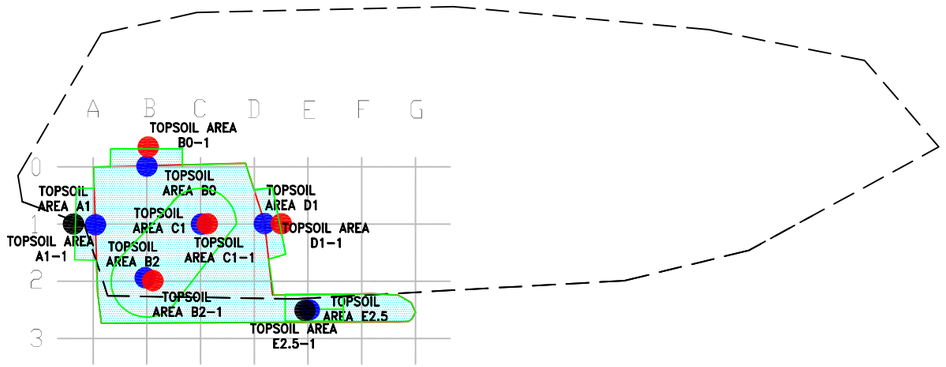
SITE REMEDIATION
HDSB SURPLUS LANDS ON STONEHAVEN DRIVE
STONEHAVEN DRIVE, BURLINGTON, ONTARIO

TOPSOIL STOCKPILE SAMPLE LOCATION PLAN

PML Peto MacCallum Ltd.
CONSULTING ENGINEERS

DRAWN	SM	DATE	SCALE	PML REF.	DRAWING NO.
CHECKED	MAK	SEPT. 2014	AS SHOWN	13HX002	11-5
APPROVED	MAK				

PLAN VIEW



NORTH



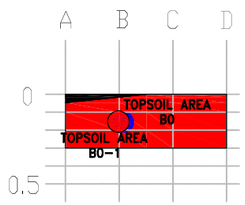
KEY PLAN
BURLINGTON, ONTARIO

LEGEND:

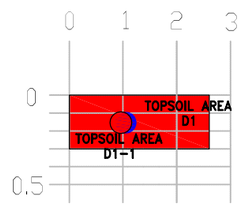
- LIMITS OF TOPSOIL AREA EXCAVATIONS
- PROPOSED LIMITS OF TOPSOIL AREA EXCAVATION
- LOCATION OF FORMER TOPSOIL STOCKPILE
- PML CONFIRMATORY SAMPLE LOCATION SUBMITTED FOR CHEMICAL TESTING MEETING THE SITE CONDITION STANDARDS
- PML CONFIRMATORY SAMPLE LOCATION SUBMITTED FOR CHEMICAL TESTING NOT MEETING THE SITE CONDITION STANDARDS AND REMOVED DURING SITE CLEAN-UP
- PML CONFIRMATORY SAMPLE LOCATION SUBMITTED FOR CHEMICAL TESTING NOT MEETING THE SITE CONDITION STANDARDS
- TOPSOIL AREA D1 — PML CONFIRMATORY SAMPLE ID
- TOPSOIL FILL
- FILL SOILS
- ASPHALT MATERIAL

PROFILE VIEWS

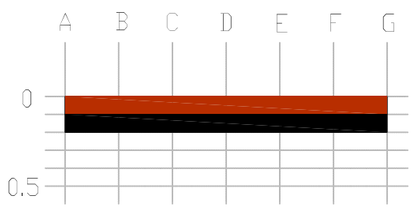
NORTH WALL (A0 TO D0)



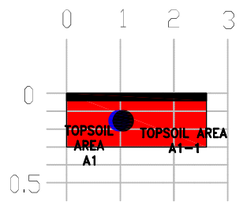
EAST WALL (D0 TO D2.5)



SOUTH WALL (A3 TO G3)



WEST WALL (A0 TO A2.5)



REFERENCE:

PLAN PRODUCED FROM FIELD NOTES

NOTE:

REFER TO TABLES 2 to 6 FOR RESULTS OF CHEMICAL TESTING OF CONFIRMATORY SAMPLES

5 0m 5 10 15
SCALE

HALTON DISTRICT SCHOOL BOARD

SITE REMEDIATION
HDSB SURPLUS LANDS ON STONEHAVEN DRIVE
STONEHAVEN DRIVE, BURLINGTON, ONTARIO

TOPSOIL STOCKPILE EXCAVATION SAMPLE LOCATION PLAN

PML Peto MacCallum Ltd.
CONSULTING ENGINEERS

		DATE	SCALE	PML REF.	DRAWING NO.
DRAWN	SM	SEPT. 2014	AS SHOWN	13HX002	11-6
CHECKED	MAK				
APPROVED	MAK				

Appendix A

Site Photographs



Photograph 1 – View looking northwest at the excavation for the Area 1 remediation.



Photograph 2 – View looking northwest at the excavation for the Topsoil Stockpile removal.



Photograph 3 – View of the excavation within the west portion of the Area 2 remediation. Note the topsoil over asphalt material underlain by silty clay fill and native silty clay.



Photograph 4 – View looking north at the final Area 2 remediation excavation.



Photograph 5 – View looking south at the Area 3 remediation excavation. Note the grey soil where petroleum hydrocarbon odours were encountered, and the soil subsequently removed.



Photograph 6 – View looking north within the west portion of the final Area 3 remediation excavation.



Photograph 7 – View of typical debris encountered on Site that remains on Site.



Photograph 8 – View of typical debris encountered on Site that remains on Site.

Appendix B

Agency Permits

CITY OF Burlington

Telephone: (905) 335-7600 Extension 7486
Fax: (905) 335-7861
E-mail: arif.shahzad@burlington.ca

SITE ALTERATION / TOP SOIL REMOVAL PERMIT

Permit No.: P-14.001 **Date Issued:** March 19, 2014 **File No.:**

Location: Stonehaven Drive, Burlington **Property Size** (hectares): 0.215 ha

Property Owner: Halton District School Board
2050 Guelph Line,
Burlington ON
Email: renzellad@HDSB.ca
Phone No.: 905-335-3665 x 3375
Fax No.:
Cell No.:

Type of Work: Excavation and off-site disposal of Soil to a licensed landfill site

Date of Work to Be Done Start:
End:
Construction Period: 2 weeks

City of Burlington to be notified of the date of commencement of construction.

Authorized Agent:
Email:
Phone No.:
Fax No.:
Cell No.:

Consulting Engineers: Peto MacCallum Ltd.
45 Burford Road
Hamilton, ON
Email: d.smith@petomaccallum.com
Phone No.: 905-561-2231
Fax No.: 905-561-6366
Cell No.:

Contractor: Salandria Ltd.
100 West Beaver Creek unit # 6
Richmond Hill
Email: Richard@salandria.com
Phone No.: 905-707-6568
Fax No.: 905-707-9095
Cell No.: 905-484-8231

Conservation Authority Permit: ☑ Not Required ☐ Required and received

Application Attachments Received:
- ☐ Owners Authorization if not applicant
- ☑ Control Plan
- ☐ Environmental Site Assessment Report

Required:
- ☐ Letter of Credit in the Amount of $
- ☐ Deposit $ Cheque / Cash
- ☐ Other

Conditions:

1. Applicant agrees to SITE ALTERATION / TOP SOIL REMOVAL PERMIT CONDITIONS on page 2.
2. Should the removed fill be placed/received on another property within the City of Burlington, please note that a site alteration permit application, proposed grading plan and soils chemical analysis MUST be approved prior to any works on the receiving property.
3. All works to be undertaken in an environmentally friendly manner.
4. ~~Weeping tile shall be installed such that the flow is maintained all the time.~~ LIM.
5. Property owner shall be responsible for maintaining drainage pattern.

Conditions continued on page 2.

The applicant agrees to all conditions shown herein and as shown on the reverse side of this permit.
Authorized by:

Arif Shahzad, Senior Environmental Engineer

SALANDRIA LTD.
R. Dowell.
Signature of Owner/Applicant

THIS PERMIT EXPIRES ONE (1) YEAR FROM DATE ISSUED

SITE ALTERATION / TOP SOIL REMOVAL PERMIT CONDITIONS

Purpose for Site Alteration / Topsoil Removal Permit:
Proposed site alteration shall not result in:

- erosion;
- blockage of a watercourse, ditches and swales, etc;
- siltation in a watercourse or storm sewer;
- contamination of a watercourse;
- flooding or ponding;
- an undue detrimental effect on the natural environment of the area, including but not restricted to Environmentally Sensitive Areas, Areas of Natural and Scientific Interest, wetlands, Lake Ontario shoreline, Burlington Bay shoreline;
- a detrimental effect on the quality or quantity of water in wells;
- hindering the orderly development of any lands;
- a detrimental effect on the amenities of adjacent lots; or
- a loss in agricultural lands in the Rural Planning Area of the City.

NOTE: SITE ALTERATION/TOPSOIL REMOVAL PERMIT DOES NOT ENDORSE OR APPROVE LAND USE, SITE PLAN OR SUBDIVISION DETAIL INDICTED ON THE CONTROL PLAN.

All Permit holders shall:

a. Be familiar with By-Law 6-2003. The By-Law may be obtained from the Clerks Department in City Hall or the web site: www.burlington.ca/Clerks/By-laws;
b. Install all control measures as identified in the approved Control Plan;
c. Notify the Engineering Department for an inspection of the site control measures. Approval of the site control measures is required from the Engineering Department prior to commencing any land disturbance;
d. Notify the Engineering Department within 48 hours of commencing any Land Disturbance;
e. Obtain permission in writing from the Director prior to modifying the Control Plan;
f. Maintain all road drainage systems, Stormwater drainage systems, control measures and other facilities identified in the Control Plan;
g. Repair any siltation or Erosion damage to adjoining surfaces and drainage ways resulting from land developing or disturbing activities;
h. Inspect the construction control measures at least once per week and after each rainfall of at least 1 centimetre and make needed repairs;
i. Allow employees of the City to enter the Site for the purpose of inspecting for compliance with the Control Plan or for performing any work necessary to bring the Site into compliance with the Control Plan
j. Implement the following for the control of mud, dust and construction traffic:
   - During wet conditions, tires of all vehicles/equipment leaving the site are to be scraped.
   - Any mud/material tracked onto the road shall be removed immediately by hand or rubber tire loader.
   - Undertake all means necessary to control and minimize the migration of dust onto neighbouring properties
k. Maintain a copy of the Control Plan on the Site.

The City:

a. Upon the failure by the Permit holder to complete all or part of the works in the time stipulated in the Control Plan, may draw the appropriate amount from the securities posted and use the funds to arrange for the completion of the said works, or any part thereof;
b. Upon the failure by the Permit holder to repair or maintain a specific part of the works as requested by the City, and in the time requested, the City may at any time authorize the use of all or part of the securities to pay the cost of any part of the works it may in its or their absolute discretion deem necessary; or
c. In the case of emergency repairs or clean-up, the City may undertake the necessary works at the expense of the Permit holder and reimburse itself out of securities posted by the applicant or to add the cost of the works to the real property tax roll to be collected in like manner as taxes.

General Conditions:
Where a Permit has been issued pursuant to this By-law, no person shall undertake the work which is the subject of the Permit except in accordance with the Permit Application, plans, documents, and other information submitted to the City upon which the Permit was issued and in accordance with the terms and conditions and design guidelines of the Permit.
Notwithstanding the issuance of a Permit pursuant to this By-law, an applicant and/or Owner shall comply with all other applicable legislation.

The Applicant certifies to the City that any and all Fill used in completing any Site Alteration contains no contaminants within the meaning of the *Environmental Protection Act*, R.S.O. 1990,c. E.19.

Any Fill to be used includes:

a. For industrial and commercial sites, only soil, stone, sod or other material acceptable to the Director of Engineering and that such material is clean and free of any glass, plastics, termites, rubber, metals, liquid, garbage and/or contaminants;
b. For all other sites, only soil and that such material is clean and free of any glass, plastics, rubber, metals, liquid, termites, garbage, concrete, asphalt and/or contaminants;

The City has the authority to require the random testing of any fill prior to its placement upon, or removal from, the Site. The testing shall be undertaken by a qualified consultant retained by the City. The Owner/Applicant will be responsible for all costs associated with the testing.

Weeping tile shall be installed such that the flow is maintained all the time.

Property owner shall be responsible for the maintenance and debris removal of the weeping tile to prevent blockage

The Applicant hereby forever releases and agrees to indemnify and save harmless the City, its employees, representatives, agents and contractors, from and against all claims, demands, damages, causes of action, costs, expenses and other liabilities of any nature, connected with the granting of this Permit and which may arise in the event that the Fill is determined to contain contaminants.

A Security cash deposit or Letter of Credit in the amount acceptable to the Director of Engineering is required with the permit application. The deposit shall be returned after the work has been completed and is acceptable to the City of Burlington.

NOTE: THE SECURITY DEPOSIT MUST BE MADE BY THE COMPANY/PERSON THAT IS PERFORMING THE CONSTRUCTION.

CONDITIONS (continued):

Add site-specific notes.

CITY OF Burlington

Telephone: (905) 335-7600 Extension 7486
Fax: (905) 335-7861
E-mail: arif.shahzad@burlington.ca

SITE ALTERATION / TOP SOIL REMOVAL PERMIT

Permit No.: P-14.001 Revised **Date Issued:** July 29, 2014 **File No.:**

Location: Stonehaven Drive, Burlington **Property Size** (hectares): 0.215 ha

Property Owner: Halton District School Board
2050 Guelph Line,
Burlington ON
Email: renzellad@HDSB.ca
Phone No.: 905-335-3665 x 3375
Fax No.:
Cell No.:

Type of Work: Excavation and off-site disposal of Soil to a licensed landfill site

Date of Work to Be Done Start: Around Aug 11, 2014
End: August 29, 2014
Construction Period: 1 weeks

City of Burlington to be notified of the date of commencement of construction.

Authorized Agent:

Email:
Phone No.:
Fax No.:
Cell No.:

Consulting Engineers: Peto MacCallum Ltd.
45 Burford Road
Hamilton, ON
Email: d.smith@petomaccallum.com
Phone No.: 905-561-2231
Fax No.: 905-561-6366
Cell No.:

Contractor: Ground Force Environmental Inc
75 Ardelt Place
Kitchener, ON
N2C 2C8
Email: dgray@gfei.ca
Phone No.: 226 336 6230
Fax No.: 519 664 0772
Cell No.: 519 580 5549

Conservation Authority Permit: ☐ Not Required ☐ Required and received

Application Attachments Received:
- ☐ Owners Authorization if not applicant
- ☑ Control Plan
- ☐ Environmental Site Assessment Report

Required:
- ☐ Letter of Credit in the Amount of $
- ☐ Deposit $ Cheque / Cash
- ☐ Other

Conditions:

1. Applicant agrees to SITE ALTERATION / TOP SOIL REMOVAL PERMIT CONDITIONS on page 2.
2. Should the removed fill be placed/received on another property within the City of Burlington, please note that a site alteration permit application, proposed grading plan and soils chemical analysis MUST be approved prior to any works on the receiving property.
3. All works to be undertaken in an environmentally friendly manner. Property owner shall be responsible for maintaining drainage pattern.

Conditions continued on page 2.

The applicant agrees to all conditions shown herein and as shown on the reverse side of this permit.
Authorized by:

Arif Shahzad, Senior Environmental Engineer

Signature of Owner/Applicant

THIS PERMIT EXPIRES ONE (1) YEAR FROM DATE ISSUED

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- siltation in a watercourse or storm sewer;
- contamination of a watercourse;
- flooding or ponding;
- an undue detrimental effect on the natural environment of the area, including but not restricted to Environmentally Sensitive Areas, Areas of Natural and Scientific Interest, wetlands, Lake Ontario shoreline, Burlington Bay shoreline;
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- hindering the orderly development of any lands;
- a detrimental effect on the amenities of adjacent lots; or
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d. Notify the Engineering Department within 48 hours of commencing any Land Disturbance;
e. Obtain permission in writing from the Director prior to modifying the Control Plan;
f. Maintain all road drainage systems, Stormwater drainage systems, control measures and other facilities identified in the Control Plan;
g. Repair any siltation or Erosion damage to adjoining surfaces and drainage ways resulting from land developing or disturbing activities;
h. Inspect the construction control measures at least once per week and after each rainfall of at least 1 centimetre and make needed repairs;
i. Allow employees of the City to enter the Site for the purpose of inspecting for compliance with the Control Plan or for performing any work necessary to bring the Site into compliance with the Control Plan
j. Implement the following for the control of mud, dust and construction traffic:
   - During wet conditions, tires of all vehicles/equipment leaving the site are to be scraped.
   - Any mud/material tracked onto the road shall be removed immediately by hand or rubber tire loader.
   - Undertake all means necessary to control and minimize the migration of dust onto neighbouring properties
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The City:

General Conditions:
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Notwithstanding the issuance of a Permit pursuant to this By-law, an applicant and/or Owner shall comply with all other applicable legislation.

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NOTE: THE SECURITY DEPOSIT MUST BE MADE BY THE COMPANY/PERSON THAT IS PERFORMING THE CONSTRUCTION.

CONDITIONS (continued):

Add site-specific notes.

a. Upon the failure by the Permit holder to complete all or part of the works in the time stipulated in the Control Plan, may draw the appropriate amount from the securities posted and use the funds to arrange for the completion of the said works, or any part thereof;
b. Upon the failure by the Permit holder to repair or maintain a specific part of the works as requested by the City, and in the time requested, the City may at any time authorize the use of all or part of the securities to pay the cost of any part of the works it may in its or their absolute discretion deem necessary; or
c. In the case of emergency repairs or clean-up, the City may undertake the necessary works at the expense of the Permit holder and reimburse itself out of securities posted by the applicant or to add the cost of the works to the real property tax roll to be collected in like manner as taxes.

Appendix C

Maxxam Analytics

Certificates of Analysis

O. Reg. 153/04, As Amended, Table 3 Standards (Soil)

Residential/Parkland/Institutional Property Use

Remediation Area 1

Your Project #: 13HX002 Clean-Up
Your C.O.C. #: 46179102, 461791-02-01

Attention: Sarah Murray
Peto MacCallum Ltd
45 Burford Rd
Hamilton, ON
L8E 3C6

Report Date: 2014/09/03
Report #: R3143505
Version: 5R

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B446944
Received: 2014/03/25, 14:00

Sample Matrix: Soil
Samples Received: 13

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Hot Water Extractable Boron	4	2014/03/26	2014/03/26	CAM SOP-00408	R153 Ana. Prot. 2011
Petroleum Hydro. CCME F1 & BTEX in Soil	9	2014/03/25	2014/03/26	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Soil	9	2014/03/26	2014/03/26	CAM SOP-00316	CCME CWS
F4G (CCME Hydrocarbons Gravimetric)	1	2014/03/28	2014/03/28	CAM SOP-00316	CCME PHC-CWS m
Moisture	9	N/A	2014/03/25	CAM SOP-00445	R.Carter,1993

Remarks:

Maxxam Analytics has performed all analytical testing herein in accordance with ISO 17025 and the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. All methodologies comply with this document and are validated for use in the laboratory. The methods and techniques employed in this analysis conform to the performance criteria (detection limits, accuracy and precision) as outlined in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act.

The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following the 'Alberta Environment Draft Addenda to the CWS-PHC, Appendix 6, Validation of Alternate Methods'. Documentation is available upon request. Maxxam has made the following improvements to the CWS-PHC reference benchmark method: (i) Headspace for F1; and, (ii) Mechanical extraction for F2-F4. Note: F4G cannot be added to the C6 to C50 hydrocarbons. The extraction date for samples field preserved with methanol for F1 and Volatile Organic Compounds is considered to be the date sampled.

Maxxam Analytics is accredited for all specific parameters as required by Ontario Regulation 153/04. Maxxam Analytics is limited in liability to the actual cost of analysis unless otherwise agreed in writing. There is no other warranty expressed or implied. Samples will be retained at Maxxam Analytics for three weeks from receipt of data or as per contract.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
* Results relate only to the items tested.

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

Maxxam Job #: B446944
Report Date: 2014/09/03

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Krystal Seedial, Project Manager
Email: KSeedial@maxxam.ca
Phone# (905) 817-5700

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 2

Maxxam Job #: B446944
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

RESULTS OF ANALYSES OF SOIL

Maxxam ID		VH6909	VH6910	VH6911	VH6912		
Sampling Date		2014/03/24 13:40	2014/03/24 13:45	2014/03/24 13:55	2014/03/24 14:00		
	Units	**AREA1 GS1**	**AREA1 GS2**	**AREA1 GS4**	**AREA1 GS5**	**RDL**	**QC Batch**
Inorganics							
Moisture	%	17	19	20	26	1.0	3552118

Maxxam ID		VH6913	VH6914	VH6915	VH6916	VH6917		
Sampling Date		2014/03/24 14:05	2014/03/24 14:20	2014/03/24 14:25	2014/03/24 14:30	2014/03/24 14:25		
	Units	**AREA1 GS6**	**AREA1 GS9**	**AREA1 GS10**	**AREA1 GS11**	**AREA1 DUP**	**RDL**	**QC Batch**
Inorganics								
Moisture	%	26	21	16	13	14	1.0	3552118

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID			VH6905	VH6906	VH6907	VH6908		
Sampling Date			2014/03/24 10:10	2014/03/24 10:15	2014/03/24 10:20	2014/03/24 10:25		
	Units	**Criteria A**	**AREA2 GS1**	**AREA2 GS2**	**AREA2 GS3**	**AREA2 GS4**	**RDL**	**QC Batch**
Metals								
Hot Water Ext. Boron (B)	ug/g	**1.5**	0.84	0.76	0.79	1.3	0.050	3552931

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria A: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Texture

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B446944
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID			VH6909	VH6910	VH6911	VH6912	VH6913		
Sampling Date			2014/03/24 13:40	2014/03/24 13:45	2014/03/24 13:55	2014/03/24 14:00	2014/03/24 14:05		
	Units	**Criteria A**	**AREA1 GS1**	**AREA1 GS2**	**AREA1 GS4**	**AREA1 GS5**	**AREA1 GS6**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons									
Benzene	ug/g	**0.21**	ND	ND	ND	ND	ND	0.020	3552117
Toluene	ug/g	**2.3**	ND	ND	ND	ND	ND	0.020	3552117
Ethylbenzene	ug/g	**2**	ND	ND	ND	ND	ND	0.020	3552117
o-Xylene	ug/g		ND	ND	ND	ND	ND	0.020	3552117
p+m-Xylene	ug/g		ND	ND	ND	ND	ND	0.040	3552117
Total Xylenes	ug/g	**3.1**	ND	ND	ND	ND	ND	0.040	3552117
F1 (C6-C10)	ug/g	**55**	ND	ND	ND	ND	ND	10	3552117
F1 (C6-C10) - BTEX	ug/g	**55**	ND	ND	ND	ND	ND	10	3552117
F2-F4 Hydrocarbons									
F4G-sg (Grav. Heavy Hydrocarbons)	ug/g	**2800**	980					100	3555190
F2 (C10-C16 Hydrocarbons)	ug/g	**98**	ND	ND	ND	ND	ND	10	3552365
F3 (C16-C34 Hydrocarbons)	ug/g	**300**	81	69	ND	ND	ND	50	3552365
F4 (C34-C50 Hydrocarbons)	ug/g	**2800**	280	53	ND	ND	ND	50	3552365
Reached Baseline at C50	ug/g		NO	YES	YES	YES	YES		3552365
Surrogate Recovery (%)									
1,4-Difluorobenzene	%		98	103	86	100	100		3552117
4-Bromofluorobenzene	%		97	105	90	83	101		3552117
D10-Ethylbenzene	%		89	104	97	92	110		3552117
D4-1,2-Dichloroethane	%		82	86	80	83	102		3552117
o-Terphenyl	%		96	98	95	94	92		3552365

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria A: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Texture

Maxxam Job #: B446944
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID			VH6914	VH6915	VH6916	VH6917		
Sampling Date			2014/03/24 14:20	2014/03/24 14:25	2014/03/24 14:30	2014/03/24 14:25		
	Units	**Criteria A**	**AREA1 GS9**	**AREA1 GS10**	**AREA1 GS11**	**AREA1 DUP**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons								
Benzene	ug/g	**0.21**	ND	ND	ND	ND	0.020	3552117
Toluene	ug/g	**2.3**	ND	ND	ND	ND	0.020	3552117
Ethylbenzene	ug/g	**2**	ND	ND	ND	ND	0.020	3552117
o-Xylene	ug/g		ND	ND	ND	ND	0.020	3552117
p+m-Xylene	ug/g		ND	ND	ND	ND	0.040	3552117
Total Xylenes	ug/g	**3.1**	ND	ND	ND	ND	0.040	3552117
F1 (C6-C10)	ug/g	**55**	ND	ND	ND	ND	10	3552117
F1 (C6-C10) - BTEX	ug/g	**55**	ND	ND	ND	ND	10	3552117
F2-F4 Hydrocarbons								
F2 (C10-C16 Hydrocarbons)	ug/g	**98**	ND	ND	ND	ND	10	3552365
F3 (C16-C34 Hydrocarbons)	ug/g	**300**	ND	ND	ND	ND	50	3552365
F4 (C34-C50 Hydrocarbons)	ug/g	**2800**	ND	ND	ND	ND	50	3552365
Reached Baseline at C50	ug/g		YES	YES	YES	YES		3552365
Surrogate Recovery (%)								
1,4-Difluorobenzene	%		97	83	100	96		3552117
4-Bromofluorobenzene	%		83	89	101	93		3552117
D10-Ethylbenzene	%		99	104	97	107		3552117
D4-1,2-Dichloroethane	%		97	88	95	69		3552117
o-Terphenyl	%		93	92	97	100		3552365

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria A: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Texture

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B446944
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

Test Summary

Maxxam ID VH6905 **Collected** 2014/03/24
Sample ID AREA2 GS1 **Shipped**
Matrix Soil **Received** 2014/03/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3552931	2014/03/26	2014/03/26	Jolly John

Maxxam ID VH6906 **Collected** 2014/03/24
Sample ID AREA2 GS2 **Shipped**
Matrix Soil **Received** 2014/03/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3552931	2014/03/26	2014/03/26	Jolly John

Maxxam ID VH6907 **Collected** 2014/03/24
Sample ID AREA2 GS3 **Shipped**
Matrix Soil **Received** 2014/03/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3552931	2014/03/26	2014/03/26	Jolly John

Maxxam ID VH6908 **Collected** 2014/03/24
Sample ID AREA2 GS4 **Shipped**
Matrix Soil **Received** 2014/03/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3552931	2014/03/26	2014/03/26	Jolly John

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Maxxam Job #: B446944
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

Test Summary

Maxxam ID VH6909 **Collected** 2014/03/24
Sample ID AREA1 GS1 **Shipped**
Matrix Soil **Received** 2014/03/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3552117	2014/03/25	2014/03/26	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3552365	2014/03/26	2014/03/26	Jolanta Kawzowicz
F4G (CCME Hydrocarbons Gravimetric)	BAL	3555190	2014/03/28	2014/03/28	Raheela Usmani
Moisture	BAL	3552118	N/A	2014/03/25	Valentina Kaftani

Maxxam ID VH6910 **Collected** 2014/03/24
Sample ID AREA1 GS2 **Shipped**
Matrix Soil **Received** 2014/03/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3552117	2014/03/25	2014/03/26	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3552365	2014/03/26	2014/03/26	Jolanta Kawzowicz
Moisture	BAL	3552118	N/A	2014/03/25	Valentina Kaftani

Maxxam ID VH6911 **Collected** 2014/03/24
Sample ID AREA1 GS4 **Shipped**
Matrix Soil **Received** 2014/03/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3552117	2014/03/25	2014/03/26	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3552365	2014/03/26	2014/03/26	Jolanta Kawzowicz
Moisture	BAL	3552118	N/A	2014/03/25	Valentina Kaftani

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Maxxam Job #: B446944
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

Test Summary

Maxxam ID VH6912 **Collected** 2014/03/24
Sample ID AREA1 GS5 **Shipped**
Matrix Soil **Received** 2014/03/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3552117	2014/03/25	2014/03/26	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3552365	2014/03/26	2014/03/26	Jolanta Kawzowicz
Moisture	BAL	3552118	N/A	2014/03/25	Valentina Kaftani

Maxxam ID VH6913 **Collected** 2014/03/24
Sample ID AREA1 GS6 **Shipped**
Matrix Soil **Received** 2014/03/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3552117	2014/03/25	2014/03/26	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3552365	2014/03/26	2014/03/26	Jolanta Kawzowicz
Moisture	BAL	3552118	N/A	2014/03/25	Valentina Kaftani

Maxxam ID VH6914 **Collected** 2014/03/24
Sample ID AREA1 GS9 **Shipped**
Matrix Soil **Received** 2014/03/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3552117	2014/03/25	2014/03/26	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3552365	2014/03/26	2014/03/26	Jolanta Kawzowicz
Moisture	BAL	3552118	N/A	2014/03/25	Valentina Kaftani

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Maxxam Job #: B446944
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

Test Summary

Maxxam ID VH6915 **Collected** 2014/03/24
Sample ID AREA1 GS10 **Shipped**
Matrix Soil **Received** 2014/03/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3552117	2014/03/25	2014/03/26	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3552365	2014/03/26	2014/03/26	Jolanta Kawzowicz
Moisture	BAL	3552118	N/A	2014/03/25	Valentina Kaftani

Maxxam ID VH6916 **Collected** 2014/03/24
Sample ID AREA1 GS11 **Shipped**
Matrix Soil **Received** 2014/03/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3552117	2014/03/25	2014/03/26	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3552365	2014/03/26	2014/03/26	Jolanta Kawzowicz
Moisture	BAL	3552118	N/A	2014/03/25	Valentina Kaftani

Maxxam ID VH6917 **Collected** 2014/03/24
Sample ID AREA1 DUP **Shipped**
Matrix Soil **Received** 2014/03/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3552117	2014/03/25	2014/03/26	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3552365	2014/03/26	2014/03/26	Jolanta Kawzowicz
Moisture	BAL	3552118	N/A	2014/03/25	Valentina Kaftani

Maxxam Job #: B446944
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

GENERAL COMMENTS

Revised report (2014/09/03): Criteria added to report as per client request.

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Maxxam Job #: B446944
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
3552117	1,4-Difluorobenzene	2014/03/25	93	60 - 140	88	60 - 140	102	%		
3552117	4-Bromofluorobenzene	2014/03/25	115	60 - 140	103	60 - 140	100	%		
3552117	D10-Ethylbenzene	2014/03/25	92	60 - 140	81	60 - 140	87	%		
3552117	D4-1,2-Dichloroethane	2014/03/25	92	60 - 140	82	60 - 140	84	%		
3552117	Benzene	2014/03/25	86	60 - 140	73	60 - 140	ND, RDL=0.020	ug/g	NC	50
3552117	Toluene	2014/03/25	88	60 - 140	79	60 - 140	ND, RDL=0.020	ug/g	NC	50
3552117	Ethylbenzene	2014/03/25	98	60 - 140	87	60 - 140	ND, RDL=0.020	ug/g	NC	50
3552117	o-Xylene	2014/03/25	101	60 - 140	86	60 - 140	ND, RDL=0.020	ug/g	NC	50
3552117	p+m-Xylene	2014/03/25	96	60 - 140	78	60 - 140	ND, RDL=0.040	ug/g	NC	50
3552117	F1 (C6-C10)	2014/03/25	120	60 - 140	86	80 - 120	ND, RDL=10	ug/g	NC	30
3552117	Total Xylenes	2014/03/25					ND, RDL=0.040	ug/g	NC	50
3552117	F1 (C6-C10) - BTEX	2014/03/25					ND, RDL=10	ug/g	NC	30
3552118	Moisture	2014/03/25							NC	20
3552365	o-Terphenyl	2014/03/26	96	60 - 130	96	60 - 130	97	%		
3552365	F2 (C10-C16 Hydrocarbons)	2014/03/27	104	50 - 130	100	80 - 120	ND, RDL=10	ug/g	NC	30
3552365	F3 (C16-C34 Hydrocarbons)	2014/03/27	102	50 - 130	99	80 - 120	ND, RDL=50	ug/g	NC	30
3552365	F4 (C34-C50 Hydrocarbons)	2014/03/27	103	50 - 130	101	80 - 120	ND, RDL=50	ug/g	NC	30
3552931	Hot Water Ext. Boron (B)	2014/03/26	99	75 - 125	103	75 - 125	ND, RDL=0.050	ug/g	10.6	40
3555190	F4G-sg (Grav. Heavy Hydrocarbons)	2014/03/28	103	65 - 135	102	65 - 135	ND, RDL=100	ug/g	26.0	50

N/A = Not Applicable
RDL = Reportable Detection Limit
RPD = Relative Percent Difference
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

Validation Signature Page

Maxxam Job #: B446944

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Cristina Carriere, Scientific Services

Jeevaraj Jeevaratrnam, Senior Analyst

Suzana Popovic, Supervisor, Hydrocarbons

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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Maxxam Analytics International Cor
6740 Campobello Road, Mississau

RUSH

266 Fax:(905) 817-5777 www.maxxam.ca

25-Mar-14 14:00
Krystal Seedial
B446944
FW ENV-904

INVOICE INFORMATION:			PROJECT INFORMATION:		Lab Use Only:
Company Name:	#3101 Peto MacCallum Ltd	ers from invoice):	Quotation #:	B41439	Bottle Order #:
Contact Name:	Sarah Murray		P.O. #:		461791
Address:	45 Burford Rd Hamilton ON L8E 3C6	Address:	Project #:	13HX002 Clean-Up	Chain of Custody #: / Project Manager:
Phone:	(905) 561-2231 x Fax: (905) 561-6366 x	Phone: Fax:	Project Name:		C#461791-02-01 / Krystal Seedial
Email:	smurray@petomaccallum.com	Email:	Site #:		
			Sampled By:		

Regulation 153 (2011)

- [x] Table1
- [ ] Table2
- [ ] Table3
- [ ] Table ___
- [ ] Res/Park
- [ ] Ind/Comm
- [ ] Agri/Other
- [ ] Medium/Fine
- [ ] Coarse
- [x] For RSC

Other Regulations

- [ ] CCME
- [ ] Reg 558
- [ ] MISA
- [ ] PWQO
- [ ] Other
- [ ] Sanitary Sewer Bylaw
- [ ] Storm Sewer Bylaw

Municipality _____

Special Instructions

Include Criteria on Certificate of Analysis (Y/N)? _____

Note: For MOE regulated drinking water samples - please use the Drinking Water Chain of Custody Form

SAMPLES MUST BE KEPT COOL (< 10ºC) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

Turnaround Time (TAT) Required: 2 Days

Please provide advance notice for rush projects

Regular (Standard) TAT:
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: March 27/14 Time Required: _____
Rush Confirmation Number: KS140324-1 *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Regulated Drinking Water ? (Y/N)	Metals Field Filtered ? (Y/N)	Petroleum Hydrocarbons F1 to F4	Electrical Conductivity	Hot Water Extractable Boron	Reg 153 ICPMS Metals only package	# of Bottles	Comments
1		Area 2 GS1	March 24, 2014	10:10	S					X		1	
2		Area 2 GS2	↓	10:15	S					X		1	
3		Area 2 GS3	↓	10:20	S					X		1	
4		Area 2 GS4	↓	10:25	S					X		1	
5													
6													
7													
8													
9													
10													

*RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# jars used and not submitted
DAVID SMITH	14/03/25	10:45	GP MAGDALENA COP	2014/03/25	14:00	

Laboratory Use Only				
Time Sensitive	Temperature (ºC) on Receipt	CustodySeal	Yes	No
	6 | 5 | 5°C	Present		✓
	2 | 6 | 2°C	Intact		
	5 | 5 | 4°C	White: Maxxam	Yellow: Client	

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

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6740 Campobello Road, Mississauga, Ontario Canada L5N 2L8 Tel:(905) 817-5700 Toll-Free:800-563-6266 Fax:(905) 817-5777 www.maxxam.ca

CHAIN OF CUSTODY RECORD

INVOICE INFORMATION:		REPORT INFORMATION(if differs from invoice):		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#3101 Peto MacCallum Ltd	Company Name:		Quotation #:	B41439	Maxxam Job #:	Bottle Order #:
Contact Name:	Sarah Murray	Contact Name:		P.O. #:			461791
Address:	45 Burford Rd Hamilton ON L8E 3C6	Address:		Project #:	13HX002 Clean-Up	Chain of Custody #:	Project Manager:
Phone:	(905) 561-2231 x Fax: (905) 561-6366 x	Phone:	Fax:	Project Name:		C#461791-03-01	Krystal Seedial
Email:	smurray@petomaccallum.com	Email:		Site #:			
				Sampled By:			

Regulation 153 (2011): ☑ Table1 ☐ Table2 ☐ Table3 ☐ Table ___ ☐ Res/Park ☐ Ind/Comm ☐ Agri/Other ☐ Medium/Fine ☐ Coarse ☑ For RSC

Other Regulations: ☐ CCME ☐ Reg 558. ☐ MISA ☐ PWQO ☐ Other ___ ☐ Sanitary Sewer Bylaw ☐ Storm Sewer Bylaw Municipality ___

Special Instructions:

Include Criteria on Certificate of Analysis (Y/N)? ___

Note: For MOE regulated drinking water samples - please use the Drinking Water Chain of Custody Form

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

Turnaround Time (TAT) Required: 2 Day

Please provide advance notice for rush projects

Regular (Standard) TAT: ☐
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission) ☑
Date Required: March 27/14 Time Required: ___
Rush Confirmation Number: K5140324-1 *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Regulated Drinking Water ? (Y/N)	Metals Field Filtered ? (Y/N)	Petroleum Hydrocarbons F1 to F4	Electrical Conductivity	Hot Water Extractable Boron	Reg 153 ICPMS Metals only package	# of Bottles	Comments
1		AREA1 GS1	MARCH 24,2014	13:40	S			X				4	
2		AREA1 GS2	"	13:45	"			X				"	
3		AREA1 GS4	"	13:55	"			X				"	
4		AREA1 GS5	"	14:00	"			X				"	
5		AREA1 GS6	"	14:05	"			X				"	
6		AREA1 GS9	"	14:20	"			X				"	
7		AREA1 GS10	"	14:25	"			X				"	
8		AREA1 GS11	"	14:30	"			X				"	
9		AREA1 DUP	"	14:25	"			X				"	
10													

*RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# jars used and not submitted	Laboratory Use Only: Time Sensitive	Temperature (°C) on Receipt	CustodySeal	Yes	No
DAVID SMITH	14/03/25	10:45	MAGDALENA CAP	2014/03/25	14:00			6.5 5.2°C 2.6 2.2°C 5.5 4°C	Present Intact		✓

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

White: Maxxam Yellow: Client

Maxxam Analytics International Corporation o/a Maxxam Analytics

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Remediation Area 2

Maxxam
A Bureau Veritas Group Company

Success Through Science®

Your Project #: 13HX002 Clean-Up
Your C.O.C. #: 46179102, 461791-02-01

Attention: Sarah Murray
Peto MacCallum Ltd
45 Burford Rd
Hamilton, ON
L8E 3C6

Report Date: 2014/09/03
Report #: R3143505
Version: 5R

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B446944
Received: 2014/03/25, 14:00

Sample Matrix: Soil
Samples Received: 13

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Hot Water Extractable Boron	4	2014/03/26	2014/03/26	CAM SOP-00408	R153 Ana. Prot. 2011
Petroleum Hydro. CCME F1 & BTEX in Soil	9	2014/03/25	2014/03/26	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Soil	9	2014/03/26	2014/03/26	CAM SOP-00316	CCME CWS
F4G (CCME Hydrocarbons Gravimetric)	1	2014/03/28	2014/03/28	CAM SOP-00316	CCME PHC-CWS m
Moisture	9	N/A	2014/03/25	CAM SOP-00445	R.Carter,1993

Remarks:

Maxxam Analytics has performed all analytical testing herein in accordance with ISO 17025 and the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. All methodologies comply with this document and are validated for use in the laboratory. The methods and techniques employed in this analysis conform to the performance criteria (detection limits, accuracy and precision) as outlined in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act.

The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following the 'Alberta Environment Draft Addenda to the CWS-PHC, Appendix 6, Validation of Alternate Methods'. Documentation is available upon request. Maxxam has made the following improvements to the CWS-PHC reference benchmark method: (i) Headspace for F1; and, (ii) Mechanical extraction for F2-F4. Note: F4G cannot be added to the C6 to C50 hydrocarbons. The extraction date for samples field preserved with methanol for F1 and Volatile Organic Compounds is considered to be the date sampled.

Maxxam Analytics is accredited for all specific parameters as required by Ontario Regulation 153/04. Maxxam Analytics is limited in liability to the actual cost of analysis unless otherwise agreed in writing. There is no other warranty expressed or implied. Samples will be retained at Maxxam Analytics for three weeks from receipt of data or as per contract.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
* Results relate only to the items tested.

Maxxam Job #: B446944
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

Encryption Key

Krystal Seedial
Krystal Seedial
03 Sep 2014 16:05:25 -04:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Krystal Seedial, Project Manager
Email: KSeedial@maxxam.ca
Phone# (905) 817-5700

==========

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Total cover pages: 2

Maxxam Job #: B446944
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

RESULTS OF ANALYSES OF SOIL

Maxxam ID		VH6909	VH6910	VH6911	VH6912		
Sampling Date		2014/03/24 13:40	2014/03/24 13:45	2014/03/24 13:55	2014/03/24 14:00		
	Units	**AREA1 GS1**	**AREA1 GS2**	**AREA1 GS4**	**AREA1 GS5**	**RDL**	**QC Batch**
Inorganics							
Moisture	%	17	19	20	26	1.0	3552118

Maxxam ID		VH6913	VH6914	VH6915	VH6916	VH6917		
Sampling Date		2014/03/24 14:05	2014/03/24 14:20	2014/03/24 14:25	2014/03/24 14:30	2014/03/24 14:25		
	Units	**AREA1 GS6**	**AREA1 GS9**	**AREA1 GS10**	**AREA1 GS11**	**AREA1 DUP**	**RDL**	**QC Batch**
Inorganics								
Moisture	%	26	21	16	13	14	1.0	3552118

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID			VH6905	VH6906	VH6907	VH6908		
Sampling Date			2014/03/24 10:10	2014/03/24 10:15	2014/03/24 10:20	2014/03/24 10:25		
	Units	**Criteria A**	**AREA2 GS1**	**AREA2 GS2**	**AREA2 GS3**	**AREA2 GS4**	**RDL**	**QC Batch**
Metals								
Hot Water Ext. Boron (B)	ug/g	**1.5**	0.84	0.76	0.79	1.3	0.050	3552931

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria A: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Texture

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B446944
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID			VH6909	VH6910	VH6911	VH6912	VH6913		
Sampling Date			2014/03/24 13:40	2014/03/24 13:45	2014/03/24 13:55	2014/03/24 14:00	2014/03/24 14:05		
	Units	Criteria A	AREA1 GS1	AREA1 GS2	AREA1 GS4	AREA1 GS5	AREA1 GS6	RDL	QC Batch
BTEX & F1 Hydrocarbons									
Benzene	ug/g	**0.21**	ND	ND	ND	ND	ND	0.020	3552117
Toluene	ug/g	**2.3**	ND	ND	ND	ND	ND	0.020	3552117
Ethylbenzene	ug/g	**2**	ND	ND	ND	ND	ND	0.020	3552117
o-Xylene	ug/g		ND	ND	ND	ND	ND	0.020	3552117
p+m-Xylene	ug/g		ND	ND	ND	ND	ND	0.040	3552117
Total Xylenes	ug/g	**3.1**	ND	ND	ND	ND	ND	0.040	3552117
F1 (C6-C10)	ug/g	**55**	ND	ND	ND	ND	ND	10	3552117
F1 (C6-C10) - BTEX	ug/g	**55**	ND	ND	ND	ND	ND	10	3552117
F2-F4 Hydrocarbons									
F4G-sg (Grav. Heavy Hydrocarbons)	ug/g	**2800**	980					100	3555190
F2 (C10-C16 Hydrocarbons)	ug/g	**98**	ND	ND	ND	ND	ND	10	3552365
F3 (C16-C34 Hydrocarbons)	ug/g	**300**	81	69	ND	ND	ND	50	3552365
F4 (C34-C50 Hydrocarbons)	ug/g	**2800**	280	53	ND	ND	ND	50	3552365
Reached Baseline at C50	ug/g		NO	YES	YES	YES	YES		3552365
Surrogate Recovery (%)									
1,4-Difluorobenzene	%		98	103	86	100	100		3552117
4-Bromofluorobenzene	%		97	105	90	83	101		3552117
D10-Ethylbenzene	%		89	104	97	92	110		3552117
D4-1,2-Dichloroethane	%		82	86	80	83	102		3552117
o-Terphenyl	%		96	98	95	94	92		3552365

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria A: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Texture

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Maxxam Job #: B446944
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID			VH6914	VH6915	VH6916	VH6917		
Sampling Date			2014/03/24 14:20	2014/03/24 14:25	2014/03/24 14:30	2014/03/24 14:25		
	Units	**Criteria A**	**AREA1 GS9**	**AREA1 GS10**	**AREA1 GS11**	**AREA1 DUP**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons								
Benzene	ug/g	**0.21**	ND	ND	ND	ND	0.020	3552117
Toluene	ug/g	**2.3**	ND	ND	ND	ND	0.020	3552117
Ethylbenzene	ug/g	**2**	ND	ND	ND	ND	0.020	3552117
o-Xylene	ug/g		ND	ND	ND	ND	0.020	3552117
p+m-Xylene	ug/g		ND	ND	ND	ND	0.040	3552117
Total Xylenes	ug/g	**3.1**	ND	ND	ND	ND	0.040	3552117
F1 (C6-C10)	ug/g	**55**	ND	ND	ND	ND	10	3552117
F1 (C6-C10) - BTEX	ug/g	**55**	ND	ND	ND	ND	10	3552117
F2-F4 Hydrocarbons								
F2 (C10-C16 Hydrocarbons)	ug/g	**98**	ND	ND	ND	ND	10	3552365
F3 (C16-C34 Hydrocarbons)	ug/g	**300**	ND	ND	ND	ND	50	3552365
F4 (C34-C50 Hydrocarbons)	ug/g	**2800**	ND	ND	ND	ND	50	3552365
Reached Baseline at C50	ug/g		YES	YES	YES	YES		3552365
Surrogate Recovery (%)								
1,4-Difluorobenzene	%		97	83	100	96		3552117
4-Bromofluorobenzene	%		83	89	101	93		3552117
D10-Ethylbenzene	%		99	104	97	107		3552117
D4-1,2-Dichloroethane	%		97	88	95	69		3552117
o-Terphenyl	%		93	92	97	100		3552365

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria A: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Texture

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Maxxam Job #: B446944
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

Test Summary

Maxxam ID VH6905 **Collected** 2014/03/24
Sample ID AREA2 GS1 **Shipped**
Matrix Soil **Received** 2014/03/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3552931	2014/03/26	2014/03/26	Jolly John

Maxxam ID VH6906 **Collected** 2014/03/24
Sample ID AREA2 GS2 **Shipped**
Matrix Soil **Received** 2014/03/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3552931	2014/03/26	2014/03/26	Jolly John

Maxxam ID VH6907 **Collected** 2014/03/24
Sample ID AREA2 GS3 **Shipped**
Matrix Soil **Received** 2014/03/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3552931	2014/03/26	2014/03/26	Jolly John

Maxxam ID VH6908 **Collected** 2014/03/24
Sample ID AREA2 GS4 **Shipped**
Matrix Soil **Received** 2014/03/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3552931	2014/03/26	2014/03/26	Jolly John

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Maxxam Job #: B446944
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

Test Summary

Maxxam ID VH6909 **Collected** 2014/03/24
Sample ID AREA1 GS1 **Shipped**
Matrix Soil **Received** 2014/03/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3552117	2014/03/25	2014/03/26	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3552365	2014/03/26	2014/03/26	Jolanta Kawzowicz
F4G (CCME Hydrocarbons Gravimetric)	BAL	3555190	2014/03/28	2014/03/28	Raheela Usmani
Moisture	BAL	3552118	N/A	2014/03/25	Valentina Kaftani

Maxxam ID VH6910 **Collected** 2014/03/24
Sample ID AREA1 GS2 **Shipped**
Matrix Soil **Received** 2014/03/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3552117	2014/03/25	2014/03/26	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3552365	2014/03/26	2014/03/26	Jolanta Kawzowicz
Moisture	BAL	3552118	N/A	2014/03/25	Valentina Kaftani

Maxxam ID VH6911 **Collected** 2014/03/24
Sample ID AREA1 GS4 **Shipped**
Matrix Soil **Received** 2014/03/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3552117	2014/03/25	2014/03/26	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3552365	2014/03/26	2014/03/26	Jolanta Kawzowicz
Moisture	BAL	3552118	N/A	2014/03/25	Valentina Kaftani

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Maxxam Job #: B446944
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

Test Summary

Maxxam ID VH6912 **Collected** 2014/03/24
Sample ID AREA1 GS5 **Shipped**
Matrix Soil **Received** 2014/03/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3552117	2014/03/25	2014/03/26	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3552365	2014/03/26	2014/03/26	Jolanta Kawzowicz
Moisture	BAL	3552118	N/A	2014/03/25	Valentina Kaftani

Maxxam ID VH6913 **Collected** 2014/03/24
Sample ID AREA1 GS6 **Shipped**
Matrix Soil **Received** 2014/03/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3552117	2014/03/25	2014/03/26	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3552365	2014/03/26	2014/03/26	Jolanta Kawzowicz
Moisture	BAL	3552118	N/A	2014/03/25	Valentina Kaftani

Maxxam ID VH6914 **Collected** 2014/03/24
Sample ID AREA1 GS9 **Shipped**
Matrix Soil **Received** 2014/03/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3552117	2014/03/25	2014/03/26	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3552365	2014/03/26	2014/03/26	Jolanta Kawzowicz
Moisture	BAL	3552118	N/A	2014/03/25	Valentina Kaftani

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Maxxam Job #: B446944
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

Test Summary

Maxxam ID VH6915 **Collected** 2014/03/24
Sample ID AREA1 GS10 **Shipped**
Matrix Soil **Received** 2014/03/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3552117	2014/03/25	2014/03/26	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3552365	2014/03/26	2014/03/26	Jolanta Kawzowicz
Moisture	BAL	3552118	N/A	2014/03/25	Valentina Kaftani

Maxxam ID VH6916 **Collected** 2014/03/24
Sample ID AREA1 GS11 **Shipped**
Matrix Soil **Received** 2014/03/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3552117	2014/03/25	2014/03/26	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3552365	2014/03/26	2014/03/26	Jolanta Kawzowicz
Moisture	BAL	3552118	N/A	2014/03/25	Valentina Kaftani

Maxxam ID VH6917 **Collected** 2014/03/24
Sample ID AREA1 DUP **Shipped**
Matrix Soil **Received** 2014/03/25

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3552117	2014/03/25	2014/03/26	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3552365	2014/03/26	2014/03/26	Jolanta Kawzowicz
Moisture	BAL	3552118	N/A	2014/03/25	Valentina Kaftani

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Maxxam Job #: B446944
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

GENERAL COMMENTS

Revised report (2014/09/03): Criteria added to report as per client request.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B446944
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
3552117	1,4-Difluorobenzene	2014/03/25	93	60 - 140	88	60 - 140	102	%		
3552117	4-Bromofluorobenzene	2014/03/25	115	60 - 140	103	60 - 140	100	%		
3552117	D10-Ethylbenzene	2014/03/25	92	60 - 140	81	60 - 140	87	%		
3552117	D4-1,2-Dichloroethane	2014/03/25	92	60 - 140	82	60 - 140	84	%		
3552117	Benzene	2014/03/25	86	60 - 140	73	60 - 140	ND, RDL=0.020	ug/g	NC	50
3552117	Toluene	2014/03/25	88	60 - 140	79	60 - 140	ND, RDL=0.020	ug/g	NC	50
3552117	Ethylbenzene	2014/03/25	98	60 - 140	87	60 - 140	ND, RDL=0.020	ug/g	NC	50
3552117	o-Xylene	2014/03/25	101	60 - 140	86	60 - 140	ND, RDL=0.020	ug/g	NC	50
3552117	p+m-Xylene	2014/03/25	96	60 - 140	78	60 - 140	ND, RDL=0.040	ug/g	NC	50
3552117	F1 (C6-C10)	2014/03/25	120	60 - 140	86	80 - 120	ND, RDL=10	ug/g	NC	30
3552117	Total Xylenes	2014/03/25					ND, RDL=0.040	ug/g	NC	50
3552117	F1 (C6-C10) - BTEX	2014/03/25					ND, RDL=10	ug/g	NC	30
3552118	Moisture	2014/03/25							NC	20
3552365	o-Terphenyl	2014/03/26	96	60 - 130	96	60 - 130	97	%		
3552365	F2 (C10-C16 Hydrocarbons)	2014/03/27	104	50 - 130	100	80 - 120	ND, RDL=10	ug/g	NC	30
3552365	F3 (C16-C34 Hydrocarbons)	2014/03/27	102	50 - 130	99	80 - 120	ND, RDL=50	ug/g	NC	30
3552365	F4 (C34-C50 Hydrocarbons)	2014/03/27	103	50 - 130	101	80 - 120	ND, RDL=50	ug/g	NC	30
3552931	Hot Water Ext. Boron (B)	2014/03/26	99	75 - 125	103	75 - 125	ND, RDL=0.050	ug/g	10.6	40
3555190	F4G-sg (Grav. Heavy Hydrocarbons)	2014/03/28	103	65 - 135	102	65 - 135	ND, RDL=100	ug/g	26.0	50

N/A = Not Applicable
RDL = Reportable Detection Limit
RPD = Relative Percent Difference
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

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Validation Signature Page

Maxxam Job #: B446944

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Cristina Carriere, Scientific Services

Jeevaraj Jeevaratrnam, Senior Analyst

Suzana Popovic, Supervisor, Hydrocarbons

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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RUSH

25-Mar-14 14:00
Krystal Seedial
B446944
FW ENV-904

Maxxam Analytics International Cor
6740 Campobello Road, Mississau
266 Fax:(905) 817-5777 www.maxxam.ca

Page 1 of 2

INVOICE INFORMATION:

Company Name: #3101 Peto MacCallum Ltd
Contact Name: Sarah Murray
Address: 45 Burford Rd
Hamilton ON L8E 3C6
Phone: (905) 561-2231 x Fax: (905) 561-6366 x
Email: smurray@petomaccallum.com

rs from invoice):
Address:
Phone: Fax:
Email:

PROJECT INFORMATION:

Quotation #: B41439
P.O. #:
Project #: 13HX002 Clean-Up
Project Name:
Site #:
Sampled By:

e Only:
Bottle Order #: 461791
Chain of Custody #: C#461791-02-01
Project Manager: Krystal Seedial

Regulation 153 (2011)

☑ Table1 ☐ Table2 ☐ Table3 ☐ Table ___
☐ Res/Park ☐ Ind/Comm ☐ Agr/Other
☐ Medium/Fine ☐ Coarse
☑ For RSC

Other Regulations

☐ CCME ☐ Reg 558 ☐ MISA ☐ PWQO ☐ Other
☐ Sanitary Sewer Bylaw ☐ Storm Sewer Bylaw
Municipality

Special Instructions

Include Criteria on Certificate of Analysis (Y/N)? ___

Note: For MOE regulated drinking water samples - please use the Drinking Water Chain of Custody Form

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

Turnaround Time (TAT) Required: 2 Days

Please provide advance notice for rush projects

Regular (Standard) TAT: ☐
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission) ☑
Date Required: March 27/14 Time Required: ___
Rush Confirmation Number KS140324-1
(call lab for #)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Regulated Drinking Water ? (Y/N)	Metals Field Filtered ? (Y/N)	Petroleum Hydrocarbons F1 to F4	Electrical Conductivity	Hot Water Extractable Boron	Reg 153 ICPMS Metals only package	# of Bottles	Comments
1		Area 2 GS1	March 24, 2014	10:10	S					X		1	
2		Area 2 GS2	"	10:15	S					X		1	
3		Area 2 GS3	"	10:20	S					X		1	
4		Area 2 GS4	"	10:25	S					X		1	
5													
6													
7													
8													
9													
10													

*RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# jars used and not submitted
DAVID SMITH	14/03/25	10:45	MAGDALENA	2014/03/25	14:00	

Laboratory Use Only

Time Sensitive	Temperature (°C) on Receipt	CustodySeal	Yes	No
	6.5 / 5°C	Present		✓
	2.6 / 2°C	Intact		
	5.1 / 4°C			

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

White: Maxxam Yellow: Client

Your Project #: 13HX002 Clean-Up
Your C.O.C. #: 46179107, 461791-07-01

Attention: Sarah Murray
Peto MacCallum Ltd
45 Burford Rd
Hamilton, ON
L8E 3C6

Report Date: 2014/09/03
Report #: R3143494
Version: 2R

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B4A1726
Received: 2014/06/13, 13:35

Sample Matrix: Soil
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Hot Water Extractable Boron	3	2014/06/19	2014/06/19	CAM SOP-00408	R153 Ana. Prot. 2011
Free (WAD) Cyanide	3	N/A	2014/06/19	CAM SOP-00457	OMOE E3015 m
Conductivity	3	N/A	2014/06/19	CAM SOP-00414	OMOE E3138 v2 m
Hexavalent Chromium in Soil by IC (1)	2	2014/06/18	2014/06/19	CAM SOP-00436	EPA 3060/7199 m
Hexavalent Chromium in Soil by IC (1)	1	2014/06/19	2014/06/20	CAM SOP-00436	EPA 3060/7199 m
Petroleum Hydro. CCME F1 & BTEX in Soil	1	2014/06/16	2014/06/20	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydro. CCME F1 & BTEX in Soil	2	2014/06/16	2014/06/21	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Soil	3	2014/06/18	2014/06/20	CAM SOP-00316	CCME CWS
F4G (CCME Hydrocarbons Gravimetric)	3	2014/06/22	2014/06/22	CAM SOP-00316	CCME PHC-CWS m
Strong Acid Leachable Metals by ICPMS	3	2014/06/19	2014/06/19	CAM SOP-00447	EPA 6020 m
Moisture	3	N/A	2014/06/18	CAM SOP-00445	R.Carter,1993
Polychlorinated Biphenyl in Soil	3	2014/06/17	2014/06/18	CAM SOP-00309	EPA 8082 m
pH CaCl2 EXTRACT	3	2014/06/19	2014/06/19	CAM SOP-00413	EPA 9045 D m
Sodium Adsorption Ratio (SAR)	3	2014/06/16	2014/06/20	CAM SOP-00102	EPA 6010

Remarks:

Maxxam Analytics has performed all analytical testing herein in accordance with ISO 17025 and the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. All methodologies comply with this document and are validated for use in the laboratory. The methods and techniques employed in this analysis conform to the performance criteria (detection limits, accuracy and precision) as outlined in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act.

The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following the 'Alberta Environment Draft Addenda to the CWS-PHC, Appendix 6, Validation of Alternate Methods'. Documentation is available upon request. Maxxam has made the following improvements to the CWS-PHC reference benchmark method: (i) Headspace for F1; and, (ii) Mechanical extraction for F2-F4. Note: F4G cannot be added to the C6 to C50 hydrocarbons. The extraction date for samples field preserved with methanol for F1 and Volatile Organic Compounds is considered to be the date sampled.

Maxxam Analytics is accredited for all specific parameters as required by Ontario Regulation 153/04. Maxxam Analytics is limited in liability to the actual cost of analysis unless otherwise agreed in writing. There is no other warranty expressed or implied. Samples will be retained at Maxxam Analytics for three weeks from receipt of data or as per contract.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
* Results relate only to the items tested.

(1) Soils are reported on a dry weight basis unless otherwise specified.

Encryption Key

Krystal Seedial
03 Sep 2014 16:07:43 -04:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Krystal Seedial, Project Manager
Email: KSeedial@maxxam.ca
Phone# (905) 817-5700

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 1

Maxxam Job #: B4A1726
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

RESULTS OF ANALYSES OF SOIL

Maxxam ID			WH8832		WH8833		WH8834		
Sampling Date			2014/06/11 15:00		2014/06/11 15:15		2014/06/11 16:00		
	Units	**Criteria A**	**AREA 2 GS5**	**QC Batch**	**AREA 2 GS6**	**QC Batch**	**GS4-11**	**RDL**	**QC Batch**
Calculated Parameters									
Sodium Adsorption Ratio	N/A	**5.0**	1.1	3642546	2.0	3642546	2.4		3642546
Inorganics									
Chromium (VI)	ug/g	**8**	ND	3645350	ND	3647889	ND	0.2	3645350
Conductivity	mS/cm	**0.7**	0.31	3647212	0.50	3647212	**1.1**	0.002	3647212
Free Cyanide	ug/g	**0.051**	0.01	3644154	0.02	3644154	0.05	0.01	3644154
Moisture	%		11	3645694	16	3645694	9.6	1.0	3645694
Available (CaCl2) pH	pH		7.59	3646063	7.39	3646063	7.40		3646063

N/A = Not Applicable
ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria A: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Texture

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Maxxam Job #: B4A1726
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID			WH8832		WH8833		WH8834		
Sampling Date			2014/06/11 15:00		2014/06/11 15:15		2014/06/11 16:00		
	Units	Criteria A	AREA 2 GS5	QC Batch	AREA 2 GS6	QC Batch	GS4-11	RDL	QC Batch
Metals									
Hot Water Ext. Boron (B)	ug/g	**1.5**	1.1	3647000	1.2	3646957	1.0	0.050	3647000
Acid Extractable Antimony (Sb)	ug/g	**7.5**	0.32	3646988	0.21	3646988	ND	0.20	3646988
Acid Extractable Arsenic (As)	ug/g	**18**	6.4	3646988	5.0	3646988	4.0	1.0	3646988
Acid Extractable Barium (Ba)	ug/g	**390**	63	3646988	30	3646988	45	0.50	3646988
Acid Extractable Beryllium (Be)	ug/g	**4**	0.49	3646988	0.25	3646988	0.32	0.20	3646988
Acid Extractable Boron (B)	ug/g	**120**	12	3646988	10	3646988	7.3	5.0	3646988
Acid Extractable Cadmium (Cd)	ug/g	**1.2**	0.30	3646988	0.30	3646988	0.32	0.10	3646988
Acid Extractable Chromium (Cr)	ug/g	**160**	33	3646988	31	3646988	11	1.0	3646988
Acid Extractable Cobalt (Co)	ug/g	**22**	11	3646988	4.5	3646988	4.9	0.10	3646988
Acid Extractable Copper (Cu)	ug/g	**140**	27	3646988	28	3646988	15	0.50	3646988
Acid Extractable Lead (Pb)	ug/g	**120**	26	3646988	38	3646988	14	1.0	3646988
Acid Extractable Molybdenum (Mo)	ug/g	**6.9**	1.0	3646988	0.75	3646988	0.56	0.50	3646988
Acid Extractable Nickel (Ni)	ug/g	**100**	19	3646988	9.6	3646988	9.7	0.50	3646988
Acid Extractable Selenium (Se)	ug/g	**2.4**	ND	3646988	ND	3646988	ND	0.50	3646988
Acid Extractable Silver (Ag)	ug/g	**20**	ND	3646988	ND	3646988	ND	0.20	3646988
Acid Extractable Thallium (Tl)	ug/g	**1**	0.096	3646988	0.078	3646988	0.061	0.050	3646988
Acid Extractable Uranium (U)	ug/g	**23**	0.47	3646988	0.36	3646988	0.46	0.050	3646988
Acid Extractable Vanadium (V)	ug/g	**86**	33	3646988	34	3646988	20	5.0	3646988
Acid Extractable Zinc (Zn)	ug/g	**340**	100	3646988	94	3646988	64	5.0	3646988
Acid Extractable Mercury (Hg)	ug/g	**0.27**	ND	3646988	ND	3646988	ND	0.050	3646988

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria A: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
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Client Project #: 13HX002 Clean-Up

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID			WH8832		WH8833	WH8834		
Sampling Date			2014/06/11 15:00		2014/06/11 15:15	2014/06/11 16:00		
	Units	Criteria A	AREA 2 GS5	RDL	AREA 2 GS6	GS4-11	RDL	QC Batch
BTEX & F1 Hydrocarbons								
Benzene	ug/g	**0.21**	ND	0.020	ND	ND	0.020	3647911
Toluene	ug/g	**2.3**	ND	0.020	ND	ND	0.020	3647911
Ethylbenzene	ug/g	**2**	ND	0.020	ND	ND	0.020	3647911
o-Xylene	ug/g		ND	0.020	ND	ND	0.020	3647911
p+m-Xylene	ug/g		ND	0.040	ND	ND	0.040	3647911
Total Xylenes	ug/g	**3.1**	ND	0.040	ND	ND	0.040	3647911
F1 (C6-C10)	ug/g	**55**	ND	10	ND	ND	10	3647911
F1 (C6-C10) - BTEX	ug/g	**55**	ND	10	ND	ND	10	3647911
F2-F4 Hydrocarbons								
F4G-sg (Grav. Heavy Hydrocarbons)	ug/g	**2800**	2000	100	**9600**	**5600**	100	3650477
F2 (C10-C16 Hydrocarbons)	ug/g	**98**	ND	10	ND	ND	20	3646269
F3 (C16-C34 Hydrocarbons)	ug/g	**300**	130	50	**510**	**520**	100	3646269
F4 (C34-C50 Hydrocarbons)	ug/g	**2800**	450	50	2300	1500	100	3646269
Reached Baseline at C50	ug/g		NO		NO	NO		3646269
Surrogate Recovery (%)								
1,4-Difluorobenzene	%		101		104	106		3647911
4-Bromofluorobenzene	%		95		90	98		3647911
D10-Ethylbenzene	%		87		82	92		3647911
D4-1,2-Dichloroethane	%		108		111	113		3647911
o-Terphenyl	%		93		88	84		3646269

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria A: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Texture

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Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID			WH8832	WH8833	WH8834		
Sampling Date			2014/06/11 15:00	2014/06/11 15:15	2014/06/11 16:00		
	Units	**Criteria A**	**AREA 2 GS5**	**AREA 2 GS6**	**GS4-11**	**RDL**	**QC Batch**
PCBs							
Aroclor 1242	ug/g		ND	ND	ND	0.010	3643743
Aroclor 1248	ug/g		ND	ND	ND	0.010	3643743
Aroclor 1254	ug/g		ND	ND	ND	0.010	3643743
Aroclor 1260	ug/g		ND	ND	ND	0.010	3643743
Total PCB	ug/g	**0.35**	ND	ND	ND	0.010	3643743
Surrogate Recovery (%)							
Decachlorobiphenyl	%		72	65	65		3643743

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria A: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Texture

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Maxxam Job #: B4A1726
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

Test Summary

Maxxam ID WH8832 **Collected** 2014/06/11
Sample ID AREA 2 GS5 **Shipped**
Matrix Soil **Received** 2014/06/13

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3647000	2014/06/19	2014/06/19	Suban Kanapathippllai
Free (WAD) Cyanide	TECH	3644154	N/A	2014/06/19	Xuanhong Qiu
Conductivity	COND	3647212	N/A	2014/06/19	Lemeneh Addis
Hexavalent Chromium in Soil by IC	IC/SPEC	3645350	2014/06/18	2014/06/19	Manoj Gera
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3647911	2014/06/16	2014/06/21	Suzana Popovic
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3646269	2014/06/18	2014/06/20	Ravinder Gaidhu
F4G (CCME Hydrocarbons Gravimetric)	BAL	3650477	2014/06/22	2014/06/22	Raheela Usmani
Strong Acid Leachable Metals by ICPMS	ICP/MS	3646988	2014/06/19	2014/06/19	Viviana Canzonieri
Moisture	BAL	3645694	N/A	2014/06/18	Valentina Kaftani
Polychlorinated Biphenyl in Soil	GC/ECD	3643743	2014/06/17	2014/06/18	Li Peng
pH CaCl2 EXTRACT		3646063	2014/06/19	2014/06/19	Neil Dassanayake
Sodium Adsorption Ratio (SAR)	CALC/MET	3642546	2014/06/20	2014/06/20	Automated Statchk

Maxxam ID WH8833 **Collected** 2014/06/11
Sample ID AREA 2 GS6 **Shipped**
Matrix Soil **Received** 2014/06/13

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3646957	2014/06/19	2014/06/19	Jolly John
Free (WAD) Cyanide	TECH	3644154	N/A	2014/06/19	Xuanhong Qiu
Conductivity	COND	3647212	N/A	2014/06/19	Lemeneh Addis
Hexavalent Chromium in Soil by IC	IC/SPEC	3647889	2014/06/19	2014/06/20	Manoj Gera
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3647911	2014/06/16	2014/06/21	Suzana Popovic
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3646269	2014/06/18	2014/06/20	Ravinder Gaidhu
F4G (CCME Hydrocarbons Gravimetric)	BAL	3650477	2014/06/22	2014/06/22	Raheela Usmani
Strong Acid Leachable Metals by ICPMS	ICP/MS	3646988	2014/06/19	2014/06/19	Viviana Canzonieri
Moisture	BAL	3645694	N/A	2014/06/18	Valentina Kaftani
Polychlorinated Biphenyl in Soil	GC/ECD	3643743	2014/06/17	2014/06/18	Li Peng
pH CaCl2 EXTRACT		3646063	2014/06/19	2014/06/19	Neil Dassanayake
Sodium Adsorption Ratio (SAR)	CALC/MET	3642546	2014/06/20	2014/06/20	Automated Statchk

Maxxam Job #: B4A1726
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

Test Summary

Maxxam ID WH8833 Dup
Sample ID AREA 2 GS6
Matrix Soil

Collected 2014/06/11
Shipped
Received 2014/06/13

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	3646988	2014/06/19	2014/06/19	Viviana Canzonieri

Maxxam ID WH8834
Sample ID GS4-11
Matrix Soil

Collected 2014/06/11
Shipped
Received 2014/06/13

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3647000	2014/06/19	2014/06/19	Suban Kanapathippllai
Free (WAD) Cyanide	TECH	3644154	N/A	2014/06/19	Xuanhong Qiu
Conductivity	COND	3647212	N/A	2014/06/19	Lemeneh Addis
Hexavalent Chromium in Soil by IC	IC/SPEC	3645350	2014/06/18	2014/06/19	Manoj Gera
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3647911	2014/06/16	2014/06/20	Suzana Popovic
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3646269	2014/06/18	2014/06/20	Ravinder Gaidhu
F4G (CCME Hydrocarbons Gravimetric)	BAL	3650477	2014/06/22	2014/06/22	Raheela Usmani
Strong Acid Leachable Metals by ICPMS	ICP/MS	3646988	2014/06/19	2014/06/19	Viviana Canzonieri
Moisture	BAL	3645694	N/A	2014/06/18	Valentina Kaftani
Polychlorinated Biphenyl in Soil	GC/ECD	3643743	2014/06/17	2014/06/18	Li Peng
pH CaCl2 EXTRACT		3646063	2014/06/19	2014/06/19	Neil Dassanayake
Sodium Adsorption Ratio (SAR)	CALC/MET	3642546	2014/06/20	2014/06/20	Automated Statchk

Maxxam ID WH8834 Dup
Sample ID GS4-11
Matrix Soil

Collected 2014/06/11
Shipped
Received 2014/06/13

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3647911	2014/06/16	2014/06/20	Suzana Popovic

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

Maxxam Job #: B4A1726
Report Date: 2014/09/03

GENERAL COMMENTS

Revised report (2014/09/03): Criteria added to report as per client request.

Sample WH8833-01: F2-F4 Analysis: Due to high concentration of target analytes, sample required dilution. Reporting limits were adjusted accordingly.

Sample WH8834-01: F2-F4 Analysis: Due to high concentration of target analytes, sample required dilution. Reporting limits were adjusted accordingly.

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Maxxam Job #: B4A1726
Report Date: 2014/09/03

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Client Project #: 13HX002 Clean-Up

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
3643743	Decachlorobiphenyl	2014/06/17	88	60 - 130	83	60 - 130	82	%				
3643743	Aroclor 1260	2014/06/17	112	60 - 130	100	60 - 130	ND, RDL=0.010	ug/g	NC	50		
3643743	Total PCB	2014/06/17	112	60 - 130	100	60 - 130	ND, RDL=0.010	ug/g	NC	50		
3643743	Aroclor 1242	2014/06/17					ND, RDL=0.010	ug/g	NC	50		
3643743	Aroclor 1248	2014/06/17					ND, RDL=0.010	ug/g	NC	50		
3643743	Aroclor 1254	2014/06/17					ND, RDL=0.010	ug/g	NC	50		
3644154	Free Cyanide	2014/06/19	100	75 - 125	101	80 - 120	ND, RDL=0.01	ug/g	NC	35		
3645350	Chromium (VI)	2014/06/19	77(1, 2)	75 - 125	101	80 - 120	ND, RDL=0.2	ug/g	NC	35	104	80 - 120
3645694	Moisture	2014/06/18							2.3	20		
3646063	Available (CaCl2) pH	2014/06/19			99	97 - 103			0.4	N/A		
3646269	o-Terphenyl	2014/06/19	100	60 - 130	97	60 - 130	97	%				
3646269	F2 (C10-C16 Hydrocarbons)	2014/06/19	99	50 - 130	102	80 - 120	ND, RDL=10	ug/g	NC	30		
3646269	F3 (C16-C34 Hydrocarbons)	2014/06/19	111	50 - 130	109	80 - 120	ND, RDL=50	ug/g	NC	30		
3646269	F4 (C34-C50 Hydrocarbons)	2014/06/19	116	50 - 130	112	80 - 120	ND, RDL=50	ug/g	NC	30		
3646957	Hot Water Ext. Boron (B)	2014/06/19	99	75 - 125	99	75 - 125	ND, RDL=0.050	ug/g	5.5	40		
3646988	Acid Extractable Antimony (Sb)	2014/06/19	97	75 - 125	104	80 - 120	ND, RDL=0.20	ug/g	NC	30		
3646988	Acid Extractable Arsenic (As)	2014/06/19	102	75 - 125	103	80 - 120	ND, RDL=1.0	ug/g	NC	30		
3646988	Acid Extractable Barium (Ba)	2014/06/19	NC	75 - 125	101	80 - 120	ND, RDL=0.50	ug/g	9.7	30		
3646988	Acid Extractable Beryllium (Be)	2014/06/19	115	75 - 125	107	80 - 120	ND, RDL=0.20	ug/g	NC	30		
3646988	Acid Extractable Boron (B)	2014/06/19	110	75 - 125	104	80 - 120	ND, RDL=5.0	ug/g	NC	30		
3646988	Acid Extractable Cadmium (Cd)	2014/06/19	104	75 - 125	103	80 - 120	ND, RDL=0.10	ug/g	NC	30		
3646988	Acid Extractable Chromium (Cr)	2014/06/19	NC	75 - 125	109	80 - 120	ND, RDL=1.0	ug/g	14.9	30		
3646988	Acid Extractable Cobalt (Co)	2014/06/19	108	75 - 125	107	80 - 120	ND, RDL=0.10	ug/g	8.8	30		
3646988	Acid Extractable Copper (Cu)	2014/06/19	NC	75 - 125	105	80 - 120	ND, RDL=0.50	ug/g	2.4	30		
3646988	Acid Extractable Lead (Pb)	2014/06/19	NC	75 - 125	104	80 - 120	ND, RDL=1.0	ug/g	1.7	30		
3646988	Acid Extractable Molybdenum (Mo)	2014/06/19	108	75 - 125	105	80 - 120	ND, RDL=0.50	ug/g	NC	30		
3646988	Acid Extractable Nickel (Ni)	2014/06/19	106	75 - 125	103	80 - 120	ND, RDL=0.50	ug/g	6.9	30		
3646988	Acid Extractable Selenium (Se)	2014/06/19	102	75 - 125	104	80 - 120	ND, RDL=0.50	ug/g	NC	30		
3646988	Acid Extractable Silver (Ag)	2014/06/19	105	75 - 125	104	80 - 120	ND, RDL=0.20	ug/g	NC	30		
3646988	Acid Extractable Thallium (Tl)	2014/06/19	93	75 - 125	101	80 - 120	ND, RDL=0.050	ug/g	NC	30		
3646988	Acid Extractable Uranium (U)	2014/06/19	101	75 - 125	103	80 - 120	ND, RDL=0.050	ug/g	1.3	30		
3646988	Acid Extractable Vanadium (V)	2014/06/19	NC	75 - 125	104	80 - 120	ND, RDL=5.0	ug/g	2.3	30		
3646988	Acid Extractable Zinc (Zn)	2014/06/19	NC	75 - 125	102	80 - 120	ND, RDL=5.0	ug/g	57.8(1)	30		
3646988	Acid Extractable Mercury (Hg)	2014/06/19	91	75 - 125	96	80 - 120	ND, RDL=0.050	ug/g	NC	30		
3647000	Hot Water Ext. Boron (B)	2014/06/19	96	75 - 125	102	75 - 125	ND, RDL=0.050	ug/g	NC	40		
3647212	Conductivity	2014/06/19			99	90 - 110	ND, RDL=0.002	mS/cm	0	10		
3647889	Chromium (VI)	2014/06/20	95	75 - 125	95	80 - 120	ND, RDL=0.2	ug/g	NC	35	107	80 - 120
3647911	1,4-Difluorobenzene	2014/06/20	103	60 - 140	102	60 - 140	103	%				
3647911	4-Bromofluorobenzene	2014/06/20	104	60 - 140	106	60 - 140	94	%				
3647911	D10-Ethylbenzene	2014/06/20	93	60 - 140	90	60 - 140	87	%				

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

Maxxam Job #: B4A1726
Report Date: 2014/09/03

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
3647911	D4-1,2-Dichloroethane	2014/06/20	106	60 - 140	106	60 - 140	109	%				
3647911	Benzene	2014/06/20	97	60 - 140	97	60 - 140	ND, RDL=0.020	ug/g	NC	50		
3647911	Toluene	2014/06/20	102	60 - 140	99	60 - 140	ND, RDL=0.020	ug/g	NC	50		
3647911	Ethylbenzene	2014/06/20	110	60 - 140	109	60 - 140	ND, RDL=0.020	ug/g	NC	50		
3647911	o-Xylene	2014/06/20	112	60 - 140	110	60 - 140	ND, RDL=0.020	ug/g	NC	50		
3647911	p+m-Xylene	2014/06/20	100	60 - 140	100	60 - 140	ND, RDL=0.040	ug/g	NC	50		
3647911	F1 (C6-C10)	2014/06/20	92	60 - 140	97	80 - 120	ND, RDL=10	ug/g	NC	30		
3647911	Total Xylenes	2014/06/20					ND, RDL=0.040	ug/g	NC	50		
3647911	F1 (C6-C10) - BTEX	2014/06/20					ND, RDL=10	ug/g	NC	30		
3650477	F4G-sg (Grav. Heavy Hydrocarbons)	2014/06/22	103	65 - 135	102	65 - 135	ND, RDL=100	ug/g	31.5	50		

N/A = Not Applicable
RDL = Reportable Detection Limit
RPD = Relative Percent Difference
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.
Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).
NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).
(1) - Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.
(2) - The recovery of chromium VI in the matrix spike was below the acceptance criteria. The sample was reanalyzed with the same results

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Validation Signature Page

Maxxam Job #: B4A1726

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Cristina Carriere, Scientific Services

Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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13-Jun-14 13:35
Krystal Seedial

B4A1726

FW ENV-187

Page 1 of 1

e Only:

Bottle Order #: 461791

Project Manager: Krystal Seedial

Chain of Custody #: C#461791-07-01

INVOICE INFORMATION:		REPORT INFORMATION(if differs from invoice):		PROJECT INFORMATION:	
Company Name:	#3101 Peto MacCallum Ltd	Company Name:		Quotation #:	B41439
Contact Name:	Sarah Murray	Contact Name:		P.O. #:	
Address:	45 Burford Rd	Address:		Project #:	13HX002 Clean-Up
	Hamilton ON L8E 3C6			Project Name:	
Phone:	(905) 561-2231 x Fax: (905) 561-6366 x	Phone:	Fax:	Site #:	
Email:	smurray@petomaccallum.com	Email:		Sampled By:	

Regulation 153 (2011): [x] Table1 [ ] Table2 [ ] Table3 [ ] Table ___ | [ ] Res/Park [ ] Ind/Comm [ ] Agri/Other | [ ] Medium/Fine [ ] Coarse [x] For RSC

Other Regulations: [ ] CCME [ ] Reg 558 [ ] MISA [ ] PWQO [ ] Other ___ | [ ] Sanitary Sewer Bylaw [ ] Storm Sewer Bylaw | Municipality ___

Special Instructions:

Include Criteria on Certificate of Analysis (Y/N)? ___

Note: For MOE regulated drinking water samples - please use the Drinking Water Chain of Custody Form

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Regulated Drinking Water ? (Y/N)	Metals Field Filtered ? (Y/N)	Petroleum Hydrocarbons F1 to F4 + BTEX	Electrical Conductivity	Hot Water Extractable Boron	Reg 153 ICPMS Metals only package	PCBs	Metals + Inorganics				# of Bottles	Comments
1		Area 2 GS5	June 11 2014	3:00	S			X				X	X				5	
2		Area 2 GS6	"	3:15	S			X				X	X				5	
3		GS4 - 11	"	4:00	S			X				X	X				5	
4																		
5																		
6																		
7																		
8																		
9																		
10																		

Turnaround Time (TAT) Required:

Please provide advance notice for rush projects

Regular (Standard) TAT: [x]
(will be applied if Rush TAT is not specified)
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: ___ Time Required: ___ [ ]
Rush Confirmation Number: ___ *(call lab for #)*

*RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# jars used and not submitted
S. Murray / Sarah Murray	14/06/13	8:30	Ashida Sukkumar / ASHIDHA SUKKUMAR	2014/06/13	13:35	

Laboratory Use Only				
Time Sensitive	Temperature (°C) on Receipt	CustodySeal	Yes	No
	18/20/21°C	Present		✓
		Intact		

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

White: Maxxam Yellow: Client

Maxxam Analytics International Corporation o/a Maxxam Analytics

no ice

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Your Project #: 13HX002 Clean-Up
Your C.O.C. #: 46179109

Attention: Sarah Murray
Peto MacCallum Ltd
45 Burford Rd
Hamilton, ON
L8E 3C6

Report Date: 2014/09/04
Report #: R3144380
Version: 6R

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B4E7389
Received: 2014/08/15, 13:40

Sample Matrix: Soil
Samples Received: 10

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Hot Water Extractable Boron	10	2014/08/16	2014/08/18	CAM SOP-00408	R153 Ana. Prot. 2011
Petroleum Hydro. CCME F1 & BTEX in Soil	4	2014/08/15	2014/08/18	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Soil	4	2014/08/16	2014/08/17	CAM SOP-00316	CCME CWS
Moisture	4	N/A	2014/08/15	CAM SOP-00445	R.Carter,1993

Remarks:

Maxxam Analytics has performed all analytical testing herein in accordance with ISO 17025 and the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. All methodologies comply with this document and are validated for use in the laboratory. The methods and techniques employed in this analysis conform to the performance criteria (detection limits, accuracy and precision) as outlined in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act.

The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following the 'Alberta Environment Draft Addenda to the CWS-PHC, Appendix 6, Validation of Alternate Methods'. Documentation is available upon request. Maxxam has made the following improvements to the CWS-PHC reference benchmark method: (i) Headspace for F1; and, (ii) Mechanical extraction for F2-F4. Note: F4G cannot be added to the C6 to C50 hydrocarbons. The extraction date for samples field preserved with methanol for F1 and Volatile Organic Compounds is considered to be the date sampled.

Maxxam Analytics is accredited for all specific parameters as required by Ontario Regulation 153/04. Maxxam Analytics is limited in liability to the actual cost of analysis unless otherwise agreed in writing. There is no other warranty expressed or implied. Samples will be retained at Maxxam Analytics for three weeks from receipt of data or as per contract.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
* Results relate only to the items tested.

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

Maxxam Job #: B4E7389
Report Date: 2014/09/04

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Krystal Seedial, Project Manager
Email: KSeedial@maxxam.ca
Phone# (905) 817-5700

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 2

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

Maxxam Job #: B4E7389
Report Date: 2014/09/04

RESULTS OF ANALYSES OF SOIL

Maxxam ID		XD3759	XD3760	XD3761	XD3762		
Sampling Date		2014/08/14 15:30	2014/08/14 15:40	2014/08/14 15:50	2014/08/14 16:00		
	Units	**AREA2 H1**	**AREA2 E3**	**AREA2 J4**	**AREA2 I6**	**RDL**	**QC Batch**
Inorganics							
Moisture	%	3.2	3.6	19	11	1.0	3713589

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID			XD3759	XD3760	XD3761	XD3762	XD3763		
Sampling Date			2014/08/14 15:30	2014/08/14 15:40	2014/08/14 15:50	2014/08/14 16:00	2014/08/14 16:05		
	Units	**Criteria A**	**AREA2 H1**	**AREA2 E3**	**AREA2 J4**	**AREA2 I6**	**AREA2 K1**	**RDL**	**QC Batch**
Metals									
Hot Water Ext. Boron (B)	ug/g	**1.5**	0.33	0.44	**4.1**	0.47	1.4	0.050	3714268

Maxxam ID			XD3764	XD3765	XD3766	XD3767	XD3768		
Sampling Date			2014/08/14 16:10	2014/08/14 16:15	2014/08/14 16:20	2014/08/14 16:25	2014/08/14 16:30		
	Units	**Criteria A**	**AREA2 F1**	**AREA2 C3**	**AREA2 C5**	**AREA2 E6**	**AREA2 K7**	**RDL**	**QC Batch**
Metals									
Hot Water Ext. Boron (B)	ug/g	**1.5**	0.80	0.45	0.96	0.85	0.54	0.050	3714268

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria A: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Texture

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Maxxam Job #: B4E7389
Report Date: 2014/09/04

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID			XD3759	XD3760	XD3761	XD3762		
Sampling Date			2014/08/14 15:30	2014/08/14 15:40	2014/08/14 15:50	2014/08/14 16:00		
	Units	**Criteria A**	**AREA2 H1**	**AREA2 E3**	**AREA2 J4**	**AREA2 I6**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons								
Benzene	ug/g	**0.21**	ND	ND	ND	ND	0.020	3714307
Toluene	ug/g	**2.3**	ND	ND	ND	ND	0.020	3714307
Ethylbenzene	ug/g	**2**	ND	ND	ND	ND	0.020	3714307
o-Xylene	ug/g		ND	ND	ND	ND	0.020	3714307
p+m-Xylene	ug/g		ND	ND	ND	ND	0.040	3714307
Total Xylenes	ug/g	**3.1**	ND	ND	ND	ND	0.040	3714307
F1 (C6-C10)	ug/g	**55**	ND	ND	ND	ND	10	3714307
F1 (C6-C10) - BTEX	ug/g	**55**	ND	ND	ND	ND	10	3714307
F2-F4 Hydrocarbons								
F2 (C10-C16 Hydrocarbons)	ug/g	**98**	ND	ND	ND	ND	10	3714065
F3 (C16-C34 Hydrocarbons)	ug/g	**300**	ND	ND	ND	ND	50	3714065
F4 (C34-C50 Hydrocarbons)	ug/g	**2800**	ND	ND	ND	ND	50	3714065
Reached Baseline at C50	ug/g		YES	YES	YES	YES		3714065
Surrogate Recovery (%)								
1,4-Difluorobenzene	%		101	99	98	101		3714307
4-Bromofluorobenzene	%		96	102	96	101		3714307
D10-Ethylbenzene	%		100	89	99	96		3714307
D4-1,2-Dichloroethane	%		96	96	93	96		3714307
o-Terphenyl	%		85	84	81	80		3714065

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria A: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Texture

Maxxam Job #: B4E7389
Report Date: 2014/09/04

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

Test Summary

Maxxam ID XD3759 **Collected** 2014/08/14
Sample ID AREA2 H1 **Shipped**
Matrix Soil **Received** 2014/08/15

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3714268	2014/08/16	2014/08/18	Archana Patel
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3714307	2014/08/15	2014/08/18	Anca Ganea
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3714065	2014/08/16	2014/08/17	Dorina Popa
Moisture	BAL	3713589	N/A	2014/08/15	Chamika Deeyagaha

Maxxam ID XD3759 Dup **Collected** 2014/08/14
Sample ID AREA2 H1 **Shipped**
Matrix Soil **Received** 2014/08/15

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3714307	2014/08/16	2014/08/18	Anca Ganea

Maxxam ID XD3760 **Collected** 2014/08/14
Sample ID AREA2 E3 **Shipped**
Matrix Soil **Received** 2014/08/15

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3714268	2014/08/16	2014/08/18	Archana Patel
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3714307	2014/08/15	2014/08/18	Anca Ganea
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3714065	2014/08/16	2014/08/17	Dorina Popa
Moisture	BAL	3713589	N/A	2014/08/15	Chamika Deeyagaha

Maxxam Job #: B4E7389
Report Date: 2014/09/04

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

Test Summary

Maxxam ID XD3761 **Collected** 2014/08/14
Sample ID AREA2 J4 **Shipped**
Matrix Soil **Received** 2014/08/15

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3714268	2014/08/16	2014/08/18	Archana Patel
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3714307	2014/08/15	2014/08/18	Anca Ganea
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3714065	2014/08/16	2014/08/17	Dorina Popa
Moisture	BAL	3713589	N/A	2014/08/15	Chamika Deeyagaha

Maxxam ID XD3762 **Collected** 2014/08/14
Sample ID AREA2 I6 **Shipped**
Matrix Soil **Received** 2014/08/15

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3714268	2014/08/16	2014/08/18	Archana Patel
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3714307	2014/08/15	2014/08/18	Anca Ganea
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3714065	2014/08/16	2014/08/17	Dorina Popa
Moisture	BAL	3713589	N/A	2014/08/15	Chamika Deeyagaha

Maxxam ID XD3762 Dup **Collected** 2014/08/14
Sample ID AREA2 I6 **Shipped**
Matrix Soil **Received** 2014/08/15

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3714065	2014/08/16	2014/08/17	Dorina Popa

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Maxxam Job #: B4E7389
Report Date: 2014/09/04

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

Test Summary

Maxxam ID XD3763 **Collected** 2014/08/14
Sample ID AREA2 K1 **Shipped**
Matrix Soil **Received** 2014/08/15

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3714268	2014/08/16	2014/08/18	Archana Patel

Maxxam ID XD3763 Dup **Collected** 2014/08/14
Sample ID AREA2 K1 **Shipped**
Matrix Soil **Received** 2014/08/15

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3714268	2014/08/16	2014/08/18	Archana Patel

Maxxam ID XD3764 **Collected** 2014/08/14
Sample ID AREA2 F1 **Shipped**
Matrix Soil **Received** 2014/08/15

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3714268	2014/08/16	2014/08/18	Archana Patel

Maxxam ID XD3765 **Collected** 2014/08/14
Sample ID AREA2 C3 **Shipped**
Matrix Soil **Received** 2014/08/15

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3714268	2014/08/16	2014/08/18	Archana Patel

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Maxxam Job #: B4E7389
Report Date: 2014/09/04

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

Test Summary

Maxxam ID XD3766 **Collected** 2014/08/14
Sample ID AREA2 C5 **Shipped**
Matrix Soil **Received** 2014/08/15

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3714268	2014/08/16	2014/08/18	Archana Patel

Maxxam ID XD3767 **Collected** 2014/08/14
Sample ID AREA2 E6 **Shipped**
Matrix Soil **Received** 2014/08/15

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3714268	2014/08/16	2014/08/18	Archana Patel

Maxxam ID XD3768 **Collected** 2014/08/14
Sample ID AREA2 K7 **Shipped**
Matrix Soil **Received** 2014/08/15

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3714268	2014/08/16	2014/08/18	Archana Patel

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Maxxam Job #: B4E7389
Report Date: 2014/09/04

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

GENERAL COMMENTS

Revised report (2014/09/03): Criteria added to report as per client request.

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Maxxam Job #: B4E7389
Report Date: 2014/09/04

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
3713589	Moisture	2014/08/15							3.2	20
3714065	o-Terphenyl	2014/08/17	80	60 - 130	88	60 - 130	86	%		
3714065	F2 (C10-C16 Hydrocarbons)	2014/08/17	96	50 - 130	92	80 - 120	ND, RDL=10	ug/g	NC	30
3714065	F3 (C16-C34 Hydrocarbons)	2014/08/17	89	50 - 130	82	80 - 120	ND, RDL=50	ug/g	NC	30
3714065	F4 (C34-C50 Hydrocarbons)	2014/08/17	93	50 - 130	95	80 - 120	ND, RDL=50	ug/g	NC	30
3714268	Hot Water Ext. Boron (B)	2014/08/18	99	75 - 125	103	75 - 125	ND, RDL=0.050	ug/g	3.7	40
3714307	1,4-Difluorobenzene	2014/08/18	100	60 - 140	98	60 - 140	100	%		
3714307	4-Bromofluorobenzene	2014/08/18	122	60 - 140	121	60 - 140	103	%		
3714307	D10-Ethylbenzene	2014/08/18	92	60 - 140	105	60 - 140	91	%		
3714307	D4-1,2-Dichloroethane	2014/08/18	96	60 - 140	95	60 - 140	96	%		
3714307	Benzene	2014/08/18	99	60 - 140	114	60 - 140	ND, RDL=0.020	ug/g	NC	50
3714307	Toluene	2014/08/18	97	60 - 140	107	60 - 140	ND, RDL=0.020	ug/g	NC	50
3714307	Ethylbenzene	2014/08/18	111	60 - 140	128	60 - 140	ND, RDL=0.020	ug/g	NC	50
3714307	o-Xylene	2014/08/18	115	60 - 140	133	60 - 140	ND, RDL=0.020	ug/g	NC	50
3714307	p+m-Xylene	2014/08/18	105	60 - 140	121	60 - 140	ND, RDL=0.040	ug/g	NC	50
3714307	F1 (C6-C10)	2014/08/18	97	60 - 140	112	80 - 120	ND, RDL=10	ug/g	NC	30
3714307	Total Xylenes	2014/08/18					ND, RDL=0.040	ug/g	NC	50
3714307	F1 (C6-C10) - BTEX	2014/08/18					ND, RDL=10	ug/g	NC	30

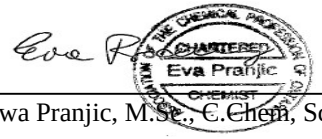
N/A = Not Applicable
RDL = Reportable Detection Limit
RPD = Relative Percent Difference
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Validation Signature Page

Maxxam Job #: B4E7389

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

==========

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RUSH

rnational Corporation o/a Maxxam Analytics
d, Mississauga, Ontario Canada L5N 2L8 Tel:(905) 817-5700 Toll-Free:800-563-6266 Fax:(905) 817-5777 www.maxxam.ca

15-Aug-14 13:40
Krystal Seedial
B4E7389
MAF ENV-926

		REPORT INFORMATION(if differs from invoice):		PROJECT INFORMATION:		
Company Name:	#3101 Peto MacCallum Ltd	Company Name:		Quotation #:	B41439	Bottle Order #: 461791
Contact Name:	Sarah Murray	Contact Name:		P.O. #:		
Address:	45 Burford Rd	Address:		Project #:	13HX002 Clean-Up	Project Manager:
	Hamilton ON L8E 3C6			Project Name:		
Phone:	(905) 561-2231 x Fax: (905) 561-6366 x	Phone:	Fax:	Site #:		Krystal Seedial
Email:	smurray@petomaccallum.com	Email:		Sampled By:		C#461791-09-01

Regulation 153 (2011)	Other Regulations	Special Instructions
☑ Table1 ☐ Table2 ☐ Table3 ☐ Table ___ ☐ Res/Park ☐ Ind/Comm ☐ Agri/Other ☐ Medium/Fine ☐ Coarse ☐ For RSC	☐ CCME ☐ Reg 558. ☐ MISA ☐ PWQO ☐ Other ☐ Sanitary Sewer Bylaw ☐ Storm Sewer Bylaw Municipality ___	

Include Criteria on Certificate of Analysis (Y/N)? Y

Note: For MOE regulated drinking water samples - please use the Drinking Water Chain of Custody Form

SAMPLES MUST BE KEPT COOL (< 10ºC) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

Turnaround Time (TAT) Required: 2 Days

Please provide advance notice for rush projects

Regular (Standard) TAT:
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: August 14 Time Required: ___
Rush Confirmation Number: KS140814-1 *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Regulated Drinking Water ? (Y/N)	Metals Field Filtered ? (Y/N)	Petroleum Hydrocarbons F1 to F4	Electrical Conductivity	Hot Water Extractable Boron	Reg 153 ICPMS Metals only package	# of Bottles	Comments
1		Area 2 H1	Aug. 14 2014	3:30	S			X		X		4	
2		Area 2 E3		3:40				X		X		4	
3		Area 2 J4		3:50				X		X		4	
4		Area 2 I6		4:00				X		X		4	
5		Area 2 K1		4:05						X		1	
6		Area 2 F1		4:10						X		1	
7		Area 2 C3		4:15						X		1	
8		Area 2 C5		4:20						X		1	
9		Area 2 E6		4:25						X		1	
10		Area 2 K7		4:30						X		1	

*RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# jars used and not submitted
S. Murray / Sarah Murray	14/08/14	5:30	MAGDALENA COO	2014/08/15	13:40	

Laboratory Use Only

Time Sensitive	Temperature (ºC) on Receipt	CustodySeal	Yes	No
	5 | 4 | 5 C	Present		✓
		Intact		

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

White: Maxxam Yellow: Client

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6740 Campobello Road, Mississauga, Ontario Canada L5N 2L8 Tel:(905) 817-5700 Toll-Free:800-563-6266 Fax:(905) 817-5777 www.maxxam.ca

CHAIN OF CUSTODY RECORD

INVOICE INFORMATION:	REPORT INFORMATION(if differs from invoice):	PROJECT INFORMATION:	Laboratory Use Only:
Company Name: #3101 Peto MacCallum Ltd	Company Name:	Quotation #: B41439	Maxxam Job #: B4E7384 MAK / Bottle Order #: 465560
Contact Name: Sarah Murray	Contact Name:	P.O. #:	
Address: 45 Burford Rd, Hamilton ON L8E 3C6	Address:	Project #:	Chain of Custody #: C#465560-01-01 / Project Manager: Krystal Seedial
Phone: (905) 561-2231 x Fax: (905) 561-6366 x	Phone: Fax:	Project Name:	
Email: smurray@petomaccallum.com	Email:	Site #:	
		Sampled By:	

Regulation 153 (2011): ☑ Table1 ☐ Table2 ☐ Table3 ☐ Table ___ ☐ Res/Park ☐ Ind/Comm ☐ Agri/Other ☐ Medium/Fine ☐ Coarse ☐ For RSC

Other Regulations: ☐ CCME ☐ Reg 558. ☐ MISA ☐ PWQO ☐ Other ☐ Sanitary Sewer Bylaw ☐ Storm Sewer Bylaw Municipality ___

Special Instructions:

Include Criteria on Certificate of Analysis (Y/N)? Y

Note: For MOE regulated drinking water samples - please use the Drinking Water Chain of Custody Form

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

Turnaround Time (TAT) Required: 2 Days

Please provide advance notice for rush projects

Regular (Standard) TAT:
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: Aug. 19 Time Required: ___ ☑
Rush Confirmation Number: R5140814-1 *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Regulated Drinking Water ? (Y/N)	Metals Field Filtered ? (Y/N)	ANALYSIS REQUESTED: Reg 153 Metals	Hg in Water by CVAFS	PHCs F1 & F2	# of Bottles	Comments
1		Area 3 G6-1	Aug 14/14	2:10	S			X	X	X	4	
2		Area 3 E9-1	↓	2:15	↓			X	X	X	4	
3		Area 3 C8-1	↓	2:20	↓			X	X	X	4	
4		Area 3 D3-1	↓	2:30	↓			X	X	X	4	
5												
6												
7												
8												
9												
10												

*RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# jars used and not submitted	Laboratory Use Only: Time Sensitive	Temperature (°C) on Receipt	CustodySeal	Yes	No
Sarah Murray S. Murray	14/08/14	5:30 pm	by MAGDALENA COP	2014/08/15	13:40			5 | 5	Present		✓
									Intact		

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

White: Maxxam Yellow: Client

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CHAIN OF CUSTODY RECORD

INVOICE INFORMATION:		REPORT INFORMATION(if differs from invoice):		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#3101 Peto MacCallum Ltd	Company Name:		Quotation #:	B41439	Maxxam Job #:	Bottle Order #:
Contact Name:	Sarah Murray	Contact Name:		P.O. #:		B4E7389	481308
Address:	45 Burford Rd Hamilton ON L8E 3C6	Address:		Project #:	13HX002	Chain of Custody #:	Project Manager:
Phone:	(905) 561-2231 x Fax: (905) 561-6366 x	Phone:	Fax:	Project Name:		C#481308-01-01	Krystal Seedial
Email:	smurray@petomaccallum.com	Email:		Site #:			
				Sampled By:			

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011)	Other Regulations	Special Instructions
☑ Table 1 ☐ Res/Park ☐ Medium/Fine	☐ CCME ☐ Sanitary Sewer Bylaw	
☐ Table 2 ☐ Ind/Comm ☐ Coarse	☐ Reg 558. ☐ Storm Sewer Bylaw	
☐ Table 3 ☐ Agri/Other ☐ For RSC	☐ MISA Municipality ____	
☐ Table ___	☐ PWQO	
	☐ Other ____	

Include Criteria on Certificate of Analysis (Y/N)? Y

Field Filtered (please circle): Metals / Hg / Cr VI

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Turnaround Time (TAT) Required: 2 Days

Please provide advance notice for rush projects

Regular (Standard) TAT:
(will be applied if Rush TAT is not specified): ☐
Standard TAT = 5-7 Working days for most tests..
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: ____ Time Required: ____ ☑
Rush Confirmation Number: KS140814 *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	PHC F1+F2	EC							# of Bottles	Comments
1		Topsoil Area A1	Aug 14 2014	8:30	S	X	X							3	
2		Topsoil Area B0	↓	8:35	↓	X	X							3	
3		Topsoil Area D1		8:42		X	X							3	
4		Topsoil Area E2.5		8:48		X	X							3	
5		Topsoil Area B2		8:55		X	X							3	
6		Topsoil Area C1	↓	9:10	↓	X	X							3	
7															
8															
9															
10															

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
S. Murray Sarah Murray	14/08/14	5:30	Ga MAGDALENA CCO	2014/08/15	13:40	

Laboratory Use Only				
Time Sensitive	Temperature (°C) on Receipt	Custody Seal	Yes	No
	5 | 5 °C	Present		✓
		Intact		

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

White: Maxxam Yellow: Client

Your Project #: 13HX002
Your C.O.C. #: na

Attention: Sarah Murray
Peto MacCallum Ltd
45 Burford Rd
Hamilton, ON
L8E 3C6

Report Date: 2014/09/03
Report #: R3143728
Version: 7R

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B4F3052
Received: 2014/08/22, 13:45

Sample Matrix: Soil
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Hot Water Extractable Boron	1	2014/08/25	2014/08/25	CAM SOP-00408	R153 Ana. Prot. 2011

Remarks:

Maxxam Analytics has performed all analytical testing herein in accordance with ISO 17025 and the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. All methodologies comply with this document and are validated for use in the laboratory. The methods and techniques employed in this analysis conform to the performance criteria (detection limits, accuracy and precision) as outlined in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act.

The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following the 'Alberta Environment Draft Addenda to the CWS-PHC, Appendix 6, Validation of Alternate Methods'. Documentation is available upon request. Maxxam has made the following improvements to the CWS-PHC reference benchmark method: (i) Headspace for F1; and, (ii) Mechanical extraction for F2-F4. Note: F4G cannot be added to the C6 to C50 hydrocarbons. The extraction date for samples field preserved with methanol for F1 and Volatile Organic Compounds is considered to be the date sampled.

Maxxam Analytics is accredited for all specific parameters as required by Ontario Regulation 153/04. Maxxam Analytics is limited in liability to the actual cost of analysis unless otherwise agreed in writing. There is no other warranty expressed or implied. Samples will be retained at Maxxam Analytics for three weeks from receipt of data or as per contract.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
* Results relate only to the items tested.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Krystal Seedial, Project Manager
Email: KSeedial@maxxam.ca
Phone# (905) 817-5700

==========

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Total cover pages: 1

Peto MacCallum Ltd
Client Project #: 13HX002

Maxxam Job #: B4F3052
Report Date: 2014/09/03

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID			XG2016		
Sampling Date			2014/08/21 11:10		
	Units	**Criteria A**	**AREA 2 J4-1**	**RDL**	**QC Batch**
Metals					
Hot Water Ext. Boron (B)	ug/g	**1.5**	0.26	0.050	3723380

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria A: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Texture

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Maxxam Job #: B4F3052
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002

Test Summary

Maxxam ID XG2016
Sample ID AREA 2 J4-1
Matrix Soil

Collected 2014/08/21
Shipped
Received 2014/08/22

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3723380	2014/08/25	2014/08/25	Archana Patel

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Maxxam Job #: B4F3052
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002

GENERAL COMMENTS

Revised report (2014/08/28): Additional analysis on sample Topsoil Area E2.5-1.

Revised report (2014/09/03): Criteria added to report as per client request.

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Peto MacCallum Ltd
Client Project #: 13HX002

Maxxam Job #: B4F3052
Report Date: 2014/09/03

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
3723380	Hot Water Ext. Boron (B)	2014/08/25	100	75 - 125	97	75 - 125	ND, RDL=0.050	ug/g	4.7	40

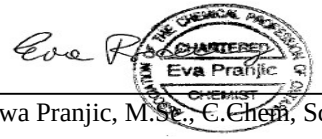
N/A = Not Applicable
RDL = Reportable Detection Limit
RPD = Relative Percent Difference
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

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Validation Signature Page

Maxxam Job #: B4F3052

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

==========

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RUSH

llo Road, Mississauga, Ontario L5N 2L8 www.maxxam.ca
7-5700 Fax: 905-817-5779 Toll Free: 800-563-6266

CHAIN OF CUSTODY RECORD

INVOICE INFORMATION	REPORT INFORMATION (if differs from invoice)	PROJECT INFORMATION	TURNAROUND TIME (TAT) REQUIRED
Company Name: Peto MacCallum Ltd	Company Name:	Quotation #: B41439	☐ Regular TAT (5-7 days)
Contact Name: Sarah Murray	Contact Name:	P.O. #:	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address: 45 Burford Rd Hamilton L8E3L6	Address:	Project #: 13HX002	Rush TAT (Applicable Surcharge)
Phone: 905-561-2231 Fax: 905-561-2316	Phone: Fax:	Site Location:	☐ 1 Day (100%)
Email: smurray@petomaccallum.com	Email:	Site #:	☑ 2 Days (50%)
		Sampled By:	☐ 3-4 Days (25%)

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

REGULATION 153 (2011)	OTHER REGULATIONS
☑ Table 1 ☐ Res/Park ☐ Med/Fine	☐ CCME ☐ Sanitary Sewer Bylaw
☐ Table 2 ☐ Ind/Comm ☐ Coarse	☐ MISA ☐ Storm Sewer Bylaw
☐ Table 3 ☐ Agri/Other	☐ PWQO Municipality:
☐ Table ___	☐ Other (Specify):
FOR RSC (PLEASE CIRCLE) YES / (NO)	☐ REG 558 (MINIMUM 3 DAY TAT REQUIRED)

Include Criteria on Certificate of Analysis (Y/N)? Y

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED

FIELD FILTERED (PLEASE CIRCLE) Metals / Hg / CrVI

	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	MATRIX	# OF CONT.	Electrical Conductivity	PHCs F1 to F4	Boron (HWS)	COMMENTS / TAT COMMENTS
1	Topsoil Area A1-1	Aug21/14	10:55	S	1	X			
2	Topsoil Area B0-1	"	10:50	"	1	X			
3	Topsoil Area B2-1	"	11:05	"	1	X			
4	Topsoil Area C1-1	"	11:00	"	1	X			
5	Topsoil Area D1-1	"	10:45	"	1	X			
6	Topsoil Area E2.5-1	"	10:40	"	3		X		
7									
8	Area 2 J4-1	Aug21/14	11:10	S	1			X	report separately
9	Area 3 J3-2	"	10:20	S	3		X		report separately
10									

Rush Confirmation #: KS140820-84

Date Required:

LABORATORY USE ONLY

CUSTODY SEAL (Y/N)	Temperature (°C) on Receipt
Present: N	9/9/10
Intact:	
COOLING MEDIA PRESENT (Y/N): Y	

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME:	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME:
S. Murray / Sarah Murray	2014/08/22	8:20	RACHEL DENLIN	2014/08/22	13:45

22-Aug-14 13:45
Krystal Seedial
B4F3052
AAF ENV-636

Maxxam Analytics International Corporation o/a Maxxam Analytics

Remediation Area 3

Your Project #: 13HX002 Clean-Up
Your C.O.C. #: 46179104, 461791-04-01

Attention: Sarah Murray
Peto MacCallum Ltd
45 Burford Rd
Hamilton, ON
L8E 3C6

Report Date: 2014/09/03
Report #: R3143462
Version: 2R

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B447856
Received: 2014/03/26, 13:30

Sample Matrix: Soil
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Hot Water Extractable Boron	3	2014/03/28	2014/03/28	CAM SOP-00408	R153 Ana. Prot. 2011
Petroleum Hydro. CCME F1 & BTEX in Soil	3	2014/03/26	2014/03/27	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Soil	3	2014/03/27	2014/03/28	CAM SOP-00316	CCME CWS
Acid Extr. Metals (aqua regia) by ICPMS	3	2014/03/28	2014/03/28	CAM SOP-00447	EPA 6020 m
Moisture	3	N/A	2014/03/26	CAM SOP-00445	R.Carter,1993

Remarks:

Maxxam Analytics has performed all analytical testing herein in accordance with ISO 17025 and the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. All methodologies comply with this document and are validated for use in the laboratory. The methods and techniques employed in this analysis conform to the performance criteria (detection limits, accuracy and precision) as outlined in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act.

The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following the 'Alberta Environment Draft Addenda to the CWS-PHC, Appendix 6, Validation of Alternate Methods'. Documentation is available upon request. Maxxam has made the following improvements to the CWS-PHC reference benchmark method: (i) Headspace for F1; and, (ii) Mechanical extraction for F2-F4. Note: F4G cannot be added to the C6 to C50 hydrocarbons. The extraction date for samples field preserved with methanol for F1 and Volatile Organic Compounds is considered to be the date sampled.

Maxxam Analytics is accredited for all specific parameters as required by Ontario Regulation 153/04. Maxxam Analytics is limited in liability to the actual cost of analysis unless otherwise agreed in writing. There is no other warranty expressed or implied. Samples will be retained at Maxxam Analytics for three weeks from receipt of data or as per contract.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
* Results relate only to the items tested.

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

Maxxam Job #: B447856
Report Date: 2014/09/03

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Krystal Seedial, Project Manager
Email: KSeedial@maxxam.ca
Phone# (905) 817-5700

==========

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Total cover pages: 2

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

Maxxam Job #: B447856
Report Date: 2014/09/03

RESULTS OF ANALYSES OF SOIL

Maxxam ID		VI0768	VI0769	VI0770		
Sampling Date		2014/03/25 17:50	2014/03/25 18:00	2014/03/25 18:05		
	Units	**AREA 3 E9**	**AREA 3 G6**	**AREA 3 I4**	**RDL**	**QC Batch**
Inorganics						
Moisture	%	33	28	23	1.0	3553122

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B447856
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID			VI0768	VI0769	VI0770		
Sampling Date			2014/03/25 17:50	2014/03/25 18:00	2014/03/25 18:05		
	Units	**Criteria A**	**AREA 3 E9**	**AREA 3 G6**	**AREA 3 I4**	**RDL**	**QC Batch**
Metals							
Hot Water Ext. Boron (B)	ug/g	**1.5**	**1.9**	**1.6**	1.4	0.050	3555192
Acid Extractable Aluminum (Al)	ug/g		16000	13000	12000	50	3555204
Acid Extractable Antimony (Sb)	ug/g	**7.5**	0.28	ND	ND	0.20	3555204
Acid Extractable Arsenic (As)	ug/g	**18**	7.0	4.7	3.7	1.0	3555204
Acid Extractable Barium (Ba)	ug/g	**390**	120	83	84	0.50	3555204
Acid Extractable Beryllium (Be)	ug/g	**4**	0.93	0.64	0.64	0.20	3555204
Acid Extractable Bismuth (Bi)	ug/g		ND	ND	ND	1.0	3555204
Acid Extractable Boron (B)	ug/g	**120**	ND	ND	ND	5.0	3555204
Acid Extractable Cadmium (Cd)	ug/g	**1.2**	0.77	0.32	0.36	0.10	3555204
Acid Extractable Calcium (Ca)	ug/g		5600	4600	4000	50	3555204
Acid Extractable Chromium (Cr)	ug/g	**160**	22	18	17	1.0	3555204
Acid Extractable Cobalt (Co)	ug/g	**22**	9.2	7.9	9.8	0.10	3555204
Acid Extractable Copper (Cu)	ug/g	**140**	31	19	20	0.50	3555204
Acid Extractable Iron (Fe)	ug/g		27000	22000	23000	50	3555204
Acid Extractable Lead (Pb)	ug/g	**120**	45	30	24	1.0	3555204
Acid Extractable Magnesium (Mg)	ug/g		5200	4100	3700	50	3555204
Acid Extractable Manganese (Mn)	ug/g		600	410	940	1.0	3555204
Acid Extractable Molybdenum (Mo)	ug/g	**6.9**	0.65	0.50	0.64	0.50	3555204
Acid Extractable Nickel (Ni)	ug/g	**100**	21	15	15	0.50	3555204
Acid Extractable Phosphorus (P)	ug/g		1900	1000	610	50	3555204
Acid Extractable Potassium (K)	ug/g		1600	940	1000	200	3555204
Acid Extractable Selenium (Se)	ug/g	**2.4**	0.59	ND	ND	0.50	3555204
Acid Extractable Silver (Ag)	ug/g	**20**	ND	ND	ND	0.20	3555204
Acid Extractable Sodium (Na)	ug/g		340	210	340	100	3555204
Acid Extractable Strontium (Sr)	ug/g		46	29	21	1.0	3555204
Acid Extractable Thallium (Tl)	ug/g	**1**	0.16	0.14	0.12	0.050	3555204
Acid Extractable Tin (Sn)	ug/g		ND	ND	ND	5.0	3555204
Acid Extractable Uranium (U)	ug/g	**23**	1.5	0.72	0.71	0.050	3555204
Acid Extractable Vanadium (V)	ug/g	**86**	30	26	27	5.0	3555204

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria A: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Texture

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

Maxxam Job #: B447856
Report Date: 2014/09/03

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID			VI0768	VI0769	VI0770		
Sampling Date			2014/03/25 17:50	2014/03/25 18:00	2014/03/25 18:05		
	Units	**Criteria A**	**AREA 3 E9**	**AREA 3 G6**	**AREA 3 I4**	**RDL**	**QC Batch**
Acid Extractable Zinc (Zn)	ug/g	**340**	130	99	70	5.0	3555204
Acid Extractable Mercury (Hg)	ug/g	**0.27**	0.075	ND	ND	0.050	3555204

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria A: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Texture

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B447856
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID			VI0768	VI0769	VI0770		
Sampling Date			2014/03/25 17:50	2014/03/25 18:00	2014/03/25 18:05		
	Units	**Criteria A**	**AREA 3 E9**	**AREA 3 G6**	**AREA 3 I4**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons							
Benzene	ug/g	**0.21**	ND	ND	ND	0.040	3553837
Toluene	ug/g	**2.3**	ND	ND	ND	0.040	3553837
Ethylbenzene	ug/g	**2**	ND	ND	ND	0.040	3553837
o-Xylene	ug/g		ND	ND	ND	0.040	3553837
p+m-Xylene	ug/g		ND	ND	ND	0.080	3553837
Total Xylenes	ug/g	**3.1**	ND	ND	ND	0.080	3553837
F1 (C6-C10)	ug/g	**55**	ND	ND	ND	20	3553837
F1 (C6-C10) - BTEX	ug/g	**55**	ND	ND	ND	20	3553837
F2-F4 Hydrocarbons							
F2 (C10-C16 Hydrocarbons)	ug/g	**98**	ND	ND	ND	10	3554306
F3 (C16-C34 Hydrocarbons)	ug/g	**300**	ND	ND	ND	50	3554306
F4 (C34-C50 Hydrocarbons)	ug/g	**2800**	ND	ND	ND	50	3554306
Reached Baseline at C50	ug/g		YES	YES	YES		3554306
Surrogate Recovery (%)							
1,4-Difluorobenzene	%		93	105	101		3553837
4-Bromofluorobenzene	%		93	113	99		3553837
D10-Ethylbenzene	%		108	113	107		3553837
D4-1,2-Dichloroethane	%		90	99	99		3553837
o-Terphenyl	%		91	90	91		3554306

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria A: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Texture

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Maxxam Job #: B447856
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

Test Summary

Maxxam ID VI0768 **Collected** 2014/03/25
Sample ID AREA 3 E9 **Shipped**
Matrix Soil **Received** 2014/03/26

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3555192	2014/03/28	2014/03/28	Suban Kanapathippllai
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3553837	2014/03/26	2014/03/27	Abdi Mohamud
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3554306	2014/03/27	2014/03/28	Biljana Lazovic
Acid Extr. Metals (aqua regia) by ICPMS	ICP/MS	3555204	2014/03/28	2014/03/28	John Bowman
Moisture	BAL	3553122	N/A	2014/03/26	Shivani Desai

Maxxam ID VI0769 **Collected** 2014/03/25
Sample ID AREA 3 G6 **Shipped**
Matrix Soil **Received** 2014/03/26

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3555192	2014/03/28	2014/03/28	Suban Kanapathippllai
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3553837	2014/03/26	2014/03/27	Abdi Mohamud
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3554306	2014/03/27	2014/03/28	Biljana Lazovic
Acid Extr. Metals (aqua regia) by ICPMS	ICP/MS	3555204	2014/03/28	2014/03/28	John Bowman
Moisture	BAL	3553122	N/A	2014/03/26	Shivani Desai

Maxxam ID VI0770 **Collected** 2014/03/25
Sample ID AREA 3 I4 **Shipped**
Matrix Soil **Received** 2014/03/26

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3555192	2014/03/28	2014/03/28	Suban Kanapathippllai
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3553837	2014/03/26	2014/03/27	Abdi Mohamud
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3554306	2014/03/27	2014/03/28	Biljana Lazovic
Acid Extr. Metals (aqua regia) by ICPMS	ICP/MS	3555204	2014/03/28	2014/03/28	John Bowman
Moisture	BAL	3553122	N/A	2014/03/26	Shivani Desai

Maxxam Job #: B447856
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

GENERAL COMMENTS

Revised report (2014/09/03): Criteria added to report as per client request.

Sample VI0768-01: F1- BTEX Analysis: Detection limits were adjusted for high moisture content and sample weight.

Sample VI0769-01: F1- BTEX Analysis: Detection limits were adjusted for high moisture content and sample weight.

Sample VI0770-01: F1- BTEX Analysis: Detection limits were adjusted for high moisture content and sample weight.

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Maxxam Job #: B447856
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
3553122	Moisture	2014/03/26							0.5	20
3553837	1,4-Difluorobenzene	2014/03/27	108	60 - 140	104	60 - 140	99	%		
3553837	4-Bromofluorobenzene	2014/03/27	105	60 - 140	105	60 - 140	102	%		
3553837	D10-Ethylbenzene	2014/03/27	115	60 - 140	101	60 - 140	100	%		
3553837	D4-1,2-Dichloroethane	2014/03/27	99	60 - 140	102	60 - 140	95	%		
3553837	Benzene	2014/03/27	101	60 - 140	106	60 - 140	ND, RDL=0.020	ug/g	NC	50
3553837	Toluene	2014/03/27	93	60 - 140	102	60 - 140	ND, RDL=0.020	ug/g	NC	50
3553837	Ethylbenzene	2014/03/27	103	60 - 140	112	60 - 140	ND, RDL=0.020	ug/g	NC	50
3553837	o-Xylene	2014/03/27	104	60 - 140	110	60 - 140	ND, RDL=0.020	ug/g	NC	50
3553837	p+m-Xylene	2014/03/27	94	60 - 140	100	60 - 140	ND, RDL=0.040	ug/g	NC	50
3553837	F1 (C6-C10)	2014/03/27	79	60 - 140	106	80 - 120	ND, RDL=10	ug/g	NC	30
3553837	Total Xylenes	2014/03/27					ND, RDL=0.040	ug/g	NC	50
3553837	F1 (C6-C10) - BTEX	2014/03/27					ND, RDL=10	ug/g	NC	30
3554306	o-Terphenyl	2014/03/28	94	60 - 130	91	60 - 130	90	%		
3554306	F2 (C10-C16 Hydrocarbons)	2014/03/28	100	50 - 130	97	80 - 120	ND, RDL=10	ug/g	NC	30
3554306	F3 (C16-C34 Hydrocarbons)	2014/03/28	103	50 - 130	99	80 - 120	ND, RDL=50	ug/g	NC	30
3554306	F4 (C34-C50 Hydrocarbons)	2014/03/28	92	50 - 130	90	80 - 120	ND, RDL=50	ug/g	NC	30
3555192	Hot Water Ext. Boron (B)	2014/03/28	99	75 - 125	104	75 - 125	ND, RDL=0.050	ug/g	NC	40
3555204	Acid Extractable Aluminum (Al)	2014/03/28	NC	75 - 125	110	80 - 120	ND, RDL=50	ug/g		
3555204	Acid Extractable Antimony (Sb)	2014/03/28	103	75 - 125	103	80 - 120	ND, RDL=0.20	ug/g	NC	30
3555204	Acid Extractable Arsenic (As)	2014/03/28	103	75 - 125	103	80 - 120	ND, RDL=1.0	ug/g	NC	30
3555204	Acid Extractable Barium (Ba)	2014/03/28	103	75 - 125	100	80 - 120	ND, RDL=0.50	ug/g	6.5	30
3555204	Acid Extractable Beryllium (Be)	2014/03/28	108	75 - 125	104	80 - 120	ND, RDL=0.20	ug/g	NC	30
3555204	Acid Extractable Bismuth (Bi)	2014/03/28	102	75 - 125	104	80 - 120	ND, RDL=1.0	ug/g		
3555204	Acid Extractable Boron (B)	2014/03/28	105	75 - 125	102	80 - 120	ND, RDL=5.0	ug/g	NC	30
3555204	Acid Extractable Cadmium (Cd)	2014/03/28	102	75 - 125	103	80 - 120	ND, RDL=0.10	ug/g	NC	30
3555204	Acid Extractable Calcium (Ca)	2014/03/28	NC	75 - 125	108	80 - 120	ND, RDL=50	ug/g		
3555204	Acid Extractable Chromium (Cr)	2014/03/28	105	75 - 125	105	80 - 120	ND, RDL=1.0	ug/g	NC	30
3555204	Acid Extractable Cobalt (Co)	2014/03/28	107	75 - 125	107	80 - 120	ND, RDL=0.10	ug/g	2.9	30
3555204	Acid Extractable Copper (Cu)	2014/03/28	104	75 - 125	105	80 - 120	0.54, RDL=0.50 (1)	ug/g	7.1	30
3555204	Acid Extractable Iron (Fe)	2014/03/28	NC	75 - 125	109	80 - 120	ND, RDL=50	ug/g		
3555204	Acid Extractable Lead (Pb)	2014/03/28	104	75 - 125	107	80 - 120	ND, RDL=1.0	ug/g	NC	30
3555204	Acid Extractable Magnesium (Mg)	2014/03/28	NC	75 - 125	108	80 - 120	ND, RDL=50	ug/g		
3555204	Acid Extractable Manganese (Mn)	2014/03/28	NC	75 - 125	103	80 - 120	ND, RDL=1.0	ug/g		
3555204	Acid Extractable Molybdenum (Mo)	2014/03/28	103	75 - 125	101	80 - 120	ND, RDL=0.50	ug/g	NC	30
3555204	Acid Extractable Nickel (Ni)	2014/03/28	103	75 - 125	106	80 - 120	ND, RDL=0.50	ug/g	1.9	30
3555204	Acid Extractable Phosphorus (P)	2014/03/28	NC	75 - 125	111	80 - 120	ND, RDL=50	ug/g		
3555204	Acid Extractable Potassium (K)	2014/03/28	105	75 - 125	104	80 - 120	ND, RDL=200	ug/g		
3555204	Acid Extractable Selenium (Se)	2014/03/28	106	75 - 125	104	80 - 120	ND, RDL=0.50	ug/g	NC	30
3555204	Acid Extractable Silver (Ag)	2014/03/28	107	75 - 125	107	80 - 120	ND, RDL=0.20	ug/g	NC	30

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

Maxxam Job #: B447856
Report Date: 2014/09/03

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
3555204	Acid Extractable Sodium (Na)	2014/03/28	108	75 - 125	107	80 - 120	ND, RDL=100	ug/g		
3555204	Acid Extractable Strontium (Sr)	2014/03/28	NC	75 - 125	102	80 - 120	ND, RDL=1.0	ug/g		
3555204	Acid Extractable Thallium (Tl)	2014/03/28	96	75 - 125	102	80 - 120	ND, RDL=0.050	ug/g	NC	30
3555204	Acid Extractable Tin (Sn)	2014/03/28	103	75 - 125	102	80 - 120	ND, RDL=5.0	ug/g		
3555204	Acid Extractable Uranium (U)	2014/03/28	95	75 - 125	98	80 - 120	ND, RDL=0.050	ug/g	NC	30
3555204	Acid Extractable Vanadium (V)	2014/03/28	105	75 - 125	103	80 - 120	ND, RDL=5.0	ug/g	NC	30
3555204	Acid Extractable Zinc (Zn)	2014/03/28	107	75 - 125	105	80 - 120	ND, RDL=5.0	ug/g	NC	30
3555204	Acid Extractable Mercury (Hg)	2014/03/28	101	75 - 125	106	80 - 120	ND, RDL=0.050	ug/g	NC	30

N/A = Not Applicable
RDL = Reportable Detection Limit
RPD = Relative Percent Difference
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).
NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).
(1) - Analyte was detected in the method blank at a level marginally above the detection limit. Sample results have not been blank corrected. Those results at or near the detection limit may be biased high..

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Validation Signature Page

Maxxam Job #: B447856

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Cristina Carriere, Scientific Services

Jeevaraj Jeevaratrnam, Senior Analyst

Suzana Popovic, Supervisor, Hydrocarbons

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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6740 Campobell

RUSH

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26-Mar-14 13:30
Krystal Seedial
B447856
MAF ENV-631

Page 1 of 1

INVOICE INFORMATION:

Company Name: #3101 Peto MacCallum Ltd
Contact Name: Sarah Murray
Address: 45 Burford Rd
Hamilton ON L8E 3C6
Phone: (905) 561-2231 x 124 Fax: (905) 561-6366 x
Email: smurray@petomaccallum.com

ORMATION(if differs from invoice):

Contact Name:
Address:
Phone: Fax:
Email:

PROJECT INFORMATION:

Quotation #: B41439
P.O. #:
Project #: 13HX002 Clean-Up
Project Name:
Site #:
Sampled By: Sarah Murray

C#461791-04-01

nly:
Bottle Order #: 461791
Project Manager: Krystal Seedial

Regulation 153 (2011)

- [x] Table1
- [ ] Table2
- [ ] Table3
- [ ] Table ___
- [ ] Res/Park
- [ ] Ind/Comm
- [ ] Agri/Other
- [ ] Medium/Fine
- [ ] Coarse
- [x] For RSC

Other Regulations

- [ ] CCME
- [ ] Reg 558.
- [ ] MISA
- [ ] PWQO
- [ ] Other
- [ ] Sanitary Sewer Bylaw
- [ ] Storm Sewer Bylaw

Municipality

Special Instructions

Include Criteria on Certificate of Analysis (Y/N)? Yes

Note: For MOE regulated drinking water samples - please use the Drinking Water Chain of Custody Form

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Regulated Drinking Water ? (Y/N)	Metals Field Filtered ? (Y/N)	Petroleum Hydrocarbons F1 to F4	Electrical Conductivity	Hot Water Extractable Boron	Reg 153 ICPMS Metals only package	# of Bottles	Comments
1		Area 3 E9	March 25 2014	5:50pm	S			X		X	X	4	
2		Area 3 G6	"	6:00pm	S			X		X	X	4	
3		Area 3 I4	"	6:05pm	S			X		X	X	4	
4													
5													
6													
7													
8													
9													
10													

ANALYSIS REQUESTED (Please be specific):

Turnaround Time (TAT) Required: 2 Day

Please provide advance notice for rush projects

Regular (Standard) TAT:
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: March. 28/14 Time Required: ___
Rush Confirmation Number: KS140326-1 (call lab for #)

*RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# jars used and not submitted
N. Durish / Danika Durish	2014/03/26	9:02am	RACHEL DEVLIN	2014/03/26	13:30	

Laboratory Use Only

Time Sensitive	Temperature (°C) on Receipt	CustodySeal	Yes	No
	2/3/2·C	Present		✓
		Intact		

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS

Maxxam Analytics International Corporation o/a Maxxam Analytics

Your Project #: 13HX002 Clean-Up
Your C.O.C. #: 46179105, 461791-05-01

Attention: Sarah Murray
Peto MacCallum Ltd
45 Burford Rd
Hamilton, ON
L8E 3C6

Report Date: 2014/09/03
Report #: R3143518
Version: 3R

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B448695
Received: 2014/03/27, 13:20

Sample Matrix: Soil
Samples Received: 17

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Hot Water Extractable Boron	17	2014/03/31	2014/03/31	CAM SOP-00408	R153 Ana. Prot. 2011
Petroleum Hydro. CCME F1 & BTEX in Soil	17	2014/03/27	2014/03/28	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Soil	2	2014/03/28	2014/03/28	CAM SOP-00316	CCME CWS
Petroleum Hydrocarbons F2-F4 in Soil	15	2014/03/28	2014/03/29	CAM SOP-00316	CCME CWS
F4G (CCME Hydrocarbons Gravimetric)	7	2014/04/01	2014/04/01	CAM SOP-00316	CCME PHC-CWS m
Acid Extr. Metals (aqua regia) by ICPMS	17	2014/03/31	2014/03/31	CAM SOP-00447	EPA 6020 m
Moisture	17	N/A	2014/03/27	CAM SOP-00445	R.Carter,1993

Remarks:

Maxxam Analytics has performed all analytical testing herein in accordance with ISO 17025 and the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. All methodologies comply with this document and are validated for use in the laboratory. The methods and techniques employed in this analysis conform to the performance criteria (detection limits, accuracy and precision) as outlined in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act.

The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following the 'Alberta Environment Draft Addenda to the CWS-PHC, Appendix 6, Validation of Alternate Methods'. Documentation is available upon request. Maxxam has made the following improvements to the CWS-PHC reference benchmark method: (i) Headspace for F1; and, (ii) Mechanical extraction for F2-F4. Note: F4G cannot be added to the C6 to C50 hydrocarbons. The extraction date for samples field preserved with methanol for F1 and Volatile Organic Compounds is considered to be the date sampled.

Maxxam Analytics is accredited for all specific parameters as required by Ontario Regulation 153/04. Maxxam Analytics is limited in liability to the actual cost of analysis unless otherwise agreed in writing. There is no other warranty expressed or implied. Samples will be retained at Maxxam Analytics for three weeks from receipt of data or as per contract.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
* Results relate only to the items tested.

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

Maxxam Job #: B448695
Report Date: 2014/09/03

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Krystal Seedial, Project Manager
Email: KSeedial@maxxam.ca
Phone# (905) 817-5700

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 2

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RESULTS OF ANALYSES OF SOIL

Maxxam ID		VI4545		VI4546	VI4547	VI4548	VI4549	VI4550		
Sampling Date		2014/03/26 15:45		2014/03/26 15:50	2014/03/26 16:00	2014/03/26 16:20	2014/03/26 16:30	2014/03/26 16:40		
	Units	**AREA 3 D3**	**QC Batch**	**AREA 3 C8**	**AREA 3 I8**	**AREA 3 I14**	**AREA 3 F15**	**AREA 3 C18**	**RDL**	**QC Batch**
Inorganics										
Moisture	%	22	3554932	18	27	12	18	16	1.0	3554647

Maxxam ID		VI4551	VI4552	VI4553	VI4554	VI4555	VI4556		
Sampling Date		2014/03/26 15:20	2014/03/26 15:15	2014/03/26 15:10	2014/03/26 15:30	2014/03/26 15:40	2014/03/26 15:00		
	Units	**AREA 3 A3**	**AREA 3 A9**	**AREA 3 A15**	**AREA 3 B1**	**AREA 3 F1**	**AREA 3 H19**	**RDL**	**QC Batch**
Inorganics									
Moisture	%	19	21	16	28	21	7.1	1.0	3554932

Maxxam ID		VI4557	VI4558	VI4559	VI4560	VI4561		
Sampling Date		2014/03/26 15:20	2014/03/26 14:45	2014/03/26 14:50	2014/03/26 14:55	2014/03/26		
	Units	**AREA 3 D20**	**AREA 3 J3**	**AREA 3 J10**	**AREA 3 J16**	**AREA 3 DUPLICATE**	**RDL**	**QC Batch**
Inorganics								
Moisture	%	15	14	14	17	20	1.0	3554932

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Job #: B448695
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID			VI4545	VI4546	VI4547	VI4548		VI4549		
Sampling Date			2014/03/26 15:45	2014/03/26 15:50	2014/03/26 16:00	2014/03/26 16:20		2014/03/26 16:30		
	Units	**Criteria A**	**AREA 3 D3**	**AREA 3 C8**	**AREA 3 I8**	**AREA 3 I14**	**QC Batch**	**AREA 3 F15**	**RDL**	**QC Batch**
Metals										
Hot Water Ext. Boron (B)	ug/g	**1.5**	0.85	0.71	0.65	0.15	3557236	0.78	0.050	3557167
Acid Extractable Antimony (Sb)	ug/g	**7.5**	0.22	0.58	ND	0.28	3557121	0.34	0.20	3557202
Acid Extractable Arsenic (As)	ug/g	**18**	4.6	5.9	5.4	6.9	3557121	4.6	1.0	3557202
Acid Extractable Barium (Ba)	ug/g	**390**	78	84	170	120	3557121	65	0.50	3557202
Acid Extractable Beryllium (Be)	ug/g	**4**	0.56	0.61	1.3	0.99	3557121	0.54	0.20	3557202
Acid Extractable Boron (B)	ug/g	**120**	ND	5.7	ND	ND	3557121	ND	5.0	3557202
Acid Extractable Cadmium (Cd)	ug/g	**1.2**	0.18	0.43	0.53	0.18	3557121	0.23	0.10	3557202
Acid Extractable Chromium (Cr)	ug/g	**160**	16	18	26	25	3557121	21	1.0	3557202
Acid Extractable Cobalt (Co)	ug/g	**22**	9.0	8.9	12	14	3557121	9.2	0.10	3557202
Acid Extractable Copper (Cu)	ug/g	**140**	16	30	27	40	3557121	17	0.50	3557202
Acid Extractable Lead (Pb)	ug/g	**120**	22	54	23	17	3557121	20	1.0	3557202
Acid Extractable Molybdenum (Mo)	ug/g	**6.9**	ND	1.1	0.78	ND	3557121	0.84	0.50	3557202
Acid Extractable Nickel (Ni)	ug/g	**100**	15	18	21	34	3557121	15	0.50	3557202
Acid Extractable Selenium (Se)	ug/g	**2.4**	ND	ND	0.63	ND	3557121	ND	0.50	3557202
Acid Extractable Silver (Ag)	ug/g	**20**	ND	ND	ND	ND	3557121	ND	0.20	3557202
Acid Extractable Thallium (Tl)	ug/g	**1**	0.13	0.12	0.16	0.15	3557121	0.099	0.050	3557202
Acid Extractable Uranium (U)	ug/g	**23**	0.34	0.76	1.9	0.68	3557121	0.89	0.050	3557202
Acid Extractable Vanadium (V)	ug/g	**86**	27	26	40	34	3557121	26	5.0	3557202
Acid Extractable Zinc (Zn)	ug/g	**340**	57	110	90	78	3557121	76	5.0	3557202
Acid Extractable Mercury (Hg)	ug/g	**0.27**	ND	0.068	0.071	ND	3557121	ND	0.050	3557202

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria A: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Texture

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ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID			VI4550		VI4551	VI4552	VI4553		VI4554		
Sampling Date			2014/03/26 16:40		2014/03/26 15:20	2014/03/26 15:15	2014/03/26 15:10		2014/03/26 15:30		
	Units	**Criteria A**	**AREA 3 C18**	**QC Batch**	**AREA 3 A3**	**AREA 3 A9**	**AREA 3 A15**	**QC Batch**	**AREA 3 B1**	**RDL**	**QC Batch**
Metals											
Hot Water Ext. Boron (B)	ug/g	**1.5**	0.33	3557236	0.80	0.67	1.4	3557167	1.1	0.050	3557236
Acid Extractable Antimony (Sb)	ug/g	**7.5**	ND	3557121	0.72	0.42	0.70	3557202	0.34	0.20	3557121
Acid Extractable Arsenic (As)	ug/g	**18**	2.8	3557121	5.5	5.3	5.5	3557202	4.7	1.0	3557121
Acid Extractable Barium (Ba)	ug/g	**390**	40	3557121	93	80	100	3557202	57	0.50	3557121
Acid Extractable Beryllium (Be)	ug/g	**4**	0.56	3557121	0.52	0.60	0.51	3557202	0.48	0.20	3557121
Acid Extractable Boron (B)	ug/g	**120**	ND	3557121	ND	5.0	8.2	3557202	5.1	5.0	3557121
Acid Extractable Cadmium (Cd)	ug/g	**1.2**	ND	3557121	0.58	0.47	**2.4**	3557202	0.68	0.10	3557121
Acid Extractable Chromium (Cr)	ug/g	**160**	14	3557121	18	18	20	3557202	22	1.0	3557121
Acid Extractable Cobalt (Co)	ug/g	**22**	6.4	3557121	8.0	8.1	8.1	3557202	7.5	0.10	3557121
Acid Extractable Copper (Cu)	ug/g	**140**	11	3557121	26	28	33	3557202	26	0.50	3557121
Acid Extractable Lead (Pb)	ug/g	**120**	11	3557121	40	51	**120**	3557202	59	1.0	3557121
Acid Extractable Molybdenum (Mo)	ug/g	**6.9**	ND	3557121	0.75	0.72	0.68	3557202	0.72	0.50	3557121
Acid Extractable Nickel (Ni)	ug/g	**100**	12	3557121	17	18	22	3557202	16	0.50	3557121
Acid Extractable Selenium (Se)	ug/g	**2.4**	ND	3557121	ND	ND	ND	3557202	ND	0.50	3557121
Acid Extractable Silver (Ag)	ug/g	**20**	ND	3557121	ND	ND	ND	3557202	ND	0.20	3557121
Acid Extractable Thallium (Tl)	ug/g	**1**	0.096	3557121	0.12	0.11	0.12	3557202	0.11	0.050	3557121
Acid Extractable Uranium (U)	ug/g	**23**	0.39	3557121	0.45	0.53	0.56	3557202	0.34	0.050	3557121
Acid Extractable Vanadium (V)	ug/g	**86**	22	3557121	23	23	20	3557202	25	5.0	3557121
Acid Extractable Zinc (Zn)	ug/g	**340**	43	3557121	150	110	270	3557202	130	5.0	3557121
Acid Extractable Mercury (Hg)	ug/g	**0.27**	ND	3557121	0.070	0.053	0.18	3557202	ND	0.050	3557121

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria A: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Texture

Maxxam Job #: B448695
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID			VI4555	VI4556		VI4557		
Sampling Date			2014/03/26 15:40	2014/03/26 15:00		2014/03/26 15:20		
	Units	**Criteria A**	**AREA 3 F1**	**AREA 3 H19**	**QC Batch**	**AREA 3 D20**	**RDL**	**QC Batch**
Metals								
Hot Water Ext. Boron (B)	ug/g	**1.5**	0.69	0.19	3557167	0.91	0.050	3557236
Acid Extractable Antimony (Sb)	ug/g	**7.5**	0.61	0.29	3557202	0.35	0.20	3557202
Acid Extractable Arsenic (As)	ug/g	**18**	6.2	5.8	3557202	9.4	1.0	3557202
Acid Extractable Barium (Ba)	ug/g	**390**	76	40	3557202	56	0.50	3557202
Acid Extractable Beryllium (Be)	ug/g	**4**	0.58	0.23	3557202	0.41	0.20	3557202
Acid Extractable Boron (B)	ug/g	**120**	6.5	7.6	3557202	5.9	5.0	3557202
Acid Extractable Cadmium (Cd)	ug/g	**1.2**	0.59	0.81	3557202	0.36	0.10	3557202
Acid Extractable Chromium (Cr)	ug/g	**160**	23	10	3557202	23	1.0	3557202
Acid Extractable Cobalt (Co)	ug/g	**22**	9.5	4.7	3557202	7.6	0.10	3557202
Acid Extractable Copper (Cu)	ug/g	**140**	34	23	3557202	18	0.50	3557202
Acid Extractable Lead (Pb)	ug/g	**120**	41	84	3557202	47	1.0	3557202
Acid Extractable Molybdenum (Mo)	ug/g	**6.9**	0.86	1.2	3557202	1.0	0.50	3557202
Acid Extractable Nickel (Ni)	ug/g	**100**	20	9.9	3557202	13	0.50	3557202
Acid Extractable Selenium (Se)	ug/g	**2.4**	ND	ND	3557202	ND	0.50	3557202
Acid Extractable Silver (Ag)	ug/g	**20**	ND	ND	3557202	ND	0.20	3557202
Acid Extractable Thallium (Tl)	ug/g	**1**	0.12	0.10	3557202	0.095	0.050	3557202
Acid Extractable Uranium (U)	ug/g	**23**	0.42	0.43	3557202	0.46	0.050	3557202
Acid Extractable Vanadium (V)	ug/g	**86**	25	12	3557202	23	5.0	3557202
Acid Extractable Zinc (Zn)	ug/g	**340**	130	290	3557202	97	5.0	3557202
Acid Extractable Mercury (Hg)	ug/g	**0.27**	ND	ND	3557202	ND	0.050	3557202

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria A: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Texture

Maxxam Job #: B448695
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID			VI4558	VI4559	VI4560	VI4561		
Sampling Date			2014/03/26 14:45	2014/03/26 14:50	2014/03/26 14:55	2014/03/26		
	Units	**Criteria A**	**AREA 3 J3**	**AREA 3 J10**	**AREA 3 J16**	**AREA 3 DUPLICATE**	**RDL**	**QC Batch**
Metals								
Hot Water Ext. Boron (B)	ug/g	**1.5**	0.65	0.41	0.25	0.73	0.050	3557236
Acid Extractable Antimony (Sb)	ug/g	**7.5**	ND	0.45	0.27	0.26	0.20	3557121
Acid Extractable Arsenic (As)	ug/g	**18**	4.7	6.9	5.9	5.2	1.0	3557121
Acid Extractable Barium (Ba)	ug/g	**390**	86	58	72	79	0.50	3557121
Acid Extractable Beryllium (Be)	ug/g	**4**	0.46	0.42	0.61	0.59	0.20	3557121
Acid Extractable Boron (B)	ug/g	**120**	ND	8.0	ND	ND	5.0	3557121
Acid Extractable Cadmium (Cd)	ug/g	**1.2**	0.23	**2.1**	0.21	0.31	0.10	3557121
Acid Extractable Chromium (Cr)	ug/g	**160**	12	14	17	16	1.0	3557121
Acid Extractable Cobalt (Co)	ug/g	**22**	7.0	6.9	10	9.7	0.10	3557121
Acid Extractable Copper (Cu)	ug/g	**140**	33	30	20	24	0.50	3557121
Acid Extractable Lead (Pb)	ug/g	**120**	11	77	25	32	1.0	3557121
Acid Extractable Molybdenum (Mo)	ug/g	**6.9**	ND	0.86	0.58	0.54	0.50	3557121
Acid Extractable Nickel (Ni)	ug/g	**100**	15	14	21	16	0.50	3557121
Acid Extractable Selenium (Se)	ug/g	**2.4**	ND	ND	ND	ND	0.50	3557121
Acid Extractable Silver (Ag)	ug/g	**20**	ND	ND	ND	ND	0.20	3557121
Acid Extractable Thallium (Tl)	ug/g	**1**	0.097	0.12	0.099	0.11	0.050	3557121
Acid Extractable Uranium (U)	ug/g	**23**	0.54	0.55	0.53	0.35	0.050	3557121
Acid Extractable Vanadium (V)	ug/g	**86**	19	20	24	27	5.0	3557121
Acid Extractable Zinc (Zn)	ug/g	**340**	47	200	84	80	5.0	3557121
Acid Extractable Mercury (Hg)	ug/g	**0.27**	ND	ND	ND	ND	0.050	3557121

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria A: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Texture

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Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID			VI4545		VI4546		VI4547	VI4548	VI4549	VI4550		
Sampling Date			2014/03/26 15:45		2014/03/26 15:50		2014/03/26 16:00	2014/03/26 16:20	2014/03/26 16:30	2014/03/26 16:40		
	Units	**Criteria A**	**AREA 3 D3**	**RDL**	**AREA 3 C8**	**RDL**	**AREA 3 I8**	**AREA 3 I14**	**AREA 3 F15**	**AREA 3 C18**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons												
Benzene	ug/g	**0.21**	ND	0.020	ND	0.040	ND	ND	ND	ND	0.020	3555495
Toluene	ug/g	**2.3**	ND	0.020	ND	0.040	ND	ND	ND	ND	0.020	3555495
Ethylbenzene	ug/g	**2**	ND	0.020	ND	0.040	ND	ND	ND	ND	0.020	3555495
o-Xylene	ug/g		ND	0.020	ND	0.040	ND	ND	ND	ND	0.020	3555495
p+m-Xylene	ug/g		ND	0.040	ND	0.080	ND	ND	ND	ND	0.040	3555495
Total Xylenes	ug/g	**3.1**	ND	0.040	ND	0.080	ND	ND	ND	ND	0.040	3555495
F1 (C6-C10)	ug/g	**55**	ND	10	ND	20	ND	ND	ND	ND	10	3555495
F1 (C6-C10) - BTEX	ug/g	**55**	ND	10	ND	20	ND	ND	ND	ND	10	3555495
F2-F4 Hydrocarbons												
F2 (C10-C16 Hydrocarbons)	ug/g	**98**	81	10	ND	10	ND	ND	ND	ND	10	3555523
F3 (C16-C34 Hydrocarbons)	ug/g	**300**	280	50	**730**	50	ND	ND	ND	ND	50	3555523
F4 (C34-C50 Hydrocarbons)	ug/g	**2800**	ND	50	470	50	ND	ND	ND	ND	50	3555523
Reached Baseline at C50	ug/g		YES		YES		YES	YES	YES	YES		3555523
Surrogate Recovery (%)												
1,4-Difluorobenzene	%		99		101		102	100	101	100		3555495
4-Bromofluorobenzene	%		100		101		102	100	101	100		3555495
D10-Ethylbenzene	%		103		96		101	103	111	102		3555495
D4-1,2-Dichloroethane	%		97		101		100	100	100	98		3555495
o-Terphenyl	%		93		90		90	89	91	90		3555523

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria A: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Texture

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Maxxam Job #: B448695
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID			VI4551		VI4552		VI4553	VI4554		VI4555		
Sampling Date			2014/03/26 15:20		2014/03/26 15:15		2014/03/26 15:10	2014/03/26 15:30		2014/03/26 15:40		
	Units	**Criteria A**	**AREA 3 A3**	**RDL**	**AREA 3 A9**	**RDL**	**AREA 3 A15**	**AREA 3 B1**	**RDL**	**AREA 3 F1**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons												
Benzene	ug/g	**0.21**	ND	0.040	ND	0.060	ND	ND	0.040	ND	0.020	3555495
Toluene	ug/g	**2.3**	ND	0.040	ND	0.060	ND	ND	0.040	ND	0.020	3555495
Ethylbenzene	ug/g	**2**	ND	0.040	ND	0.060	ND	ND	0.040	ND	0.020	3555495
o-Xylene	ug/g		ND	0.040	ND	0.060	ND	ND	0.040	ND	0.020	3555495
p+m-Xylene	ug/g		ND	0.080	ND	0.12	ND	ND	0.080	ND	0.040	3555495
Total Xylenes	ug/g	**3.1**	ND	0.080	ND	0.12	ND	ND	0.080	ND	0.040	3555495
F1 (C6-C10)	ug/g	**55**	ND	20	ND	30	ND	ND	20	ND	10	3555495
F1 (C6-C10) - BTEX	ug/g	**55**	ND	20	ND	30	ND	ND	20	ND	10	3555495
F2-F4 Hydrocarbons												
F4G-sg (Grav. Heavy Hydrocarbons)	ug/g	**2800**			2200	100	**7800**	2400	100	670	100	3558469
F2 (C10-C16 Hydrocarbons)	ug/g	**98**	ND	10	ND	10	ND	ND	10	ND	10	3555523
F3 (C16-C34 Hydrocarbons)	ug/g	**300**	ND	50	260	50	180	**360**	50	150	50	3555523
F4 (C34-C50 Hydrocarbons)	ug/g	**2800**	ND	50	420	50	950	690	50	130	50	3555523
Reached Baseline at C50	ug/g		YES		NO		NO	NO		NO		3555523
Surrogate Recovery (%)												
1,4-Difluorobenzene	%		100		100		101	101		101		3555495
4-Bromofluorobenzene	%		100		100		100	100		100		3555495
D10-Ethylbenzene	%		106		87		99	102		103		3555495
D4-1,2-Dichloroethane	%		99		100		100	100		99		3555495
o-Terphenyl	%		92		91		93	93		91		3555523

ND = Not detected
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QC Batch = Quality Control Batch
Criteria A: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Texture

Maxxam Job #: B448695
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID			VI4556	VI4557	VI4558	VI4559	VI4560	VI4561		
Sampling Date			2014/03/26 15:00	2014/03/26 15:20	2014/03/26 14:45	2014/03/26 14:50	2014/03/26 14:55	2014/03/26		
	Units	**Criteria A**	**AREA 3 H19**	**AREA 3 D20**	**AREA 3 J3**	**AREA 3 J10**	**AREA 3 J16**	**AREA 3 DUPLICATE**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons										
Benzene	ug/g	**0.21**	ND	ND	ND	ND	ND	ND	0.020	3555495
Toluene	ug/g	**2.3**	ND	ND	ND	ND	ND	ND	0.020	3555495
Ethylbenzene	ug/g	**2**	ND	ND	ND	ND	ND	ND	0.020	3555495
o-Xylene	ug/g		ND	ND	ND	ND	ND	ND	0.020	3555495
p+m-Xylene	ug/g		ND	ND	ND	ND	ND	ND	0.040	3555495
Total Xylenes	ug/g	**3.1**	ND	ND	ND	ND	ND	ND	0.040	3555495
F1 (C6-C10)	ug/g	**55**	ND	ND	ND	ND	ND	ND	10	3555495
F1 (C6-C10) - BTEX	ug/g	**55**	ND	ND	ND	ND	ND	ND	10	3555495
F2-F4 Hydrocarbons										
F4G-sg (Grav. Heavy Hydrocarbons)	ug/g	**2800**	960	920		320			100	3558469
F2 (C10-C16 Hydrocarbons)	ug/g	**98**	ND	ND	41	ND	ND	**200**	10	3555523
F3 (C16-C34 Hydrocarbons)	ug/g	**300**	190	150	**2300**	100	110	**420**	50	3555523
F4 (C34-C50 Hydrocarbons)	ug/g	**2800**	210	180	590	100	ND	ND	50	3555523
Reached Baseline at C50	ug/g		NO	NO	YES	NO	YES	YES		3555523
Surrogate Recovery (%)										
1,4-Difluorobenzene	%		100	101	100	101	102	101		3555495
4-Bromofluorobenzene	%		99	99	99	99	100	101		3555495
D10-Ethylbenzene	%		96	104	108	97	107	103		3555495
D4-1,2-Dichloroethane	%		101	97	97	99	99	99		3555495
o-Terphenyl	%		94	93	95	95	95	101		3555523

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria A: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Texture

Maxxam Job #: B448695
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

Test Summary

Maxxam ID VI4545 **Collected** 2014/03/26
Sample ID AREA 3 D3 **Shipped**
Matrix Soil **Received** 2014/03/27

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3557236	2014/03/31	2014/03/31	Jolly John
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3555495	2014/03/27	2014/03/28	Haibin Wu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3555523	2014/03/28	2014/03/28	Barbara Wowk
Acid Extr. Metals (aqua regia) by ICPMS	ICP/MS	3557121	2014/03/31	2014/03/31	Viviana Canzonieri
Moisture	BAL	3554932	N/A	2014/03/27	Valentina Kaftani

Maxxam ID VI4545 Dup **Collected** 2014/03/26
Sample ID AREA 3 D3 **Shipped**
Matrix Soil **Received** 2014/03/27

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3555495	2014/03/27	2014/03/28	Haibin Wu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3555523	2014/03/28	2014/03/28	Barbara Wowk

Maxxam ID VI4546 **Collected** 2014/03/26
Sample ID AREA 3 C8 **Shipped**
Matrix Soil **Received** 2014/03/27

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3557236	2014/03/31	2014/03/31	Jolly John
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3555495	2014/03/27	2014/03/28	Haibin Wu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3555523	2014/03/28	2014/03/28	Barbara Wowk
Acid Extr. Metals (aqua regia) by ICPMS	ICP/MS	3557121	2014/03/31	2014/03/31	Viviana Canzonieri
Moisture	BAL	3554647	N/A	2014/03/27	Valentina Kaftani

Maxxam Job #: B448695
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

Test Summary

Maxxam ID VI4547 **Collected** 2014/03/26
Sample ID AREA 3 I8 **Shipped**
Matrix Soil **Received** 2014/03/27

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3557236	2014/03/31	2014/03/31	Jolly John
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3555495	2014/03/27	2014/03/28	Haibin Wu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3555523	2014/03/28	2014/03/29	Barbara Wowk
Acid Extr. Metals (aqua regia) by ICPMS	ICP/MS	3557121	2014/03/31	2014/03/31	Viviana Canzonieri
Moisture	BAL	3554647	N/A	2014/03/27	Valentina Kaftani

Maxxam ID VI4548 **Collected** 2014/03/26
Sample ID AREA 3 I14 **Shipped**
Matrix Soil **Received** 2014/03/27

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3557236	2014/03/31	2014/03/31	Jolly John
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3555495	2014/03/27	2014/03/28	Haibin Wu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3555523	2014/03/28	2014/03/29	Barbara Wowk
Acid Extr. Metals (aqua regia) by ICPMS	ICP/MS	3557121	2014/03/31	2014/03/31	Viviana Canzonieri
Moisture	BAL	3554647	N/A	2014/03/27	Valentina Kaftani

Maxxam ID VI4549 **Collected** 2014/03/26
Sample ID AREA 3 F15 **Shipped**
Matrix Soil **Received** 2014/03/27

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3557167	2014/03/31	2014/03/31	Jolly John
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3555495	2014/03/27	2014/03/28	Haibin Wu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3555523	2014/03/28	2014/03/29	Barbara Wowk
Acid Extr. Metals (aqua regia) by ICPMS	ICP/MS	3557202	2014/03/31	2014/03/31	Viviana Canzonieri
Moisture	BAL	3554647	N/A	2014/03/27	Valentina Kaftani

Maxxam Job #: B448695
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

Test Summary

Maxxam ID VI4550 **Collected** 2014/03/26
Sample ID AREA 3 C18 **Shipped**
Matrix Soil **Received** 2014/03/27

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3557236	2014/03/31	2014/03/31	Jolly John
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3555495	2014/03/27	2014/03/28	Haibin Wu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3555523	2014/03/28	2014/03/29	Barbara Wowk
Acid Extr. Metals (aqua regia) by ICPMS	ICP/MS	3557121	2014/03/31	2014/03/31	Viviana Canzonieri
Moisture	BAL	3554647	N/A	2014/03/27	Valentina Kaftani

Maxxam ID VI4551 **Collected** 2014/03/26
Sample ID AREA 3 A3 **Shipped**
Matrix Soil **Received** 2014/03/27

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3557167	2014/03/31	2014/03/31	Jolly John
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3555495	2014/03/27	2014/03/28	Haibin Wu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3555523	2014/03/28	2014/03/29	Barbara Wowk
Acid Extr. Metals (aqua regia) by ICPMS	ICP/MS	3557202	2014/03/31	2014/03/31	Viviana Canzonieri
Moisture	BAL	3554932	N/A	2014/03/27	Valentina Kaftani

Maxxam ID VI4552 **Collected** 2014/03/26
Sample ID AREA 3 A9 **Shipped**
Matrix Soil **Received** 2014/03/27

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3557167	2014/03/31	2014/03/31	Jolly John
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3555495	2014/03/27	2014/03/28	Haibin Wu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3555523	2014/03/28	2014/03/29	Barbara Wowk
F4G (CCME Hydrocarbons Gravimetric)	BAL	3558469	2014/04/01	2014/04/01	Raheela Usmani
Acid Extr. Metals (aqua regia) by ICPMS	ICP/MS	3557202	2014/03/31	2014/03/31	Viviana Canzonieri
Moisture	BAL	3554932	N/A	2014/03/27	Valentina Kaftani

Maxxam Job #: B448695
Report Date: 2014/09/03

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Test Summary

Maxxam ID VI4553 **Collected** 2014/03/26
Sample ID AREA 3 A15 **Shipped**
Matrix Soil **Received** 2014/03/27

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3557167	2014/03/31	2014/03/31	Jolly John
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3555495	2014/03/27	2014/03/28	Haibin Wu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3555523	2014/03/28	2014/03/29	Barbara Wowk
F4G (CCME Hydrocarbons Gravimetric)	BAL	3558469	2014/04/01	2014/04/01	Raheela Usmani
Acid Extr. Metals (aqua regia) by ICPMS	ICP/MS	3557202	2014/03/31	2014/03/31	Viviana Canzonieri
Moisture	BAL	3554932	N/A	2014/03/27	Valentina Kaftani

Maxxam ID VI4554 **Collected** 2014/03/26
Sample ID AREA 3 B1 **Shipped**
Matrix Soil **Received** 2014/03/27

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3557236	2014/03/31	2014/03/31	Jolly John
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3555495	2014/03/27	2014/03/28	Haibin Wu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3555523	2014/03/28	2014/03/29	Barbara Wowk
F4G (CCME Hydrocarbons Gravimetric)	BAL	3558469	2014/04/01	2014/04/01	Raheela Usmani
Acid Extr. Metals (aqua regia) by ICPMS	ICP/MS	3557121	2014/03/31	2014/03/31	Viviana Canzonieri
Moisture	BAL	3554932	N/A	2014/03/27	Valentina Kaftani

Maxxam ID VI4555 **Collected** 2014/03/26
Sample ID AREA 3 F1 **Shipped**
Matrix Soil **Received** 2014/03/27

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3557167	2014/03/31	2014/03/31	Jolly John
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3555495	2014/03/27	2014/03/28	Haibin Wu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3555523	2014/03/28	2014/03/29	Barbara Wowk
F4G (CCME Hydrocarbons Gravimetric)	BAL	3558469	2014/04/01	2014/04/01	Raheela Usmani
Acid Extr. Metals (aqua regia) by ICPMS	ICP/MS	3557202	2014/03/31	2014/03/31	Viviana Canzonieri
Moisture	BAL	3554932	N/A	2014/03/27	Valentina Kaftani

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Peto MacCallum Ltd
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Test Summary

Maxxam ID VI4556 **Collected** 2014/03/26
Sample ID AREA 3 H19 **Shipped**
Matrix Soil **Received** 2014/03/27

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3557167	2014/03/31	2014/03/31	Jolly John
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3555495	2014/03/27	2014/03/28	Haibin Wu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3555523	2014/03/28	2014/03/29	Barbara Wowk
F4G (CCME Hydrocarbons Gravimetric)	BAL	3558469	2014/04/01	2014/04/01	Raheela Usmani
Acid Extr. Metals (aqua regia) by ICPMS	ICP/MS	3557202	2014/03/31	2014/03/31	Viviana Canzonieri
Moisture	BAL	3554932	N/A	2014/03/27	Valentina Kaftani

Maxxam ID VI4557 **Collected** 2014/03/26
Sample ID AREA 3 D20 **Shipped**
Matrix Soil **Received** 2014/03/27

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3557236	2014/03/31	2014/03/31	Jolly John
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3555495	2014/03/27	2014/03/28	Haibin Wu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3555523	2014/03/28	2014/03/29	Barbara Wowk
F4G (CCME Hydrocarbons Gravimetric)	BAL	3558469	2014/04/01	2014/04/01	Raheela Usmani
Acid Extr. Metals (aqua regia) by ICPMS	ICP/MS	3557202	2014/03/31	2014/03/31	Viviana Canzonieri
Moisture	BAL	3554932	N/A	2014/03/27	Valentina Kaftani

Maxxam ID VI4557 Dup **Collected** 2014/03/26
Sample ID AREA 3 D20 **Shipped**
Matrix Soil **Received** 2014/03/27

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3557236	2014/03/31	2014/03/31	Jolly John

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Peto MacCallum Ltd
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Test Summary

Maxxam ID VI4558 **Collected** 2014/03/26
Sample ID AREA 3 J3 **Shipped**
Matrix Soil **Received** 2014/03/27

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3557236	2014/03/31	2014/03/31	Jolly John
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3555495	2014/03/27	2014/03/28	Haibin Wu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3555523	2014/03/28	2014/03/29	Barbara Wowk
Acid Extr. Metals (aqua regia) by ICPMS	ICP/MS	3557121	2014/03/31	2014/03/31	Viviana Canzonieri
Moisture	BAL	3554932	N/A	2014/03/27	Valentina Kaftani

Maxxam ID VI4559 **Collected** 2014/03/26
Sample ID AREA 3 J10 **Shipped**
Matrix Soil **Received** 2014/03/27

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3557236	2014/03/31	2014/03/31	Jolly John
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3555495	2014/03/27	2014/03/28	Haibin Wu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3555523	2014/03/28	2014/03/29	Barbara Wowk
F4G (CCME Hydrocarbons Gravimetric)	BAL	3558469	2014/04/01	2014/04/01	Raheela Usmani
Acid Extr. Metals (aqua regia) by ICPMS	ICP/MS	3557121	2014/03/31	2014/03/31	Viviana Canzonieri
Moisture	BAL	3554932	N/A	2014/03/27	Valentina Kaftani

Maxxam ID VI4559 Dup **Collected** 2014/03/26
Sample ID AREA 3 J10 **Shipped**
Matrix Soil **Received** 2014/03/27

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Acid Extr. Metals (aqua regia) by ICPMS	ICP/MS	3557121	2014/03/31	2014/03/31	Viviana Canzonieri

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Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

Test Summary

Maxxam ID VI4560 **Collected** 2014/03/26
Sample ID AREA 3 J16 **Shipped**
Matrix Soil **Received** 2014/03/27

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3557236	2014/03/31	2014/03/31	Jolly John
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3555495	2014/03/27	2014/03/28	Haibin Wu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3555523	2014/03/28	2014/03/29	Barbara Wowk
Acid Extr. Metals (aqua regia) by ICPMS	ICP/MS	3557121	2014/03/31	2014/03/31	Viviana Canzonieri
Moisture	BAL	3554932	N/A	2014/03/27	Valentina Kaftani

Maxxam ID VI4561 **Collected** 2014/03/26
Sample ID AREA 3 DUPLICATE **Shipped**
Matrix Soil **Received** 2014/03/27

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3557236	2014/03/31	2014/03/31	Jolly John
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3555495	2014/03/27	2014/03/28	Haibin Wu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3555523	2014/03/28	2014/03/29	Barbara Wowk
Acid Extr. Metals (aqua regia) by ICPMS	ICP/MS	3557121	2014/03/31	2014/03/31	Viviana Canzonieri
Moisture	BAL	3554932	N/A	2014/03/27	Valentina Kaftani

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GENERAL COMMENTS

Revised report (2014/09/03): Criteria added to report as per client request.

Sample VI4546-01: F1-BTEX Analysis: Detection limits were adjusted for sample weight .

Sample VI4551-01: F1-BTEX Analysis: Detection limits were adjusted for sample weight .

Sample VI4552-01: F1-BTEX Analysis: Detection limits were adjusted for sample weight .

Sample VI4553-01: F1-BTEX Analysis: Detection limits were adjusted for sample weight .

Sample VI4554-01: F1-BTEX Analysis: Detection limits were adjusted for sample weight .

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Client Project #: 13HX002 Clean-Up

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
3554647	Moisture	2014/03/27							5.6	20
3554932	Moisture	2014/03/27							NC	20
3555495	1,4-Difluorobenzene	2014/03/28	100	60 - 140	101	60 - 140	102	%		
3555495	4-Bromofluorobenzene	2014/03/28	101	60 - 140	102	60 - 140	102	%		
3555495	D10-Ethylbenzene	2014/03/28	109	60 - 140	97	60 - 140	92	%		
3555495	D4-1,2-Dichloroethane	2014/03/28	101	60 - 140	100	60 - 140	100	%		
3555495	Benzene	2014/03/28	91	60 - 140	91	60 - 140	ND, RDL=0.020	ug/g	NC	50
3555495	Toluene	2014/03/28	94	60 - 140	92	60 - 140	ND, RDL=0.020	ug/g	NC	50
3555495	Ethylbenzene	2014/03/28	102	60 - 140	99	60 - 140	ND, RDL=0.020	ug/g	NC	50
3555495	o-Xylene	2014/03/28	104	60 - 140	103	60 - 140	ND, RDL=0.020	ug/g	NC	50
3555495	p+m-Xylene	2014/03/28	94	60 - 140	92	60 - 140	ND, RDL=0.040	ug/g	NC	50
3555495	F1 (C6-C10)	2014/03/28	83	60 - 140	93	80 - 120	ND, RDL=10	ug/g	NC	30
3555495	Total Xylenes	2014/03/28					ND, RDL=0.040	ug/g	NC	50
3555495	F1 (C6-C10) - BTEX	2014/03/28					ND, RDL=10	ug/g	NC	30
3555523	o-Terphenyl	2014/03/28	99	60 - 130	93	60 - 130	94	%		
3555523	F2 (C10-C16 Hydrocarbons)	2014/03/28	NC	50 - 130	95	80 - 120	ND, RDL=10	ug/g	9.2	30
3555523	F3 (C16-C34 Hydrocarbons)	2014/03/28	108	50 - 130	106	80 - 120	ND, RDL=50	ug/g	17.9	30
3555523	F4 (C34-C50 Hydrocarbons)	2014/03/28	102	50 - 130	95	80 - 120	ND, RDL=50	ug/g	NC	30
3557121	Acid Extractable Antimony (Sb)	2014/03/31	95	75 - 125	102	80 - 120	ND, RDL=0.20	ug/g	NC	30
3557121	Acid Extractable Arsenic (As)	2014/03/31	100	75 - 125	99	80 - 120	ND, RDL=1.0	ug/g	5.7	30
3557121	Acid Extractable Barium (Ba)	2014/03/31	NC	75 - 125	98	80 - 120	ND, RDL=0.50	ug/g	0.5	30
3557121	Acid Extractable Beryllium (Be)	2014/03/31	107	75 - 125	106	80 - 120	ND, RDL=0.20	ug/g	NC	30
3557121	Acid Extractable Boron (B)	2014/03/31	98	75 - 125	101	80 - 120	ND, RDL=5.0	ug/g	NC	30
3557121	Acid Extractable Cadmium (Cd)	2014/03/31	95	75 - 125	98	80 - 120	ND, RDL=0.10	ug/g	59.8(1)	30
3557121	Acid Extractable Chromium (Cr)	2014/03/31	99	75 - 125	99	80 - 120	ND, RDL=1.0	ug/g	9.0	30
3557121	Acid Extractable Cobalt (Co)	2014/03/31	98	75 - 125	99	80 - 120	ND, RDL=0.10	ug/g	4.8	30
3557121	Acid Extractable Copper (Cu)	2014/03/31	NC	75 - 125	99	80 - 120	ND, RDL=0.50	ug/g	4.8	30
3557121	Acid Extractable Lead (Pb)	2014/03/31	NC	75 - 125	105	80 - 120	ND, RDL=1.0	ug/g	2.9	30
3557121	Acid Extractable Molybdenum (Mo)	2014/03/31	99	75 - 125	99	80 - 120	ND, RDL=0.50	ug/g	NC	30
3557121	Acid Extractable Nickel (Ni)	2014/03/31	96	75 - 125	98	80 - 120	ND, RDL=0.50	ug/g	2.8	30
3557121	Acid Extractable Selenium (Se)	2014/03/31	99	75 - 125	100	80 - 120	ND, RDL=0.50	ug/g	NC	30
3557121	Acid Extractable Silver (Ag)	2014/03/31	99	75 - 125	101	80 - 120	ND, RDL=0.20	ug/g	NC	30
3557121	Acid Extractable Thallium (Tl)	2014/03/31	94	75 - 125	100	80 - 120	ND, RDL=0.050	ug/g	NC	30
3557121	Acid Extractable Uranium (U)	2014/03/31	97	75 - 125	101	80 - 120	ND, RDL=0.050	ug/g	4.3	30
3557121	Acid Extractable Vanadium (V)	2014/03/31	102	75 - 125	96	80 - 120	ND, RDL=5.0	ug/g	NC	30
3557121	Acid Extractable Zinc (Zn)	2014/03/31	NC	75 - 125	98	80 - 120	ND, RDL=5.0	ug/g	14.4	30
3557121	Acid Extractable Mercury (Hg)	2014/03/31	101	75 - 125	112	80 - 120	ND, RDL=0.050	ug/g	NC	30
3557167	Hot Water Ext. Boron (B)	2014/03/31	98	75 - 125	101	75 - 125	ND, RDL=0.050	ug/g	12.5	40
3557202	Acid Extractable Antimony (Sb)	2014/03/31	97	75 - 125	100	80 - 120	ND, RDL=0.20	ug/g	NC	30
3557202	Acid Extractable Arsenic (As)	2014/03/31	100	75 - 125	97	80 - 120	ND, RDL=1.0	ug/g	NC	30

Maxxam Job #: B448695
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
3557202	Acid Extractable Barium (Ba)	2014/03/31	NC	75 - 125	98	80 - 120	ND, RDL=0.50	ug/g	6.4	30
3557202	Acid Extractable Beryllium (Be)	2014/03/31	102	75 - 125	101	80 - 120	ND, RDL=0.20	ug/g	NC	30
3557202	Acid Extractable Boron (B)	2014/03/31	97	75 - 125	96	80 - 120	ND, RDL=5.0	ug/g	NC	30
3557202	Acid Extractable Cadmium (Cd)	2014/03/31	97	75 - 125	96	80 - 120	ND, RDL=0.10	ug/g	NC	30
3557202	Acid Extractable Chromium (Cr)	2014/03/31	99	75 - 125	96	80 - 120	ND, RDL=1.0	ug/g	0.6	30
3557202	Acid Extractable Cobalt (Co)	2014/03/31	98	75 - 125	98	80 - 120	ND, RDL=0.10	ug/g	4.9	30
3557202	Acid Extractable Copper (Cu)	2014/03/31	95	75 - 125	97	80 - 120	ND, RDL=0.50	ug/g	5.3	30
3557202	Acid Extractable Lead (Pb)	2014/03/31	100	75 - 125	103	80 - 120	ND, RDL=1.0	ug/g	NC	30
3557202	Acid Extractable Molybdenum (Mo)	2014/03/31	98	75 - 125	98	80 - 120	ND, RDL=0.50	ug/g	NC	30
3557202	Acid Extractable Nickel (Ni)	2014/03/31	97	75 - 125	97	80 - 120	ND, RDL=0.50	ug/g	0.8	30
3557202	Acid Extractable Selenium (Se)	2014/03/31	100	75 - 125	99	80 - 120	ND, RDL=0.50	ug/g	NC	30
3557202	Acid Extractable Silver (Ag)	2014/03/31	100	75 - 125	101	80 - 120	ND, RDL=0.20	ug/g	NC	30
3557202	Acid Extractable Thallium (Tl)	2014/03/31	96	75 - 125	98	80 - 120	ND, RDL=0.050	ug/g	NC	30
3557202	Acid Extractable Uranium (U)	2014/03/31	91	75 - 125	93	80 - 120	ND, RDL=0.050	ug/g	2.3	30
3557202	Acid Extractable Vanadium (V)	2014/03/31	100	75 - 125	97	80 - 120	ND, RDL=5.0	ug/g	NC	30
3557202	Acid Extractable Zinc (Zn)	2014/03/31	98	75 - 125	97	80 - 120	ND, RDL=5.0	ug/g	NC	30
3557202	Acid Extractable Mercury (Hg)	2014/03/31	102	75 - 125	108	80 - 120	ND, RDL=0.050	ug/g		
3557236	Hot Water Ext. Boron (B)	2014/03/31	93	75 - 125	100	75 - 125	ND, RDL=0.050	ug/g	1.6	40
3558469	F4G-sg (Grav. Heavy Hydrocarbons)	2014/04/01	101	65 - 135	100	65 - 135	ND, RDL=100	ug/g	NC	50

N/A = Not Applicable
RDL = Reportable Detection Limit
RPD = Relative Percent Difference
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).
NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).
(1) - Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

Validation Signature Page

Maxxam Job #: B448695

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Cristina Carriere, Scientific Services

Suzana Popovic, Supervisor, Hydrocarbons

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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RUSH

27-Mar-14 13:20
Krystal Seedial
B448695

Maxxam Analytics
6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Toll-Free:800-563-6266 Fax (905) 817-5777 www.maxxam.ca

Page 1 of 2

INVOICE INFORMATION:

Company Name: #3101 Peto MacCallum Ltd
Contact Name: Sarah Murray
Address: 45 Burford Rd, Hamilton ON L8E 3C6
Phone: (905) 561-2231 x Fax: (905) 561-6366 x
Email: smurray@petomaccallum.com

REPORT INFORMATION(if differs from invoice):

Contact Name:
Address:
Phone: Fax:
Email:

PROJECT INFORMATION:

Quotation #: B41439
P.O. #:
Project #: 13HX002 Clean-Up
Project Name:
Site #:
Sampled By:

Laboratory Use Only:

Bottle Order #: 461791
Chain of Custody #: C#461791-05-01
Project Manager: Krystal Seedial

Regulation 153 (2011): ☑ Table1 ☐ Table2 ☐ Table3 ☐ Table ___ ☐ Res/Park ☐ Ind/Comm ☐ Agri/Other ☐ Medium/Fine ☐ Coarse ☑ For RSC

Other Regulations: ☐ CCME ☐ Reg 558 ☐ MISA ☐ PWQO ☐ Other ☐ Sanitary Sewer Bylaw ☐ Storm Sewer Bylaw Municipality ___

Special Instructions:

Include Criteria on Certificate of Analysis (Y/N)? ___

Note: For MOE regulated drinking water samples - please use the Drinking Water Chain of Custody Form

SAMPLES MUST BE KEPT COOL (< 10ºC) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

Turnaround Time (TAT) Required: 2 Day

Please provide advance notice for rush projects

Regular (Standard) TAT: ☐
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission) ☑
Date Required: March 31, 2014 Time Required: ___
Rush Confirmation Number: KS140327-1 *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Regulated Drinking Water ? (Y/N)	Metals Field Filtered ? (Y/N)	Petroleum Hydrocarbons F1 to F4	Electrical Conductivity	Hot Water Extractable Boron	Reg 153 ICPMS Metals only package	# of Bottles	Comments
1		Area 3 D3	March 26, 2014	3:45pm	S			X		X	X	3	
2		Area 3 C8	"	3:50pm	"			X		X	X	3	
3		Area 3 I8	"	4:00pm	"			X		X	X	3	
4		Area 3 I14	"	4:20pm	"			X		X	X	3	
5		Area 3 F15	"	4:30pm	"			X		X	X	3	
6		Area 3 C18	"	4:40pm	"			X		X	X	4	
7		Area 3 A3	"	3:20pm	"			X		X	X	4	
8		Area 3 A9	"	3:15pm	"			X		X	X	4	
9		Area 3 A15	"	3:10pm	"			X		X	X	4	
10		Area 3 B1	"	3:30pm	"			X		X	X	4	

*RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# jars used and not submitted	Laboratory Use Only: Time Sensitive	Temperature (ºC) on Receipt	CustodySeal	Yes	No
S. Murray / Sarah Murray	14/03/27	9:30	[illegible]	2014/03/27	13:20			2/2/2°C	Present		✓
									Intact		

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

White: Maxxam Yellow: Client

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CHAIN OF CUSTODY RECORD

INVOICE INFORMATION:		REPORT INFORMATION(if differs from invoice):		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#3101 Peto MacCallum Ltd	Company Name:		Quotation #:	B41439	Maxxam Job #:	Bottle Order #:
Contact Name:	Sarah Murray	Contact Name:		P.O. #:			461791
Address:	45 Burford Rd	Address:		Project #:	13HX002 Clean-Up	Chain of Custody #:	Project Manager:
	Hamilton ON L8E 3C6			Project Name:		C#461791-06-01	Krystal Seedial
Phone:	(905) 561-2231 x Fax: (905) 561-6366 x	Phone:	Fax:	Site #:			
Email:	smurray@petomaccallum.com	Email:		Sampled By:			

Regulation 153 (2011): ☐ Table1 ☐ Table2 ☐ Table3 ☐ Table ___ ☐ Res/Park ☐ Ind/Comm ☐ Agri/Other ☐ Medium/Fine ☐ Coarse ☐ For RSC

Other Regulations: ☐ CCME ☐ Reg 558 ☐ MISA ☐ PWQO ☐ Other ___ ☐ Sanitary Sewer Bylaw ☐ Storm Sewer Bylaw Municipality ___

Special Instructions:

Include Criteria on Certificate of Analysis (Y/N)? ___

Note: For MOE regulated drinking water samples - please use the Drinking Water Chain of Custody Form

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

Turnaround Time (TAT) Required: 2 Day

Please provide advance notice for rush projects

Regular (Standard) TAT:
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: March 31, 2014 Time Required: ___
Rush Confirmation Number: K5142307-1 *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Regulated Drinking Water ? (Y/N)	Metals Field Filtered ? (Y/N)	Petroleum Hydrocarbons F1 to F4	Electrical Conductivity	Hot Water Extractable Boron	Reg 153 ICPMS Metals only package	# of Bottles	Comments
1		Area 3 F1	March 26, 2014	3:40pm	S			X		X	X	4	
2		Area 3 H19	"	3:00pm	"			X		X	X	4	
3		Area 3 D20	"	3:20pm	"			X		X	X	4	
4		Area 3 J3	"	2:45pm	"			X		X	X	4	
5		Area 3 J10	"	2:50pm	"			X		X	X	4	
6		Area 3 J16	"	2:55pm	"			X		X	X	4	
7		Area 3 Duplicate	"	—	"			X		X	X	3	
8													
9													
10													

*RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# jars used and not submitted
J. Murray / Sarah Murray	14/03/27	9:30	[signature]	2014/03/27	13:20	

Laboratory Use Only				
Time Sensitive	Temperature (°C) on Receipt	CustodySeal	Yes	No
	2/2/2°C	Present		✓
		Intact		

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

White: Maxxam Yellow: Client

Your Project #: 13HX002 Clean-Up
Your C.O.C. #: 46179109

Attention: Sarah Murray
Peto MacCallum Ltd
45 Burford Rd
Hamilton, ON
L8E 3C6

Report Date: 2014/09/03
Report #: R3143672
Version: 4R

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B4E7389
Received: 2014/08/15, 13:40

Sample Matrix: Soil
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Hot Water Extractable Boron	4	2014/08/16	2014/08/18	CAM SOP-00408	R153 Ana. Prot. 2011
Petroleum Hydro. CCME F1 & BTEX in Soil	4	2014/08/15	2014/08/18	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Soil	4	2014/08/16	2014/08/17	CAM SOP-00316	CCME CWS
F4G (CCME Hydrocarbons Gravimetric)	1	2014/08/19	2014/08/19	CAM SOP-00316	CCME PHC-CWS m
Strong Acid Leachable Metals by ICPMS	4	2014/08/18	2014/08/19	CAM SOP-00447	EPA 6020 m
Moisture	4	N/A	2014/08/15	CAM SOP-00445	R.Carter,1993

Remarks:

Maxxam Analytics has performed all analytical testing herein in accordance with ISO 17025 and the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. All methodologies comply with this document and are validated for use in the laboratory. The methods and techniques employed in this analysis conform to the performance criteria (detection limits, accuracy and precision) as outlined in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act.

The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following the 'Alberta Environment Draft Addenda to the CWS-PHC, Appendix 6, Validation of Alternate Methods'. Documentation is available upon request. Maxxam has made the following improvements to the CWS-PHC reference benchmark method: (i) Headspace for F1; and, (ii) Mechanical extraction for F2-F4. Note: F4G cannot be added to the C6 to C50 hydrocarbons. The extraction date for samples field preserved with methanol for F1 and Volatile Organic Compounds is considered to be the date sampled.

Maxxam Analytics is accredited for all specific parameters as required by Ontario Regulation 153/04. Maxxam Analytics is limited in liability to the actual cost of analysis unless otherwise agreed in writing. There is no other warranty expressed or implied. Samples will be retained at Maxxam Analytics for three weeks from receipt of data or as per contract.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
* Results relate only to the items tested.

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

Maxxam Job #: B4E7389
Report Date: 2014/09/03

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Krystal Seedial, Project Manager
Email: KSeedial@maxxam.ca
Phone# (905) 817-5700

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 2

Maxxam Job #: B4E7389
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

RESULTS OF ANALYSES OF SOIL

Maxxam ID		XD3769	XD3770	XD3771	XD3772		
Sampling Date		2014/08/14 14:10	2014/08/14 14:15	2014/08/14 14:20	2014/08/14 14:30		
	Units	**AREA3 G6-1**	**AREA3 E9-1**	**AREA3 C8-1**	**AREA3 D3-1**	**RDL**	**QC Batch**
Inorganics							
Moisture	%	11	15	17	6.4	1.0	3713589

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B4E7389
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID			XD3769	XD3770	XD3771	XD3772		
Sampling Date			2014/08/14 14:10	2014/08/14 14:15	2014/08/14 14:20	2014/08/14 14:30		
	Units	**Criteria A**	**AREA3 G6-1**	**AREA3 E9-1**	**AREA3 C8-1**	**AREA3 D3-1**	**RDL**	**QC Batch**
Metals								
Hot Water Ext. Boron (B)	ug/g	**1.5**	0.081	0.10	0.23	0.76	0.050	3714268
Acid Extractable Antimony (Sb)	ug/g	**7.5**	0.20	0.25	0.22	0.34	0.20	3714544
Acid Extractable Arsenic (As)	ug/g	**18**	5.4	8.8	6.7	6.5	1.0	3714544
Acid Extractable Barium (Ba)	ug/g	**390**	94	140	110	92	0.50	3714544
Acid Extractable Beryllium (Be)	ug/g	**4**	0.76	1.1	0.91	0.59	0.20	3714544
Acid Extractable Boron (B)	ug/g	**120**	8.7	8.4	8.4	5.5	5.0	3714544
Acid Extractable Cadmium (Cd)	ug/g	**1.2**	0.16	0.13	0.12	0.35	0.10	3714544
Acid Extractable Chromium (Cr)	ug/g	**160**	22	29	26	18	1.0	3714544
Acid Extractable Cobalt (Co)	ug/g	**22**	11	16	13	9.3	0.10	3714544
Acid Extractable Copper (Cu)	ug/g	**140**	29	50	37	27	0.50	3714544
Acid Extractable Lead (Pb)	ug/g	**120**	12	16	14	41	1.0	3714544
Acid Extractable Molybdenum (Mo)	ug/g	**6.9**	ND	0.55	0.55	0.69	0.50	3714544
Acid Extractable Nickel (Ni)	ug/g	**100**	26	35	31	17	0.50	3714544
Acid Extractable Selenium (Se)	ug/g	**2.4**	ND	ND	ND	ND	0.50	3714544
Acid Extractable Silver (Ag)	ug/g	**20**	ND	ND	ND	ND	0.20	3714544
Acid Extractable Thallium (Tl)	ug/g	**1**	0.13	0.15	0.13	0.14	0.050	3714544
Acid Extractable Uranium (U)	ug/g	**23**	0.70	0.79	0.73	0.51	0.050	3714544
Acid Extractable Vanadium (V)	ug/g	**86**	30	40	37	31	5.0	3714544
Acid Extractable Zinc (Zn)	ug/g	**340**	60	78	71	110	5.0	3714544

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria A: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Texture

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Maxxam Job #: B4E7389
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID			XD3769	XD3770	XD3771	XD3772		
Sampling Date			2014/08/14 14:10	2014/08/14 14:15	2014/08/14 14:20	2014/08/14 14:30		
	Units	**Criteria A**	**AREA3 G6-1**	**AREA3 E9-1**	**AREA3 C8-1**	**AREA3 D3-1**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons								
Benzene	ug/g	**0.21**	ND	ND	ND	ND	0.020	3714307
Toluene	ug/g	**2.3**	ND	ND	ND	ND	0.020	3714307
Ethylbenzene	ug/g	**2**	ND	ND	ND	ND	0.020	3714307
o-Xylene	ug/g		ND	ND	ND	ND	0.020	3714307
p+m-Xylene	ug/g		ND	ND	ND	ND	0.040	3714307
Total Xylenes	ug/g	**3.1**	ND	ND	ND	ND	0.040	3714307
F1 (C6-C10)	ug/g	**55**	ND	ND	ND	ND	10	3714307
F1 (C6-C10) - BTEX	ug/g	**55**	ND	ND	ND	ND	10	3714307
F2-F4 Hydrocarbons								
F4G-sg (Grav. Heavy Hydrocarbons)	ug/g	**2800**				400	100	3716078
F2 (C10-C16 Hydrocarbons)	ug/g	**98**	ND	ND	ND	ND	10	3714065
F3 (C16-C34 Hydrocarbons)	ug/g	**300**	ND	ND	ND	280	50	3714065
F4 (C34-C50 Hydrocarbons)	ug/g	**2800**	ND	ND	ND	94	50	3714065
Reached Baseline at C50	ug/g		YES	YES	YES	NO		3714065
Surrogate Recovery (%)								
1,4-Difluorobenzene	%		99	102	97	98		3714307
4-Bromofluorobenzene	%		105	98	101	103		3714307
D10-Ethylbenzene	%		104	94	102	90		3714307
D4-1,2-Dichloroethane	%		98	98	95	95		3714307
o-Terphenyl	%		82	85	92	84		3714065

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria A: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Texture

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Maxxam Job #: B4E7389
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

Test Summary

Maxxam ID XD3769 **Collected** 2014/08/14
Sample ID AREA3 G6-1 **Shipped**
Matrix Soil **Received** 2014/08/15

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3714268	2014/08/16	2014/08/18	Archana Patel
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3714307	2014/08/15	2014/08/18	Anca Ganea
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3714065	2014/08/16	2014/08/17	Dorina Popa
Strong Acid Leachable Metals by ICPMS	ICP/MS	3714544	2014/08/18	2014/08/19	John Bowman
Moisture	BAL	3713589	N/A	2014/08/15	Chamika Deeyagaha

Maxxam ID XD3770 **Collected** 2014/08/14
Sample ID AREA3 E9-1 **Shipped**
Matrix Soil **Received** 2014/08/15

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3714268	2014/08/16	2014/08/18	Archana Patel
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3714307	2014/08/15	2014/08/18	Anca Ganea
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3714065	2014/08/16	2014/08/17	Dorina Popa
Strong Acid Leachable Metals by ICPMS	ICP/MS	3714544	2014/08/18	2014/08/19	John Bowman
Moisture	BAL	3713589	N/A	2014/08/15	Chamika Deeyagaha

Maxxam ID XD3770 Dup **Collected** 2014/08/14
Sample ID AREA3 E9-1 **Shipped**
Matrix Soil **Received** 2014/08/15

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	3714544	2014/08/18	2014/08/19	John Bowman

Maxxam Job #: B4E7389
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

Test Summary

Maxxam ID XD3771 **Collected** 2014/08/14
Sample ID AREA3 C8-1 **Shipped**
Matrix Soil **Received** 2014/08/15

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3714268	2014/08/16	2014/08/18	Archana Patel
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3714307	2014/08/15	2014/08/18	Anca Ganea
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3714065	2014/08/16	2014/08/17	Dorina Popa
Strong Acid Leachable Metals by ICPMS	ICP/MS	3714544	2014/08/18	2014/08/19	John Bowman
Moisture	BAL	3713589	N/A	2014/08/15	Chamika Deeyagaha

Maxxam ID XD3772 **Collected** 2014/08/14
Sample ID AREA3 D3-1 **Shipped**
Matrix Soil **Received** 2014/08/15

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3714268	2014/08/16	2014/08/18	Archana Patel
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3714307	2014/08/15	2014/08/18	Anca Ganea
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3714065	2014/08/16	2014/08/17	Dorina Popa
F4G (CCME Hydrocarbons Gravimetric)	BAL	3716078	2014/08/19	2014/08/19	Raheela Usmani
Strong Acid Leachable Metals by ICPMS	ICP/MS	3714544	2014/08/18	2014/08/19	John Bowman
Moisture	BAL	3713589	N/A	2014/08/15	Chamika Deeyagaha

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Maxxam Job #: B4E7389
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

GENERAL COMMENTS

Revised report (2014/09/03): Criteria added to report as per client request.

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Maxxam Job #: B4E7389
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
3713589	Moisture	2014/08/15							3.2	20
3714065	o-Terphenyl	2014/08/17	80	60 - 130	88	60 - 130	86	%		
3714065	F2 (C10-C16 Hydrocarbons)	2014/08/17	96	50 - 130	92	80 - 120	ND, RDL=10	ug/g		
3714065	F3 (C16-C34 Hydrocarbons)	2014/08/17	89	50 - 130	82	80 - 120	ND, RDL=50	ug/g		
3714065	F4 (C34-C50 Hydrocarbons)	2014/08/17	93	50 - 130	95	80 - 120	ND, RDL=50	ug/g		
3714268	Hot Water Ext. Boron (B)	2014/08/18	99	75 - 125	103	75 - 125	ND, RDL=0.050	ug/g		
3714307	1,4-Difluorobenzene	2014/08/18	100	60 - 140	98	60 - 140	100	%		
3714307	4-Bromofluorobenzene	2014/08/18	122	60 - 140	121	60 - 140	103	%		
3714307	D10-Ethylbenzene	2014/08/18	92	60 - 140	105	60 - 140	91	%		
3714307	D4-1,2-Dichloroethane	2014/08/18	96	60 - 140	95	60 - 140	96	%		
3714307	Benzene	2014/08/18	99	60 - 140	114	60 - 140	ND, RDL=0.020	ug/g		
3714307	Toluene	2014/08/18	97	60 - 140	107	60 - 140	ND, RDL=0.020	ug/g		
3714307	Ethylbenzene	2014/08/18	111	60 - 140	128	60 - 140	ND, RDL=0.020	ug/g		
3714307	o-Xylene	2014/08/18	115	60 - 140	133	60 - 140	ND, RDL=0.020	ug/g		
3714307	p+m-Xylene	2014/08/18	105	60 - 140	121	60 - 140	ND, RDL=0.040	ug/g		
3714307	F1 (C6-C10)	2014/08/18	97	60 - 140	112	80 - 120	ND, RDL=10	ug/g		
3714307	Total Xylenes	2014/08/18					ND, RDL=0.040	ug/g		
3714307	F1 (C6-C10) - BTEX	2014/08/18					ND, RDL=10	ug/g		
3714544	Acid Extractable Antimony (Sb)	2014/08/19	93	75 - 125	116	80 - 120	ND, RDL=0.20	ug/g	NC	30
3714544	Acid Extractable Arsenic (As)	2014/08/19	104	75 - 125	107	80 - 120	ND, RDL=1.0	ug/g	0.4	30
3714544	Acid Extractable Barium (Ba)	2014/08/19	NC	75 - 125	110	80 - 120	ND, RDL=0.50	ug/g	3.1	30
3714544	Acid Extractable Beryllium (Be)	2014/08/19	101	75 - 125	100	80 - 120	ND, RDL=0.20	ug/g	0.3	30
3714544	Acid Extractable Boron (B)	2014/08/19	80	75 - 125	96	80 - 120	ND, RDL=5.0	ug/g	NC	30
3714544	Acid Extractable Cadmium (Cd)	2014/08/19	105	75 - 125	108	80 - 120	ND, RDL=0.10	ug/g	NC	30
3714544	Acid Extractable Chromium (Cr)	2014/08/19	NC	75 - 125	104	80 - 120	ND, RDL=1.0	ug/g	1.4	30
3714544	Acid Extractable Cobalt (Co)	2014/08/19	NC	75 - 125	106	80 - 120	ND, RDL=0.10	ug/g	0.3	30
3714544	Acid Extractable Copper (Cu)	2014/08/19	NC	75 - 125	104	80 - 120	ND, RDL=0.50	ug/g	1.3	30
3714544	Acid Extractable Lead (Pb)	2014/08/19	NC	75 - 125	105	80 - 120	ND, RDL=1.0	ug/g	2.2	30
3714544	Acid Extractable Molybdenum (Mo)	2014/08/19	107	75 - 125	110	80 - 120	ND, RDL=0.50	ug/g	NC	30
3714544	Acid Extractable Nickel (Ni)	2014/08/19	NC	75 - 125	104	80 - 120	ND, RDL=0.50	ug/g	1.3	30
3714544	Acid Extractable Selenium (Se)	2014/08/19	102	75 - 125	106	80 - 120	ND, RDL=0.50	ug/g	NC	30
3714544	Acid Extractable Silver (Ag)	2014/08/19	105	75 - 125	108	80 - 120	ND, RDL=0.20	ug/g	NC	30
3714544	Acid Extractable Thallium (Tl)	2014/08/19	94	75 - 125	98	80 - 120	ND, RDL=0.050	ug/g	NC	30
3714544	Acid Extractable Uranium (U)	2014/08/19	101	75 - 125	100	80 - 120	ND, RDL=0.050	ug/g	4.1	30
3714544	Acid Extractable Vanadium (V)	2014/08/19	NC	75 - 125	104	80 - 120	ND, RDL=5.0	ug/g	0.2	30

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

Maxxam Job #: B4E7389
Report Date: 2014/09/03

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
3714544	Acid Extractable Zinc (Zn)	2014/08/19	NC	75 - 125	100	80 - 120	ND, RDL=5.0	ug/g	1.1	30
3716078	F4G-sg (Grav. Heavy Hydrocarbons)	2014/08/19	83	65 - 135	104	65 - 135	ND, RDL=100	ug/g	NC	50

N/A = Not Applicable
RDL = Reportable Detection Limit
RPD = Relative Percent Difference
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).
NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

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Validation Signature Page

Maxxam Job #: B4E7389

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Brad Newman, Scientific Specialist

Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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RUSH

rnational Corporation o/a Maxxam Analytics
d, Mississauga, Ontario Canada L5N 2L8 Tel:(905) 817-5700 Toll-Free:800-563-6266 Fax:(905) 817-5777 www.maxxam.ca

15-Aug-14 13:40
Krystal Seedial
B4E7389
MAF ENV-926

		REPORT INFORMATION(if differs from invoice):		PROJECT INFORMATION:		
Company Name:	#3101 Peto MacCallum Ltd	Company Name:		Quotation #:	B41439	Bottle Order #: 461791
Contact Name:	Sarah Murray	Contact Name:		P.O. #:		
Address:	45 Burford Rd	Address:		Project #:	13HX002 Clean-Up	Project Manager:
	Hamilton ON L8E 3C6			Project Name:		
Phone:	(905) 561-2231 x Fax: (905) 561-6366 x	Phone:	Fax:	Site #:		Krystal Seedial
Email:	smurray@petomaccallum.com	Email:		Sampled By:		C#461791-09-01

Regulation 153 (2011)	Other Regulations	Special Instructions
☑ Table1 ☐ Table2 ☐ Table3 ☐ Table ___ ☐ Res/Park ☐ Ind/Comm ☐ Agri/Other ☐ Medium/Fine ☐ Coarse ☐ For RSC	☐ CCME ☐ Reg 558. ☐ MISA ☐ PWQO ☐ Other ☐ Sanitary Sewer Bylaw ☐ Storm Sewer Bylaw Municipality ___	

Include Criteria on Certificate of Analysis (Y/N)? Y

Note: For MOE regulated drinking water samples - please use the Drinking Water Chain of Custody Form

SAMPLES MUST BE KEPT COOL (< 10ºC) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

Turnaround Time (TAT) Required: 2 Days

Please provide advance notice for rush projects

Regular (Standard) TAT:
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: August 14 Time Required: ___
Rush Confirmation Number: KS140814-1 *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Regulated Drinking Water ? (Y/N)	Metals Field Filtered ? (Y/N)	Petroleum Hydrocarbons F1 to F4	Electrical Conductivity	Hot Water Extractable Boron	Reg 153 ICPMS Metals only package	# of Bottles	Comments
1		Area 2 H1	Aug. 14 2014	3:30	S			X		X		4	
2		Area 2 E3		3:40				X		X		4	
3		Area 2 J4		3:50				X		X		4	
4		Area 2 I6		4:00				X		X		4	
5		Area 2 K1		4:05						X		1	
6		Area 2 F1		4:10						X		1	
7		Area 2 C3		4:15						X		1	
8		Area 2 C5		4:20						X		1	
9		Area 2 E6		4:25						X		1	
10		Area 2 K7		4:30						X		1	

*RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# jars used and not submitted
S. Murray / Sarah Murray	14/08/14	5:30	MAGDALENA COO	2014/08/15	13:40	

Laboratory Use Only

Time Sensitive	Temperature (ºC) on Receipt	CustodySeal	Yes	No
	5 | 4 | 5 C	Present		✓
		Intact		

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

White: Maxxam Yellow: Client

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CHAIN OF CUSTODY RECORD

INVOICE INFORMATION:	REPORT INFORMATION(if differs from invoice):	PROJECT INFORMATION:	Laboratory Use Only:
Company Name: #3101 Peto MacCallum Ltd	Company Name:	Quotation #: B41439	Maxxam Job #: B4E7384 MAK / Bottle Order #: 465560
Contact Name: Sarah Murray	Contact Name:	P.O. #:	
Address: 45 Burford Rd, Hamilton ON L8E 3C6	Address:	Project #:	Chain of Custody #: C#465560-01-01 / Project Manager: Krystal Seedial
Phone: (905) 561-2231 x Fax: (905) 561-6366 x	Phone: Fax:	Project Name:	
Email: smurray@petomaccallum.com	Email:	Site #:	
		Sampled By:	

Regulation 153 (2011): ☑ Table1 ☐ Table2 ☐ Table3 ☐ Table ___ ☐ Res/Park ☐ Ind/Comm ☐ Agri/Other ☐ Medium/Fine ☐ Coarse ☐ For RSC

Other Regulations: ☐ CCME ☐ Reg 558. ☐ MISA ☐ PWQO ☐ Other ☐ Sanitary Sewer Bylaw ☐ Storm Sewer Bylaw Municipality ___

Special Instructions:

Include Criteria on Certificate of Analysis (Y/N)? Y

Note: For MOE regulated drinking water samples - please use the Drinking Water Chain of Custody Form

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

Turnaround Time (TAT) Required: 2 Days

Please provide advance notice for rush projects

Regular (Standard) TAT:
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: Aug. 19 Time Required: ___ ☑
Rush Confirmation Number: R5140814-1 *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Regulated Drinking Water ? (Y/N)	Metals Field Filtered ? (Y/N)	ANALYSIS REQUESTED: Reg 153 Metals	Hg in Water by CVAFS	PHCs F1 & F2	# of Bottles	Comments
1		Area 3 G6-1	Aug 14/14	2:10	S			X	X	X	4	
2		Area 3 E9-1	↓	2:15	↓			X	X	X	4	
3		Area 3 C8-1	↓	2:20	↓			X	X	X	4	
4		Area 3 D3-1	↓	2:30	↓			X	X	X	4	
5												
6												
7												
8												
9												
10												

*RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# jars used and not submitted	Laboratory Use Only: Time Sensitive	Temperature (°C) on Receipt	CustodySeal	Yes	No
Sarah Murray S. Murray	14/08/14	5:30 pm	by MAGDALENA COP	2014/08/15	13:40			5 | 5	Present		✓
									Intact		

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

White: Maxxam Yellow: Client

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CHAIN OF CUSTODY RECORD

INVOICE INFORMATION:		REPORT INFORMATION(if differs from invoice):		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#3101 Peto MacCallum Ltd	Company Name:		Quotation #:	B41439	Maxxam Job #:	Bottle Order #:
Contact Name:	Sarah Murray	Contact Name:		P.O. #:		B4E7389	481308
Address:	45 Burford Rd Hamilton ON L8E 3C6	Address:		Project #:	13HX002	Chain of Custody #:	Project Manager:
Phone:	(905) 561-2231 x Fax: (905) 561-6366 x	Phone:	Fax:	Project Name:		C#481308-01-01	Krystal Seedial
Email:	smurray@petomaccallum.com	Email:		Site #:			
				Sampled By:			

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011)	Other Regulations	Special Instructions
☑ Table 1 ☐ Res/Park ☐ Medium/Fine	☐ CCME ☐ Sanitary Sewer Bylaw	
☐ Table 2 ☐ Ind/Comm ☐ Coarse	☐ Reg 558. ☐ Storm Sewer Bylaw	
☐ Table 3 ☐ Agri/Other ☐ For RSC	☐ MISA Municipality ____	
☐ Table ___	☐ PWQO	
	☐ Other ____	

Include Criteria on Certificate of Analysis (Y/N)? Y

Field Filtered (please circle): Metals / Hg / Cr VI

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Turnaround Time (TAT) Required: 2 Days

Please provide advance notice for rush projects

Regular (Standard) TAT:
(will be applied if Rush TAT is not specified): ☐
Standard TAT = 5-7 Working days for most tests..
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: ____ Time Required: ____ ☑
Rush Confirmation Number: KS140814 *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	PHC F1+F2	EC							# of Bottles	Comments
1		Topsoil Area A1	Aug 14 2014	8:30	S	X	X							3	
2		Topsoil Area B0	↓	8:35	↓	X	X							3	
3		Topsoil Area D1		8:42		X	X							3	
4		Topsoil Area E2.5		8:48		X	X							3	
5		Topsoil Area B2		8:55		X	X							3	
6		Topsoil Area C1	↓	9:10	↓	X	X							3	
7															
8															
9															
10															

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
S. Murray Sarah Murray	14/08/14	5:30	Ga MAGDALENA CCO	2014/08/15	13:40	

Laboratory Use Only				
Time Sensitive	Temperature (°C) on Receipt	Custody Seal	Yes	No
	5 | 5 °C	Present		✓
		Intact		

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

White: Maxxam Yellow: Client

Your Project #: 13HX002
Your C.O.C. #: na

Attention: Sarah Murray
Peto MacCallum Ltd
45 Burford Rd
Hamilton, ON
L8E 3C6

Report Date: 2014/09/03
Report #: R3143530
Version: 3R

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B4E8595
Received: 2014/08/18, 13:10

Sample Matrix: Soil
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Hot Water Extractable Boron	4	2014/08/19	2014/08/19	CAM SOP-00408	R153 Ana. Prot. 2011
Petroleum Hydro. CCME F1 & BTEX in Soil	4	2014/08/18	2014/08/19	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Soil	3	2014/08/19	2014/08/19	CAM SOP-00316	CCME CWS
Petroleum Hydrocarbons F2-F4 in Soil	1	2014/08/19	2014/08/20	CAM SOP-00316	CCME CWS
F4G (CCME Hydrocarbons Gravimetric)	4	2014/08/21	2014/08/21	CAM SOP-00316	CCME PHC-CWS m
Strong Acid Leachable Metals by ICPMS	4	2014/08/19	2014/08/19	CAM SOP-00447	EPA 6020 m
Moisture	4	N/A	2014/08/18	CAM SOP-00445	R.Carter,1993

Remarks:

Maxxam Analytics has performed all analytical testing herein in accordance with ISO 17025 and the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. All methodologies comply with this document and are validated for use in the laboratory. The methods and techniques employed in this analysis conform to the performance criteria (detection limits, accuracy and precision) as outlined in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act.

The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following the 'Alberta Environment Draft Addenda to the CWS-PHC, Appendix 6, Validation of Alternate Methods'. Documentation is available upon request. Maxxam has made the following improvements to the CWS-PHC reference benchmark method: (i) Headspace for F1; and, (ii) Mechanical extraction for F2-F4. Note: F4G cannot be added to the C6 to C50 hydrocarbons. The extraction date for samples field preserved with methanol for F1 and Volatile Organic Compounds is considered to be the date sampled.

Maxxam Analytics is accredited for all specific parameters as required by Ontario Regulation 153/04. Maxxam Analytics is limited in liability to the actual cost of analysis unless otherwise agreed in writing. There is no other warranty expressed or implied. Samples will be retained at Maxxam Analytics for three weeks from receipt of data or as per contract.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
* Results relate only to the items tested.

Peto MacCallum Ltd
Client Project #: 13HX002

Maxxam Job #: B4E8595
Report Date: 2014/09/03

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Krystal Seedial, Project Manager
Email: KSeedial@maxxam.ca
Phone# (905) 817-5700

==========

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Total cover pages: 2

Maxxam Job #: B4E8595
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002

RESULTS OF ANALYSES OF SOIL

Maxxam ID		XD9708	XD9709	XD9710	XD9711		
Sampling Date		2014/08/15 09:05	2014/08/15 09:15	2014/08/15 10:15	2014/08/15 09:35		
	Units	**AREA3 B1-1**	**AREA3 J10-1**	**AREA3 J3-1**	**AREA3 A15-1**	**RDL**	**QC Batch**
Inorganics							
Moisture	%	17	6.7	8.6	13	1.0	3715385

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B4E8595
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID			XD9708	XD9709	XD9710	XD9711		
Sampling Date			2014/08/15 09:05	2014/08/15 09:15	2014/08/15 10:15	2014/08/15 09:35		
	Units	**Criteria A**	**AREA3 B1-1**	**AREA3 J10-1**	**AREA3 J3-1**	**AREA3 A15-1**	**RDL**	**QC Batch**
Metals								
Hot Water Ext. Boron (B)	ug/g	**1.5**	1.3	0.26	0.92	1.2	0.050	3716143
Acid Extractable Antimony (Sb)	ug/g	**7.5**	0.59	0.28	0.50	0.93	0.20	3716121
Acid Extractable Arsenic (As)	ug/g	**18**	5.6	7.9	5.0	7.6	1.0	3716121
Acid Extractable Barium (Ba)	ug/g	**390**	61	57	30	95	0.50	3716121
Acid Extractable Beryllium (Be)	ug/g	**4**	0.43	0.31	ND	0.46	0.20	3716121
Acid Extractable Boron (B)	ug/g	**120**	8.4	9.1	12	8.2	5.0	3716121
Acid Extractable Cadmium (Cd)	ug/g	**1.2**	0.63	0.37	0.71	0.94	0.10	3716121
Acid Extractable Chromium (Cr)	ug/g	**160**	33	11	23	16	1.0	3716121
Acid Extractable Cobalt (Co)	ug/g	**22**	6.9	5.8	3.8	7.2	0.10	3716121
Acid Extractable Copper (Cu)	ug/g	**140**	26	29	25	27	0.50	3716121
Acid Extractable Lead (Pb)	ug/g	**120**	63	51	58	86	1.0	3716121
Acid Extractable Molybdenum (Mo)	ug/g	**6.9**	0.89	0.81	1.5	0.64	0.50	3716121
Acid Extractable Nickel (Ni)	ug/g	**100**	16	12	8.3	18	0.50	3716121
Acid Extractable Selenium (Se)	ug/g	**2.4**	ND	ND	ND	ND	0.50	3716121
Acid Extractable Silver (Ag)	ug/g	**20**	ND	ND	ND	ND	0.20	3716121
Acid Extractable Thallium (Tl)	ug/g	**1**	0.13	0.10	0.089	0.12	0.050	3716121
Acid Extractable Uranium (U)	ug/g	**23**	0.44	0.44	0.44	0.46	0.050	3716121
Acid Extractable Vanadium (V)	ug/g	**86**	27	17	17	22	5.0	3716121
Acid Extractable Zinc (Zn)	ug/g	**340**	130	120	120	160	5.0	3716121

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria A: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Texture

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Maxxam Job #: B4E8595
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Peto MacCallum Ltd
Client Project #: 13HX002

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID			XD9708	XD9709	XD9710	XD9711		
Sampling Date			2014/08/15 09:05	2014/08/15 09:15	2014/08/15 10:15	2014/08/15 09:35		
	Units	**Criteria A**	**AREA3 B1-1**	**AREA3 J10-1**	**AREA3 J3-1**	**AREA3 A15-1**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons								
Benzene	ug/g	**0.21**	ND	ND	ND	ND	0.020	3715703
Toluene	ug/g	**2.3**	ND	ND	ND	ND	0.020	3715703
Ethylbenzene	ug/g	**2**	ND	ND	ND	ND	0.020	3715703
o-Xylene	ug/g		ND	ND	ND	ND	0.020	3715703
p+m-Xylene	ug/g		ND	ND	ND	ND	0.040	3715703
Total Xylenes	ug/g	**3.1**	ND	ND	ND	ND	0.040	3715703
F1 (C6-C10)	ug/g	**55**	ND	ND	ND	ND	10	3715703
F1 (C6-C10) - BTEX	ug/g	**55**	ND	ND	ND	ND	10	3715703
F2-F4 Hydrocarbons								
F4G-sg (Grav. Heavy Hydrocarbons)	ug/g	**2800**	1600	1700	**5800**	310	100	3719702
F2 (C10-C16 Hydrocarbons)	ug/g	**98**	ND	ND	ND	ND	10	3716279
F3 (C16-C34 Hydrocarbons)	ug/g	**300**	160	130	**360**	51	50	3716279
F4 (C34-C50 Hydrocarbons)	ug/g	**2800**	330	330	400	55	50	3716279
Reached Baseline at C50	ug/g		NO	NO	NO	NO		3716279
Surrogate Recovery (%)								
1,4-Difluorobenzene	%		105	106	105	106		3715703
4-Bromofluorobenzene	%		97	96	95	95		3715703
D10-Ethylbenzene	%		88	85	87	84		3715703
D4-1,2-Dichloroethane	%		99	99	100	97		3715703
o-Terphenyl	%		81	81	85	83		3716279

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria A: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Texture

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Maxxam Job #: B4E8595
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002

Test Summary

Maxxam ID XD9708 **Collected** 2014/08/15
Sample ID AREA3 B1-1 **Shipped**
Matrix Soil **Received** 2014/08/18

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3716143	2014/08/19	2014/08/19	Archana Patel
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3715703	2014/08/18	2014/08/19	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3716279	2014/08/19	2014/08/19	Ravinder Gaidhu
F4G (CCME Hydrocarbons Gravimetric)	BAL	3719702	2014/08/21	2014/08/21	Yeldho Mathai
Strong Acid Leachable Metals by ICPMS	ICP/MS	3716121	2014/08/19	2014/08/19	John Bowman
Moisture	BAL	3715385	N/A	2014/08/18	Valentina Kaftani

Maxxam ID XD9709 **Collected** 2014/08/15
Sample ID AREA3 J10-1 **Shipped**
Matrix Soil **Received** 2014/08/18

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3716143	2014/08/19	2014/08/19	Archana Patel
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3715703	2014/08/18	2014/08/19	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3716279	2014/08/19	2014/08/19	Ravinder Gaidhu
F4G (CCME Hydrocarbons Gravimetric)	BAL	3719702	2014/08/21	2014/08/21	Yeldho Mathai
Strong Acid Leachable Metals by ICPMS	ICP/MS	3716121	2014/08/19	2014/08/19	John Bowman
Moisture	BAL	3715385	N/A	2014/08/18	Valentina Kaftani

Maxxam ID XD9710 **Collected** 2014/08/15
Sample ID AREA3 J3-1 **Shipped**
Matrix Soil **Received** 2014/08/18

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3716143	2014/08/19	2014/08/19	Archana Patel
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3715703	2014/08/18	2014/08/19	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3716279	2014/08/19	2014/08/19	Ravinder Gaidhu
F4G (CCME Hydrocarbons Gravimetric)	BAL	3719702	2014/08/21	2014/08/21	Yeldho Mathai
Strong Acid Leachable Metals by ICPMS	ICP/MS	3716121	2014/08/19	2014/08/19	John Bowman
Moisture	BAL	3715385	N/A	2014/08/18	Valentina Kaftani

Maxxam Job #: B4E8595
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002

Test Summary

Maxxam ID XD9711
Sample ID AREA3 A15-1
Matrix Soil

Collected 2014/08/15
Shipped
Received 2014/08/18

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3716143	2014/08/19	2014/08/19	Archana Patel
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3715703	2014/08/18	2014/08/19	Georgeta Rusu
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3716279	2014/08/19	2014/08/20	Ravinder Gaidhu
F4G (CCME Hydrocarbons Gravimetric)	BAL	3719702	2014/08/21	2014/08/21	Yeldho Mathai
Strong Acid Leachable Metals by ICPMS	ICP/MS	3716121	2014/08/19	2014/08/19	John Bowman
Moisture	BAL	3715385	N/A	2014/08/18	Valentina Kaftani

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Peto MacCallum Ltd
Client Project #: 13HX002

GENERAL COMMENTS

Revised report (2014/09/03): Criteria added to report as per client request.

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Maxxam Job #: B4E8595
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
3715385	Moisture	2014/08/18							1.9	20
3715703	1,4-Difluorobenzene	2014/08/19	104	60 - 140	104	60 - 140	105	%		
3715703	4-Bromofluorobenzene	2014/08/19	97	60 - 140	98	60 - 140	96	%		
3715703	D10-Ethylbenzene	2014/08/19	96	60 - 140	84	60 - 140	83	%		
3715703	D4-1,2-Dichloroethane	2014/08/19	95	60 - 140	97	60 - 140	99	%		
3715703	Benzene	2014/08/19	96	60 - 140	91	60 - 140	ND, RDL=0.020	ug/g	NC	50
3715703	Toluene	2014/08/19	91	60 - 140	89	60 - 140	ND, RDL=0.020	ug/g	NC	50
3715703	Ethylbenzene	2014/08/19	102	60 - 140	99	60 - 140	ND, RDL=0.020	ug/g	NC	50
3715703	o-Xylene	2014/08/19	106	60 - 140	102	60 - 140	ND, RDL=0.020	ug/g	NC	50
3715703	p+m-Xylene	2014/08/19	95	60 - 140	92	60 - 140	ND, RDL=0.040	ug/g	NC	50
3715703	F1 (C6-C10)	2014/08/19	110	60 - 140	90	80 - 120	ND, RDL=10	ug/g	NC	30
3715703	Total Xylenes	2014/08/19					ND, RDL=0.040	ug/g	NC	50
3715703	F1 (C6-C10) - BTEX	2014/08/19					ND, RDL=10	ug/g	NC	30
3716121	Acid Extractable Antimony (Sb)	2014/08/19	101	75 - 125	108	80 - 120	ND, RDL=0.20	ug/g	NC	30
3716121	Acid Extractable Arsenic (As)	2014/08/19	99	75 - 125	106	80 - 120	ND, RDL=1.0	ug/g	NC	30
3716121	Acid Extractable Barium (Ba)	2014/08/19	NC	75 - 125	111	80 - 120	ND, RDL=0.50	ug/g	1.4	30
3716121	Acid Extractable Beryllium (Be)	2014/08/19	99	75 - 125	100	80 - 120	ND, RDL=0.20	ug/g	NC	30
3716121	Acid Extractable Boron (B)	2014/08/19	93	75 - 125	96	80 - 120	ND, RDL=5.0	ug/g	NC	30
3716121	Acid Extractable Cadmium (Cd)	2014/08/19	103	75 - 125	104	80 - 120	ND, RDL=0.10	ug/g	NC	30
3716121	Acid Extractable Chromium (Cr)	2014/08/19	NC	75 - 125	102	80 - 120	ND, RDL=1.0	ug/g	1.4	30
3716121	Acid Extractable Cobalt (Co)	2014/08/19	98	75 - 125	103	80 - 120	ND, RDL=0.10	ug/g	0.7	30
3716121	Acid Extractable Copper (Cu)	2014/08/19	NC	75 - 125	99	80 - 120	ND, RDL=0.50	ug/g	3.3	30
3716121	Acid Extractable Lead (Pb)	2014/08/19	98	75 - 125	102	80 - 120	ND, RDL=1.0	ug/g	NC	30
3716121	Acid Extractable Molybdenum (Mo)	2014/08/19	106	75 - 125	108	80 - 120	ND, RDL=0.50	ug/g	NC	30
3716121	Acid Extractable Nickel (Ni)	2014/08/19	NC	75 - 125	100	80 - 120	ND, RDL=0.50	ug/g	2.0	30
3716121	Acid Extractable Selenium (Se)	2014/08/19	98	75 - 125	104	80 - 120	ND, RDL=0.50	ug/g	NC	30
3716121	Acid Extractable Silver (Ag)	2014/08/19	101	75 - 125	103	80 - 120	ND, RDL=0.20	ug/g	NC	30
3716121	Acid Extractable Thallium (Tl)	2014/08/19	93	75 - 125	96	80 - 120	ND, RDL=0.050	ug/g	NC	30
3716121	Acid Extractable Uranium (U)	2014/08/19	93	75 - 125	95	80 - 120	ND, RDL=0.050	ug/g	3.0	30
3716121	Acid Extractable Vanadium (V)	2014/08/19	NC	75 - 125	102	80 - 120	ND, RDL=5.0	ug/g	0.5	30
3716121	Acid Extractable Zinc (Zn)	2014/08/19	NC	75 - 125	99	80 - 120	ND, RDL=5.0	ug/g	1	30
3716143	Hot Water Ext. Boron (B)	2014/08/19	99	75 - 125	95	75 - 125	ND, RDL=0.050	ug/g	NC	40
3716279	o-Terphenyl	2014/08/19	80	60 - 130	85	60 - 130	78	%		
3716279	F2 (C10-C16 Hydrocarbons)	2014/08/19	93	50 - 130	98	80 - 120	ND, RDL=10	ug/g	NC	30
3716279	F3 (C16-C34 Hydrocarbons)	2014/08/19	89	50 - 130	92	80 - 120	ND, RDL=50	ug/g	NC	30

Maxxam Job #: B4E8595
Report Date: 2014/09/03

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Client Project #: 13HX002

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
3716279	F4 (C34-C50 Hydrocarbons)	2014/08/19	91	50 - 130	94	80 - 120	ND, RDL=50	ug/g	NC	30
3719702	F4G-sg (Grav. Heavy Hydrocarbons)	2014/08/21	NC	65 - 135	99	65 - 135	ND, RDL=100	ug/g	12.4	50

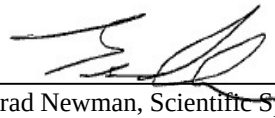
N/A = Not Applicable
RDL = Reportable Detection Limit
RPD = Relative Percent Difference
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).
NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

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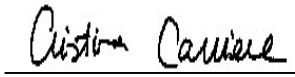
Validation Signature Page

Maxxam Job #: B4E8595

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Brad Newman, Scientific Specialist



Cristina Carriere, Scientific Services

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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Maxxam

6740 Camp
Phone: 905

RUSH

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION		PROJECT INFORMATION	TURNAROUND TIME (TAT) REQUIRED
Company Name: Peto MacCallum Ltd	ce)	Quotation #: B41439	☐ Regular TAT (5-7 days)
Contact Name: Sarah Murray	Contact Name:	P.O. #:	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address: 45 Burford Rd Hamilton L8E 3C6	Address:	Project #: 13HX002	Rush TAT (Applicable Surcharge)
Phone: 905-561-2231 Fax: 905-561-6366	Phone: Fax:	Site Location:	☐ 1 Day (100%)
Email: smurray@petomaccallum.com	Email:	Site #:	☑ 2 Days (50%)
		Sampled By:	☐ 3-4 Days (25%)

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

REGULATION 153 (2011)	OTHER REGULATIONS
☑ Table 1 ☐ Res/Park ☐ Med/Fine	☐ CCME ☐ Sanitary Sewer Bylaw
☐ Table 2 ☐ Ind/Comm ☐ Coarse	☐ MISA ☐ Storm Sewer Bylaw
☐ Table 3 ☐ Agri/Other	☐ PWQO Municipality:
☐ Table ___	☐ Other (Specify):
FOR RSC (PLEASE CIRCLE) YES / (NO)	☐ REG 558 (MINIMUM 3 DAY TAT REQUIRED)

Include Criteria on Certificate of Analysis (Y/N)? Y

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED

FIELD FILTERED (PLEASE CIRCLE) Metals / Hg / CrVI

	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	MATRIX	# OF CONT.	Reg. 153 Metals only	Hot Water Extractable Boron	PAHs + F1 to F4	COMMENTS / TAT COMMENTS
1	Area 3 B1-1	Aug 15/14	9:05	S	4	X	X	X	
2	Area 3 J10-1		9:25			X	X	X	
3	Area 3 J3-1		10:15			X	X	X	
4	Area 3 A15-1		9:35			X	X	X	
5	Area 3 A15-2		9:37			X	X	X	on hold
6	Area 3 A15-3		9:40			X	X	X	on hold
7	Area 3 A15-4	↓	9:42	↓	↓	X	X	X	on hold
8									
9									
10									

Rush Confirmation #: ks147815-3

Date Required: Aug. 20, 2014

LABORATORY USE ONLY

CUSTODY SEAL (Y/N)	Temperature (°C) on Receipt
Present N / Y TP	13/14/15°C
Intact	
COOLING MEDIA PRESENT (Y/N) N / Y TP 2014/08/18	

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME:	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME:	# JARS AND SUBM
S Murray / Sarah Murray	2014/08/18	9:00	Travis Persaud	2014/08/18	13:10	

18-Aug-14 13:10
Krystal Seedial
B4E8595
FW ENV-579

Maxxam Analytics International Corporation o/a Maxxam Analytics

Your Project #: 13HX002
Your C.O.C. #: na

Attention: Sarah Murray
Peto MacCallum Ltd
45 Burford Rd
Hamilton, ON
L8E 3C6

Report Date: 2014/09/03
Report #: R3143714
Version: 6R

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B4F3052
Received: 2014/08/22, 13:45

Sample Matrix: Soil
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Petroleum Hydro. CCME F1 & BTEX in Soil	1	2014/08/22	2014/08/23	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Soil	1	2014/08/22	2014/08/23	CAM SOP-00316	CCME CWS
F4G (CCME Hydrocarbons Gravimetric)	1	2014/08/26	2014/08/26	CAM SOP-00316	CCME PHC-CWS m
Moisture	1	N/A	2014/08/22	CAM SOP-00445	R.Carter,1993

Remarks:

Maxxam Analytics has performed all analytical testing herein in accordance with ISO 17025 and the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. All methodologies comply with this document and are validated for use in the laboratory. The methods and techniques employed in this analysis conform to the performance criteria (detection limits, accuracy and precision) as outlined in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act.

The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following the 'Alberta Environment Draft Addenda to the CWS-PHC, Appendix 6, Validation of Alternate Methods'. Documentation is available upon request. Maxxam has made the following improvements to the CWS-PHC reference benchmark method: (i) Headspace for F1; and, (ii) Mechanical extraction for F2-F4. Note: F4G cannot be added to the C6 to C50 hydrocarbons. The extraction date for samples field preserved with methanol for F1 and Volatile Organic Compounds is considered to be the date sampled.

Maxxam Analytics is accredited for all specific parameters as required by Ontario Regulation 153/04. Maxxam Analytics is limited in liability to the actual cost of analysis unless otherwise agreed in writing. There is no other warranty expressed or implied. Samples will be retained at Maxxam Analytics for three weeks from receipt of data or as per contract.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
* Results relate only to the items tested.

Peto MacCallum Ltd
Client Project #: 13HX002

Maxxam Job #: B4F3052
Report Date: 2014/09/03

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Krystal Seedial, Project Manager
Email: KSeedial@maxxam.ca
Phone# (905) 817-5700

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 2

Peto MacCallum Ltd
Client Project #: 13HX002

Maxxam Job #: B4F3052
Report Date: 2014/09/03

RESULTS OF ANALYSES OF SOIL

Maxxam ID		XG2017		
Sampling Date		2014/08/21 10:20		
	Units	**AREA 3 J3-2**	**RDL**	**QC Batch**
Inorganics				
Moisture	%	9.0	1.0	3722030

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Peto MacCallum Ltd
Client Project #: 13HX002

Maxxam Job #: B4F3052
Report Date: 2014/09/03

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID			XG2017		
Sampling Date			2014/08/21 10:20		
	Units	**Criteria A**	**AREA 3 J3-2**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons					
Benzene	ug/g	**0.21**	ND	0.020	3722452
Toluene	ug/g	**2.3**	ND	0.020	3722452
Ethylbenzene	ug/g	**2**	ND	0.020	3722452
o-Xylene	ug/g		ND	0.020	3722452
p+m-Xylene	ug/g		ND	0.040	3722452
Total Xylenes	ug/g	**3.1**	ND	0.040	3722452
F1 (C6-C10)	ug/g	**55**	ND	10	3722452
F1 (C6-C10) - BTEX	ug/g	**55**	ND	10	3722452
F2-F4 Hydrocarbons					
F4G-sg (Grav. Heavy Hydrocarbons)	ug/g	**2800**	2200	100	3724641
F2 (C10-C16 Hydrocarbons)	ug/g	**98**	ND	10	3722187
F3 (C16-C34 Hydrocarbons)	ug/g	**300**	**390**	50	3722187
F4 (C34-C50 Hydrocarbons)	ug/g	**2800**	540	50	3722187
Reached Baseline at C50	ug/g		NO		3722187
Surrogate Recovery (%)					
1,4-Difluorobenzene	%		101		3722452
4-Bromofluorobenzene	%		96		3722452
D10-Ethylbenzene	%		108		3722452
D4-1,2-Dichloroethane	%		111		3722452
o-Terphenyl	%		101		3722187

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria A: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Texture

Maxxam Job #: B4F3052
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002

Test Summary

Maxxam ID XG2017
Sample ID AREA 3 J3-2
Matrix Soil

Collected 2014/08/21
Shipped
Received 2014/08/22

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3722452	2014/08/22	2014/08/23	Simon Xi
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3722187	2014/08/22	2014/08/23	Nicoleta Ciublea
F4G (CCME Hydrocarbons Gravimetric)	BAL	3724641	2014/08/26	2014/08/26	Raheela Usmani
Moisture	BAL	3722030	N/A	2014/08/22	Chamika Deeyagaha

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Maxxam Job #: B4F3052
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002

GENERAL COMMENTS

Revised report (2014/08/28): Additional analysis on sample Topsoil Area E2.5-1.

Revised report (2014/09/03): Criteria added to report as per client request.

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Maxxam Job #: B4F3052
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
3722030	Moisture	2014/08/22							2.3	20
3722187	o-Terphenyl	2014/08/23	120	60 - 130	88	60 - 130	107	%		
3722187	F2 (C10-C16 Hydrocarbons)	2014/08/23	115	50 - 130	93	80 - 120	ND, RDL=10	ug/g	NC	30
3722187	F3 (C16-C34 Hydrocarbons)	2014/08/23	110	50 - 130	90	80 - 120	ND, RDL=50	ug/g	NC	30
3722187	F4 (C34-C50 Hydrocarbons)	2014/08/23	116	50 - 130	88	80 - 120	ND, RDL=50	ug/g	NC	30
3722452	1,4-Difluorobenzene	2014/08/23	99	60 - 140	100	60 - 140	100	%		
3722452	4-Bromofluorobenzene	2014/08/23	101	60 - 140	100	60 - 140	97	%		
3722452	D10-Ethylbenzene	2014/08/23	115	60 - 140	104	60 - 140	105	%		
3722452	D4-1,2-Dichloroethane	2014/08/23	107	60 - 140	109	60 - 140	108	%		
3722452	Benzene	2014/08/23	106	60 - 140	108	60 - 140	ND, RDL=0.020	ug/g	NC	50
3722452	Toluene	2014/08/23	99	60 - 140	100	60 - 140	ND, RDL=0.020	ug/g	NC	50
3722452	Ethylbenzene	2014/08/23	107	60 - 140	108	60 - 140	ND, RDL=0.020	ug/g	NC	50
3722452	o-Xylene	2014/08/23	110	60 - 140	105	60 - 140	ND, RDL=0.020	ug/g	NC	50
3722452	p+m-Xylene	2014/08/23	103	60 - 140	102	60 - 140	ND, RDL=0.040	ug/g	NC	50
3722452	F1 (C6-C10)	2014/08/23	91	60 - 140	92	80 - 120	ND, RDL=10	ug/g	NC	30
3722452	Total Xylenes	2014/08/23					ND, RDL=0.040	ug/g	NC	50
3722452	F1 (C6-C10) - BTEX	2014/08/23					ND, RDL=10	ug/g	NC	30
3724641	F4G-sg (Grav. Heavy Hydrocarbons)	2014/08/26	98	65 - 135	100	65 - 135	ND, RDL=100	ug/g	NC	50

N/A = Not Applicable
RDL = Reportable Detection Limit
RPD = Relative Percent Difference
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

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Validation Signature Page

Maxxam Job #: B4F3052

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Cristina Carriere, Scientific Services

Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

==========

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RUSH

llo Road, Mississauga, Ontario L5N 2L8 www.maxxam.ca
7-5700 Fax: 905-817-5779 Toll Free: 800-563-6266

CHAIN OF CUSTODY RECORD

INVOICE INFORMATION	REPORT INFORMATION (if differs from invoice)	PROJECT INFORMATION	TURNAROUND TIME (TAT) REQUIRED
Company Name: Peto MacCallum Ltd	Company Name:	Quotation #: B41439	☐ Regular TAT (5-7 days)
Contact Name: Sarah Murray	Contact Name:	P.O. #:	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address: 45 Burford Rd Hamilton L8E3L6	Address:	Project #: 13HX002	Rush TAT (Applicable Surcharge)
Phone: 905-561-2231 Fax: 905-561-2316	Phone: Fax:	Site Location:	☐ 1 Day (100%)
Email: smurray@petomaccallum.com	Email:	Site #:	☑ 2 Days (50%)
		Sampled By:	☐ 3-4 Days (25%)

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

REGULATION 153 (2011)	OTHER REGULATIONS
☑ Table 1 ☐ Res/Park ☐ Med/Fine	☐ CCME ☐ Sanitary Sewer Bylaw
☐ Table 2 ☐ Ind/Comm ☐ Coarse	☐ MISA ☐ Storm Sewer Bylaw
☐ Table 3 ☐ Agri/Other	☐ PWQO Municipality:
☐ Table ___	☐ Other (Specify):
FOR RSC (PLEASE CIRCLE) YES / (NO)	☐ REG 558 (MINIMUM 3 DAY TAT REQUIRED)

Include Criteria on Certificate of Analysis (Y/N)? Y

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED

FIELD FILTERED (PLEASE CIRCLE) Metals / Hg / CrVI

	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	MATRIX	# OF CONT.	Electrical Conductivity	PHCs F1 to F4	Boron (HWS)	COMMENTS / TAT COMMENTS
1	Topsoil Area A1-1	Aug21/14	10:55	S	1	X			
2	Topsoil Area B0-1	"	10:50	"	1	X			
3	Topsoil Area B2-1	"	11:05	"	1	X			
4	Topsoil Area C1-1	"	11:00	"	1	X			
5	Topsoil Area D1-1	"	10:45	"	1	X			
6	Topsoil Area E2.5-1	"	10:40	"	3		X		
7									
8	Area 2 J4-1	Aug21/14	11:10	S	1			X	report separately
9	Area 3 J3-2	"	10:20	S	3		X		report separately
10									

Rush Confirmation #: KS140820-84

Date Required:

LABORATORY USE ONLY

CUSTODY SEAL (Y/N)	Temperature (°C) on Receipt
Present: N	9/9/10
Intact:	
COOLING MEDIA PRESENT (Y/N): Y	

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME:	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME:
S. Murray / Sarah Murray	2014/08/22	8:20	RACHEL DERLIN	2014/08/22	13:45

22-Aug-14 13:45
Krystal Seedial
B4F3052
AAF ENV-636

Maxxam Analytics International Corporation o/a Maxxam Analytics

Topsoil Stockpile

Your Project #: 13HX002 Clean-Up
Your C.O.C. #: 46179101, 461791-01-01

Attention: Sarah Murray
Peto MacCallum Ltd
45 Burford Rd
Hamilton, ON
L8E 3C6

Report Date: 2014/09/03
Report #: R3143403
Version: 2R

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B437606
Received: 2014/03/10, 13:20

Sample Matrix: Soil
Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Conductivity	6	N/A	2014/03/12	CAM SOP-00414	OMOE E3138 v2 m

Remarks:

Maxxam Analytics has performed all analytical testing herein in accordance with ISO 17025 and the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. All methodologies comply with this document and are validated for use in the laboratory. The methods and techniques employed in this analysis conform to the performance criteria (detection limits, accuracy and precision) as outlined in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act.

The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following the 'Alberta Environment Draft Addenda to the CWS-PHC, Appendix 6, Validation of Alternate Methods'. Documentation is available upon request. Maxxam has made the following improvements to the CWS-PHC reference benchmark method: (i) Headspace for F1; and, (ii) Mechanical extraction for F2-F4. Note: F4G cannot be added to the C6 to C50 hydrocarbons. The extraction date for samples field preserved with methanol for F1 and Volatile Organic Compounds is considered to be the date sampled.

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* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
* Results relate only to the items tested.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Krystal Seedial, Project Manager
Email: KSeedial@maxxam.ca
Phone# (905) 817-5700

==========

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Total cover pages: 1

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

Maxxam Job #: B437606
Report Date: 2014/09/03

RESULTS OF ANALYSES OF SOIL

Maxxam ID			VD5044	VD5045	VD5046	VD5047	VD5048	VD5049		
Sampling Date			2014/03/07 15:00	2014/03/07 14:50	2014/03/07 15:20	2014/03/07 15:05	2014/03/07 14:42	2014/03/07		
	Units	**Criteria A**	**GS1**	**GS2**	**GS3**	**GS4**	**GS5**	**DUPLICATE 1**	**RDL**	**QC Batch**
Inorganics										
Conductivity	mS/cm	**0.7**	0.43	0.58	0.62	**1.5**	0.49	0.60	0.002	3537958

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria A: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Texture

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Maxxam Job #: B437606
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

Test Summary

Maxxam ID VD5044 **Collected** 2014/03/07
Sample ID GS1 **Shipped**
Matrix Soil **Received** 2014/03/10

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Conductivity	COND	3537958	N/A	2014/03/12	Lemeneh Addis

Maxxam ID VD5045 **Collected** 2014/03/07
Sample ID GS2 **Shipped**
Matrix Soil **Received** 2014/03/10

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Conductivity	COND	3537958	N/A	2014/03/12	Lemeneh Addis

Maxxam ID VD5046 **Collected** 2014/03/07
Sample ID GS3 **Shipped**
Matrix Soil **Received** 2014/03/10

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Conductivity	COND	3537958	N/A	2014/03/12	Lemeneh Addis

Maxxam ID VD5047 **Collected** 2014/03/07
Sample ID GS4 **Shipped**
Matrix Soil **Received** 2014/03/10

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Conductivity	COND	3537958	N/A	2014/03/12	Lemeneh Addis

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Maxxam Job #: B437606
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

Test Summary

Maxxam ID VD5048 **Collected** 2014/03/07
Sample ID GS5 **Shipped**
Matrix Soil **Received** 2014/03/10

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Conductivity	COND	3537958	N/A	2014/03/12	Lemeneh Addis

Maxxam ID VD5049 **Collected** 2014/03/07
Sample ID DUPLICATE 1 **Shipped**
Matrix Soil **Received** 2014/03/10

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Conductivity	COND	3537958	N/A	2014/03/12	Lemeneh Addis

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B437606
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

GENERAL COMMENTS

Revised report (2014/09/03): Criteria added to report as per client request.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

Maxxam Job #: B437606
Report Date: 2014/09/03

QUALITY ASSURANCE REPORT

			Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
3537958	Conductivity	2014/03/12	99	90 - 110	ND, RDL=0.002	mS/cm	3.4	10

N/A = Not Applicable
RDL = Reportable Detection Limit
RPD = Relative Percent Difference
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

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Validation Signature Page

Maxxam Job #: B437606

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

==========

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RUSH

10-Mar-14 13:20
Krystal Seedial
B437606
MAF ENV-939

tional Corporation o/a Maxxam Analytics
Mississauga, Ontario Canada L5N 2L8 Tel:(905) 817-5700 Toll-Free:800-563-6266 Fax:(905) 817-5777 www.maxxam.ca

		REPORT INFORMATION(if differs from invoice):		PROJECT INFORMATION:		Laboratory Use Only:
Company Name:	#3101 Peto MacCallum Ltd	Company Name:		Quotation #:	B41439	Bottle Order #:
Contact Name:	Sarah Murray	Contact Name:		P.O. #:		461791
Address:	45 Burford Rd Hamilton ON L8E 3C6	Address:		Project #:	13HX002 Clean-Up	Project Manager:
Phone:	(905) 561-2231 x Fax: (905) 561-6366 x	Phone:	Fax:	Project Name:		
Email:	smurray@petomaccallum.com	Email:		Site #:		Krystal Seedial
				Sampled By:		C#461791-01-01

Regulation 153 (2011)
- [x] Table1 [ ] Table2 [ ] Table3 [ ] Table ___
- [ ] Res/Park [ ] Ind/Comm [ ] Agri/Other
- [ ] Medium/Fine [ ] Coarse
- [x] For RSC

Other Regulations
- [ ] CCME [ ] Reg 558. [ ] MISA [ ] PWQO [ ] Other
- [ ] Sanitary Sewer Bylaw [ ] Storm Sewer Bylaw
- Municipality: ___

Special Instructions

Include Criteria on Certificate of Analysis (Y/N)? ___

Note: For MOE regulated drinking water samples - please use the Drinking Water Chain of Custody Form

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

Turnaround Time (TAT) Required: 2 Day Rush

Please provide advance notice for rush projects

Regular (Standard) TAT: [ ]
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: 2014/03/12 Time Required: ___ [x]
Rush Confirmation Number: KS140307-2 *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	Petroleum Hydrocarbons F1 to F4	Electrical Conductivity	Hot Water Extractable Boron	Reg 153 ICPMS Metals only package	# of Bottles	Comments
1		GS1	March 7, 2014	3:00	S				X			1	
2		GS2		2:50	S				X			1	
3		GS3		3:20	S				X			1	
4		GS4		3:05	S				X			1	
5		GS5		2:42	S				X			1	
6		~~GS6~~ Duplicate 1		—	S				X			1	
7													
8													
9													
10													

*RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# jars used and not submitted
S Murray Sarah Murray	14/03/10	8:00am	RACHEL DENLIN	2014/03/10	13:20	

Laboratory Use Only				
Time Sensitive	Temperature (°C) on Receipt	CustodySeal	Yes	No
	3/3/4°C	Present		✓
		Intact		

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

White: Maxxam Yellow: Client

Your Project #: 13HX002 CLEAN UP
Your C.O.C. #: 46424201, 464242-01-01

Attention: Sarah Murray
Peto MacCallum Ltd
45 Burford Rd
Hamilton, ON
L8E 3C6

Report Date: 2014/09/03
Report #: R3143484
Version: 2R

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B494151
Received: 2014/06/04, 14:15

Sample Matrix: Soil
Samples Received: 10

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Conductivity	10	N/A	2014/06/10	CAM SOP-00414	OMOE E3138 v2 m

Remarks:

Maxxam Analytics has performed all analytical testing herein in accordance with ISO 17025 and the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. All methodologies comply with this document and are validated for use in the laboratory. The methods and techniques employed in this analysis conform to the performance criteria (detection limits, accuracy and precision) as outlined in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act.

The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following the 'Alberta Environment Draft Addenda to the CWS-PHC, Appendix 6, Validation of Alternate Methods'. Documentation is available upon request. Maxxam has made the following improvements to the CWS-PHC reference benchmark method: (i) Headspace for F1; and, (ii) Mechanical extraction for F2-F4. Note: F4G cannot be added to the C6 to C50 hydrocarbons. The extraction date for samples field preserved with methanol for F1 and Volatile Organic Compounds is considered to be the date sampled.

Maxxam Analytics is accredited for all specific parameters as required by Ontario Regulation 153/04. Maxxam Analytics is limited in liability to the actual cost of analysis unless otherwise agreed in writing. There is no other warranty expressed or implied. Samples will be retained at Maxxam Analytics for three weeks from receipt of data or as per contract.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
* Results relate only to the items tested.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Krystal Seedial, Project Manager
Email: KSeedial@maxxam.ca
Phone# (905) 817-5700

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 1

Maxxam Job #: B494151
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 CLEAN UP

RESULTS OF ANALYSES OF SOIL

Maxxam ID			WE3456	WE3457	WE3458	WE3459	WE3460		
Sampling Date			2014/06/03 08:58	2014/06/03 09:02	2014/06/03 09:06	2014/06/03 09:10	2014/06/03 09:15		
	Units	**Criteria A**	**GS4-1**	**GS4-2**	**GS4-3**	**GS4-4**	**GS4-5**	**RDL**	**QC Batch**
Inorganics									
Conductivity	mS/cm	**0.7**	**1.6**	**2.1**	**1.9**	**2.1**	0.40	0.002	3635007

Maxxam ID			WE3461	WE3462	WE3463	WE3464	WE3465		
Sampling Date			2014/06/03 09:20	2014/06/03 09:25	2014/06/03 09:30	2014/06/03 09:35	2014/06/03 09:40		
	Units	**Criteria A**	**GS4-6**	**GS4-7**	**GS4-8**	**GS4-9**	**GS4-10**	**RDL**	**QC Batch**
Inorganics									
Conductivity	mS/cm	**0.7**	0.42	**0.71**	**0.93**	**1.0**	**1.9**	0.002	3635007

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria A: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Texture

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Peto MacCallum Ltd
Client Project #: 13HX002 CLEAN UP

Maxxam Job #: B494151
Report Date: 2014/09/03

Test Summary

Maxxam ID WE3456 **Collected** 2014/06/03
Sample ID GS4-1 **Shipped**
Matrix Soil **Received** 2014/06/04

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Conductivity	COND	3635007	N/A	2014/06/10	Lemeneh Addis

Maxxam ID WE3457 **Collected** 2014/06/03
Sample ID GS4-2 **Shipped**
Matrix Soil **Received** 2014/06/04

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Conductivity	COND	3635007	N/A	2014/06/10	Lemeneh Addis

Maxxam ID WE3458 **Collected** 2014/06/03
Sample ID GS4-3 **Shipped**
Matrix Soil **Received** 2014/06/04

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Conductivity	COND	3635007	N/A	2014/06/10	Lemeneh Addis

Maxxam ID WE3459 **Collected** 2014/06/03
Sample ID GS4-4 **Shipped**
Matrix Soil **Received** 2014/06/04

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Conductivity	COND	3635007	N/A	2014/06/10	Lemeneh Addis

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Maxxam Job #: B494151
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 CLEAN UP

Test Summary

Maxxam ID WE3460 **Collected** 2014/06/03
Sample ID GS4-5 **Shipped**
Matrix Soil **Received** 2014/06/04

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Conductivity	COND	3635007	N/A	2014/06/10	Lemeneh Addis

Maxxam ID WE3461 **Collected** 2014/06/03
Sample ID GS4-6 **Shipped**
Matrix Soil **Received** 2014/06/04

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Conductivity	COND	3635007	N/A	2014/06/10	Lemeneh Addis

Maxxam ID WE3462 **Collected** 2014/06/03
Sample ID GS4-7 **Shipped**
Matrix Soil **Received** 2014/06/04

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Conductivity	COND	3635007	N/A	2014/06/10	Lemeneh Addis

Maxxam ID WE3463 **Collected** 2014/06/03
Sample ID GS4-8 **Shipped**
Matrix Soil **Received** 2014/06/04

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Conductivity	COND	3635007	N/A	2014/06/10	Lemeneh Addis

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Maxxam Job #: B494151
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 CLEAN UP

Test Summary

Maxxam ID WE3464 **Collected** 2014/06/03
Sample ID GS4-9 **Shipped**
Matrix Soil **Received** 2014/06/04

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Conductivity	COND	3635007	N/A	2014/06/10	Lemeneh Addis

Maxxam ID WE3465 **Collected** 2014/06/03
Sample ID GS4-10 **Shipped**
Matrix Soil **Received** 2014/06/04

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Conductivity	COND	3635007	N/A	2014/06/10	Lemeneh Addis

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Maxxam Job #: B494151
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 CLEAN UP

GENERAL COMMENTS

Revised report (2014/09/03): Criteria added to report as per client request.

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Peto MacCallum Ltd
Client Project #: 13HX002 CLEAN UP

Maxxam Job #: B494151
Report Date: 2014/09/03

QUALITY ASSURANCE REPORT

			Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
3635007	Conductivity	2014/06/10	99	90 - 110	ND, RDL=0.002	mS/cm	0.5	10

N/A = Not Applicable
RDL = Reportable Detection Limit
RPD = Relative Percent Difference
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

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Validation Signature Page

Maxxam Job #: B494151

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Cristina Carriere, Scientific Services

==========

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Maxxam Analytics International Corporation o/a Maxxam Analytics
6740 Campobello Road, Mississauga, Ontario Canada L5N 2L8 Tel:(905) 817-5700 Toll-Free:800-56

4-Jun-14 14:15
Asuka Nakamura
B494151
FW ENV-040

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:		REPORT INFORMATION(if c	
Company Name:	#3101 Peto MacCallum Ltd	Company Name:	
Contact Name:	Sarah Murray	Contact Name:	
Address:	45 Burford Rd Hamilton ON L8E 3C6	Address:	
Phone:	(905) 561-2231 x Fax: (905) 561-6366 x	Phone:	Fax:
Email:	smurray@petomaccallum.com	Email:	

PROJECT INFORMATION:	
	B41439
	13HX022 Clean Up
Project Name:	
Site #:	
Sampled By:	

Laboratory Use Only:	
Maxxam Job #:	Bottle Order #:
	464242
Chain of Custody #:	Project Manager:
C#464242-01-01	Asuka Nakamura

Regulation 153 (2011)
- [x] Table1
- [ ] Table2
- [ ] Table3
- [ ] Table ___
- [ ] Res/Park
- [ ] Ind/Comm
- [ ] Agri/Other
- [ ] Medium/Fine
- [ ] Coarse
- [x] For RSC

Other Regulations
- [ ] CCME
- [ ] Reg 558
- [ ] MISA
- [ ] PWQO
- [ ] Other ___
- [ ] Sanitary Sewer Bylaw
- [ ] Storm Sewer Bylaw
- Municipality ___

Special Instructions

Include Criteria on Certificate of Analysis (Y/N)? ___

Note: For MOE regulated drinking water samples - please use the Drinking Water Chain of Custody Form

SAMPLES MUST BE KEPT COOL (< 10ºC) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

Turnaround Time (TAT) Required:

Please provide advance notice for rush projects

Regular (Standard) TAT: ☑
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: ___ Time Required: ___
Rush Confirmation Number: ___ *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	ANALYSIS REQUESTED (Please be specific): Electrical Conductivity	# of Bottles	Comments
1		GS4 - 1	June 3, 2014	8:58 am	S			X	1	
2		GS4 - 2	"	9:02 am	"			X	1	
3		GS4 - 3	"	9:06 am	"			X	1	
4		GS4 - 4	"	9:10 am	"			X	1	
5		GS4 - 5	"	9:15 am	"			X	1	
6		GS4 - 6	"	9:20 am	"			X	1	
7		GS4 - 7	"	9:25 am	"			X	1	
8		GS4 - 8	"	9:30 am	"			X	1	
9		GS4 - 9	"	9:35 am	"			X	1	
10		GS4 - 10	"	9:40 am	"			X	1	

*RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# jars used and not submitted
Sarah Murray / S Murray	14/06/04	8:00	Rachel AKA PATEL	2014/06/04	14:15	

Laboratory Use Only				
Time Sensitive	Temperature (ºC) on Receipt	CustodySeal	Yes	No
	8.1 8.9 C.	Present		✓
		Intact		✓

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

White: Maxxam Yellow: Client

Maxxam
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Success Through Science®

Your Project #: 13HX002 Clean-Up
Your C.O.C. #: 46179107, 461791-07-01

Attention: Sarah Murray
Peto MacCallum Ltd
45 Burford Rd
Hamilton, ON
L8E 3C6

Report Date: 2014/09/03
Report #: R3143494
Version: 2R

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B4A1726
Received: 2014/06/13, 13:35

Sample Matrix: Soil
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Hot Water Extractable Boron	3	2014/06/19	2014/06/19	CAM SOP-00408	R153 Ana. Prot. 2011
Free (WAD) Cyanide	3	N/A	2014/06/19	CAM SOP-00457	OMOE E3015 m
Conductivity	3	N/A	2014/06/19	CAM SOP-00414	OMOE E3138 v2 m
Hexavalent Chromium in Soil by IC (1)	2	2014/06/18	2014/06/19	CAM SOP-00436	EPA 3060/7199 m
Hexavalent Chromium in Soil by IC (1)	1	2014/06/19	2014/06/20	CAM SOP-00436	EPA 3060/7199 m
Petroleum Hydro. CCME F1 & BTEX in Soil	1	2014/06/16	2014/06/20	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydro. CCME F1 & BTEX in Soil	2	2014/06/16	2014/06/21	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Soil	3	2014/06/18	2014/06/20	CAM SOP-00316	CCME CWS
F4G (CCME Hydrocarbons Gravimetric)	3	2014/06/22	2014/06/22	CAM SOP-00316	CCME PHC-CWS m
Strong Acid Leachable Metals by ICPMS	3	2014/06/19	2014/06/19	CAM SOP-00447	EPA 6020 m
Moisture	3	N/A	2014/06/18	CAM SOP-00445	R.Carter,1993
Polychlorinated Biphenyl in Soil	3	2014/06/17	2014/06/18	CAM SOP-00309	EPA 8082 m
pH CaCl2 EXTRACT	3	2014/06/19	2014/06/19	CAM SOP-00413	EPA 9045 D m
Sodium Adsorption Ratio (SAR)	3	2014/06/16	2014/06/20	CAM SOP-00102	EPA 6010

Remarks:

Maxxam Analytics has performed all analytical testing herein in accordance with ISO 17025 and the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. All methodologies comply with this document and are validated for use in the laboratory. The methods and techniques employed in this analysis conform to the performance criteria (detection limits, accuracy and precision) as outlined in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act.

The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following the 'Alberta Environment Draft Addenda to the CWS-PHC, Appendix 6, Validation of Alternate Methods'. Documentation is available upon request. Maxxam has made the following improvements to the CWS-PHC reference benchmark method: (i) Headspace for F1; and, (ii) Mechanical extraction for F2-F4. Note: F4G cannot be added to the C6 to C50 hydrocarbons. The extraction date for samples field preserved with methanol for F1 and Volatile Organic Compounds is considered to be the date sampled.

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* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
* Results relate only to the items tested.

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(1) Soils are reported on a dry weight basis unless otherwise specified.

Encryption Key

Krystal Seedial
03 Sep 2014 16:07:43 -04:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Krystal Seedial, Project Manager
Email: KSeedial@maxxam.ca
Phone# (905) 817-5700

==========

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Total cover pages: 1

Maxxam Job #: B4A1726
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

RESULTS OF ANALYSES OF SOIL

Maxxam ID			WH8832		WH8833		WH8834		
Sampling Date			2014/06/11 15:00		2014/06/11 15:15		2014/06/11 16:00		
	Units	**Criteria A**	**AREA 2 GS5**	**QC Batch**	**AREA 2 GS6**	**QC Batch**	**GS4-11**	**RDL**	**QC Batch**
Calculated Parameters									
Sodium Adsorption Ratio	N/A	**5.0**	1.1	3642546	2.0	3642546	2.4		3642546
Inorganics									
Chromium (VI)	ug/g	**8**	ND	3645350	ND	3647889	ND	0.2	3645350
Conductivity	mS/cm	**0.7**	0.31	3647212	0.50	3647212	**1.1**	0.002	3647212
Free Cyanide	ug/g	**0.051**	0.01	3644154	0.02	3644154	0.05	0.01	3644154
Moisture	%		11	3645694	16	3645694	9.6	1.0	3645694
Available (CaCl2) pH	pH		7.59	3646063	7.39	3646063	7.40		3646063

N/A = Not Applicable
ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria A: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Texture

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Maxxam Job #: B4A1726
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID			WH8832		WH8833		WH8834		
Sampling Date			2014/06/11 15:00		2014/06/11 15:15		2014/06/11 16:00		
	Units	Criteria A	AREA 2 GS5	QC Batch	AREA 2 GS6	QC Batch	GS4-11	RDL	QC Batch
Metals									
Hot Water Ext. Boron (B)	ug/g	**1.5**	1.1	3647000	1.2	3646957	1.0	0.050	3647000
Acid Extractable Antimony (Sb)	ug/g	**7.5**	0.32	3646988	0.21	3646988	ND	0.20	3646988
Acid Extractable Arsenic (As)	ug/g	**18**	6.4	3646988	5.0	3646988	4.0	1.0	3646988
Acid Extractable Barium (Ba)	ug/g	**390**	68	3646988	30	3646988	45	0.50	3646988
Acid Extractable Beryllium (Be)	ug/g	**4**	0.49	3646988	0.25	3646988	0.32	0.20	3646988
Acid Extractable Boron (B)	ug/g	**120**	12	3646988	10	3646988	7.3	5.0	3646988
Acid Extractable Cadmium (Cd)	ug/g	**1.2**	0.30	3646988	0.30	3646988	0.32	0.10	3646988
Acid Extractable Chromium (Cr)	ug/g	**160**	38	3646988	31	3646988	11	1.0	3646988
Acid Extractable Cobalt (Co)	ug/g	**22**	11	3646988	4.5	3646988	4.9	0.10	3646988
Acid Extractable Copper (Cu)	ug/g	**140**	27	3646988	28	3646988	15	0.50	3646988
Acid Extractable Lead (Pb)	ug/g	**120**	26	3646988	38	3646988	14	1.0	3646988
Acid Extractable Molybdenum (Mo)	ug/g	**6.9**	1.0	3646988	0.75	3646988	0.56	0.50	3646988
Acid Extractable Nickel (Ni)	ug/g	**100**	19	3646988	9.6	3646988	9.7	0.50	3646988
Acid Extractable Selenium (Se)	ug/g	**2.4**	ND	3646988	ND	3646988	ND	0.50	3646988
Acid Extractable Silver (Ag)	ug/g	**20**	ND	3646988	ND	3646988	ND	0.20	3646988
Acid Extractable Thallium (Tl)	ug/g	**1**	0.096	3646988	0.078	3646988	0.061	0.050	3646988
Acid Extractable Uranium (U)	ug/g	**23**	0.47	3646988	0.36	3646988	0.46	0.050	3646988
Acid Extractable Vanadium (V)	ug/g	**86**	33	3646988	34	3646988	20	5.0	3646988
Acid Extractable Zinc (Zn)	ug/g	**340**	100	3646988	94	3646988	64	5.0	3646988
Acid Extractable Mercury (Hg)	ug/g	**0.27**	ND	3646988	ND	3646988	ND	0.050	3646988

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria A: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Texture

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Maxxam Job #: B4A1726
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID			WH8832		WH8833	WH8834		
Sampling Date			2014/06/11 15:00		2014/06/11 15:15	2014/06/11 16:00		
	Units	Criteria A	AREA 2 GS5	RDL	AREA 2 GS6	GS4-11	RDL	QC Batch
BTEX & F1 Hydrocarbons								
Benzene	ug/g	**0.21**	ND	0.020	ND	ND	0.020	3647911
Toluene	ug/g	**2.3**	ND	0.020	ND	ND	0.020	3647911
Ethylbenzene	ug/g	**2**	ND	0.020	ND	ND	0.020	3647911
o-Xylene	ug/g		ND	0.020	ND	ND	0.020	3647911
p+m-Xylene	ug/g		ND	0.040	ND	ND	0.040	3647911
Total Xylenes	ug/g	**3.1**	ND	0.040	ND	ND	0.040	3647911
F1 (C6-C10)	ug/g	**55**	ND	10	ND	ND	10	3647911
F1 (C6-C10) - BTEX	ug/g	**55**	ND	10	ND	ND	10	3647911
F2-F4 Hydrocarbons								
F4G-sg (Grav. Heavy Hydrocarbons)	ug/g	**2800**	2000	100	**9600**	**5600**	100	3650477
F2 (C10-C16 Hydrocarbons)	ug/g	**98**	ND	10	ND	ND	20	3646269
F3 (C16-C34 Hydrocarbons)	ug/g	**300**	130	50	**510**	**520**	100	3646269
F4 (C34-C50 Hydrocarbons)	ug/g	**2800**	450	50	2300	1500	100	3646269
Reached Baseline at C50	ug/g		NO		NO	NO		3646269
Surrogate Recovery (%)								
1,4-Difluorobenzene	%		101		104	106		3647911
4-Bromofluorobenzene	%		95		90	98		3647911
D10-Ethylbenzene	%		87		82	92		3647911
D4-1,2-Dichloroethane	%		108		111	113		3647911
o-Terphenyl	%		93		88	84		3646269

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria A: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Texture

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B4A1726
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Maxxam ID			WH8832	WH8833	WH8834		
Sampling Date			2014/06/11 15:00	2014/06/11 15:15	2014/06/11 16:00		
	Units	**Criteria A**	**AREA 2 GS5**	**AREA 2 GS6**	**GS4-11**	**RDL**	**QC Batch**
PCBs							
Aroclor 1242	ug/g		ND	ND	ND	0.010	3643743
Aroclor 1248	ug/g		ND	ND	ND	0.010	3643743
Aroclor 1254	ug/g		ND	ND	ND	0.010	3643743
Aroclor 1260	ug/g		ND	ND	ND	0.010	3643743
Total PCB	ug/g	**0.35**	ND	ND	ND	0.010	3643743
Surrogate Recovery (%)							
Decachlorobiphenyl	%		72	65	65		3643743

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria A: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Texture

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Maxxam Job #: B4A1726
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

Test Summary

Maxxam ID WH8832
Sample ID AREA 2 GS5
Matrix Soil

Collected 2014/06/11
Shipped
Received 2014/06/13

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3647000	2014/06/19	2014/06/19	Suban Kanapathippllai
Free (WAD) Cyanide	TECH	3644154	N/A	2014/06/19	Xuanhong Qiu
Conductivity	COND	3647212	N/A	2014/06/19	Lemeneh Addis
Hexavalent Chromium in Soil by IC	IC/SPEC	3645350	2014/06/18	2014/06/19	Manoj Gera
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3647911	2014/06/16	2014/06/21	Suzana Popovic
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3646269	2014/06/18	2014/06/20	Ravinder Gaidhu
F4G (CCME Hydrocarbons Gravimetric)	BAL	3650477	2014/06/22	2014/06/22	Raheela Usmani
Strong Acid Leachable Metals by ICPMS	ICP/MS	3646988	2014/06/19	2014/06/19	Viviana Canzonieri
Moisture	BAL	3645694	N/A	2014/06/18	Valentina Kaftani
Polychlorinated Biphenyl in Soil	GC/ECD	3643743	2014/06/17	2014/06/18	Li Peng
pH CaCl2 EXTRACT		3646063	2014/06/19	2014/06/19	Neil Dassanayake
Sodium Adsorption Ratio (SAR)	CALC/MET	3642546	2014/06/20	2014/06/20	Automated Statchk

Maxxam ID WH8833
Sample ID AREA 2 GS6
Matrix Soil

Collected 2014/06/11
Shipped
Received 2014/06/13

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3646957	2014/06/19	2014/06/19	Jolly John
Free (WAD) Cyanide	TECH	3644154	N/A	2014/06/19	Xuanhong Qiu
Conductivity	COND	3647212	N/A	2014/06/19	Lemeneh Addis
Hexavalent Chromium in Soil by IC	IC/SPEC	3647889	2014/06/19	2014/06/20	Manoj Gera
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3647911	2014/06/16	2014/06/21	Suzana Popovic
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3646269	2014/06/18	2014/06/20	Ravinder Gaidhu
F4G (CCME Hydrocarbons Gravimetric)	BAL	3650477	2014/06/22	2014/06/22	Raheela Usmani
Strong Acid Leachable Metals by ICPMS	ICP/MS	3646988	2014/06/19	2014/06/19	Viviana Canzonieri
Moisture	BAL	3645694	N/A	2014/06/18	Valentina Kaftani
Polychlorinated Biphenyl in Soil	GC/ECD	3643743	2014/06/17	2014/06/18	Li Peng
pH CaCl2 EXTRACT		3646063	2014/06/19	2014/06/19	Neil Dassanayake
Sodium Adsorption Ratio (SAR)	CALC/MET	3642546	2014/06/20	2014/06/20	Automated Statchk

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Maxxam Job #: B4A1726
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

Test Summary

Maxxam ID WH8833 Dup
Sample ID AREA 2 GS6
Matrix Soil

Collected 2014/06/11
Shipped
Received 2014/06/13

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Strong Acid Leachable Metals by ICPMS	ICP/MS	3646988	2014/06/19	2014/06/19	Viviana Canzonieri

Maxxam ID WH8834
Sample ID GS4-11
Matrix Soil

Collected 2014/06/11
Shipped
Received 2014/06/13

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Hot Water Extractable Boron	ICP	3647000	2014/06/19	2014/06/19	Suban Kanapathippllai
Free (WAD) Cyanide	TECH	3644154	N/A	2014/06/19	Xuanhong Qiu
Conductivity	COND	3647212	N/A	2014/06/19	Lemeneh Addis
Hexavalent Chromium in Soil by IC	IC/SPEC	3645350	2014/06/18	2014/06/19	Manoj Gera
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3647911	2014/06/16	2014/06/20	Suzana Popovic
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3646269	2014/06/18	2014/06/20	Ravinder Gaidhu
F4G (CCME Hydrocarbons Gravimetric)	BAL	3650477	2014/06/22	2014/06/22	Raheela Usmani
Strong Acid Leachable Metals by ICPMS	ICP/MS	3646988	2014/06/19	2014/06/19	Viviana Canzonieri
Moisture	BAL	3645694	N/A	2014/06/18	Valentina Kaftani
Polychlorinated Biphenyl in Soil	GC/ECD	3643743	2014/06/17	2014/06/18	Li Peng
pH CaCl2 EXTRACT		3646063	2014/06/19	2014/06/19	Neil Dassanayake
Sodium Adsorption Ratio (SAR)	CALC/MET	3642546	2014/06/20	2014/06/20	Automated Statchk

Maxxam ID WH8834 Dup
Sample ID GS4-11
Matrix Soil

Collected 2014/06/11
Shipped
Received 2014/06/13

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3647911	2014/06/16	2014/06/20	Suzana Popovic

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Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

GENERAL COMMENTS

Revised report (2014/09/03): Criteria added to report as per client request.

Sample WH8833-01: F2-F4 Analysis: Due to high concentration of target analytes, sample required dilution. Reporting limits were adjusted accordingly.

Sample WH8834-01: F2-F4 Analysis: Due to high concentration of target analytes, sample required dilution. Reporting limits were adjusted accordingly.

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Maxxam Job #: B4A1726
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
3643743	Decachlorobiphenyl	2014/06/17	88	60 - 130	83	60 - 130	82	%				
3643743	Aroclor 1260	2014/06/17	112	60 - 130	100	60 - 130	ND, RDL=0.010	ug/g	NC	50		
3643743	Total PCB	2014/06/17	112	60 - 130	100	60 - 130	ND, RDL=0.010	ug/g	NC	50		
3643743	Aroclor 1242	2014/06/17					ND, RDL=0.010	ug/g	NC	50		
3643743	Aroclor 1248	2014/06/17					ND, RDL=0.010	ug/g	NC	50		
3643743	Aroclor 1254	2014/06/17					ND, RDL=0.010	ug/g	NC	50		
3644154	Free Cyanide	2014/06/19	100	75 - 125	101	80 - 120	ND, RDL=0.01	ug/g	NC	35		
3645350	Chromium (VI)	2014/06/19	77(1, 2)	75 - 125	101	80 - 120	ND, RDL=0.2	ug/g	NC	35	104	80 - 120
3645694	Moisture	2014/06/18							2.3	20		
3646063	Available (CaCl2) pH	2014/06/19			99	97 - 103			0.4	N/A		
3646269	o-Terphenyl	2014/06/19	100	60 - 130	97	60 - 130	97	%				
3646269	F2 (C10-C16 Hydrocarbons)	2014/06/19	99	50 - 130	102	80 - 120	ND, RDL=10	ug/g	NC	30		
3646269	F3 (C16-C34 Hydrocarbons)	2014/06/19	111	50 - 130	109	80 - 120	ND, RDL=50	ug/g	NC	30		
3646269	F4 (C34-C50 Hydrocarbons)	2014/06/19	116	50 - 130	112	80 - 120	ND, RDL=50	ug/g	NC	30		
3646957	Hot Water Ext. Boron (B)	2014/06/19	99	75 - 125	99	75 - 125	ND, RDL=0.050	ug/g	5.5	40		
3646988	Acid Extractable Antimony (Sb)	2014/06/19	97	75 - 125	104	80 - 120	ND, RDL=0.20	ug/g	NC	30		
3646988	Acid Extractable Arsenic (As)	2014/06/19	102	75 - 125	103	80 - 120	ND, RDL=1.0	ug/g	NC	30		
3646988	Acid Extractable Barium (Ba)	2014/06/19	NC	75 - 125	101	80 - 120	ND, RDL=0.50	ug/g	9.7	30		
3646988	Acid Extractable Beryllium (Be)	2014/06/19	115	75 - 125	107	80 - 120	ND, RDL=0.20	ug/g	NC	30		
3646988	Acid Extractable Boron (B)	2014/06/19	110	75 - 125	104	80 - 120	ND, RDL=5.0	ug/g	NC	30		
3646988	Acid Extractable Cadmium (Cd)	2014/06/19	104	75 - 125	103	80 - 120	ND, RDL=0.10	ug/g	NC	30		
3646988	Acid Extractable Chromium (Cr)	2014/06/19	NC	75 - 125	109	80 - 120	ND, RDL=1.0	ug/g	14.9	30		
3646988	Acid Extractable Cobalt (Co)	2014/06/19	108	75 - 125	107	80 - 120	ND, RDL=0.10	ug/g	8.8	30		
3646988	Acid Extractable Copper (Cu)	2014/06/19	NC	75 - 125	105	80 - 120	ND, RDL=0.50	ug/g	2.4	30		
3646988	Acid Extractable Lead (Pb)	2014/06/19	NC	75 - 125	104	80 - 120	ND, RDL=1.0	ug/g	1.7	30		
3646988	Acid Extractable Molybdenum (Mo)	2014/06/19	108	75 - 125	105	80 - 120	ND, RDL=0.50	ug/g	NC	30		
3646988	Acid Extractable Nickel (Ni)	2014/06/19	106	75 - 125	103	80 - 120	ND, RDL=0.50	ug/g	6.9	30		
3646988	Acid Extractable Selenium (Se)	2014/06/19	102	75 - 125	104	80 - 120	ND, RDL=0.50	ug/g	NC	30		
3646988	Acid Extractable Silver (Ag)	2014/06/19	105	75 - 125	104	80 - 120	ND, RDL=0.20	ug/g	NC	30		
3646988	Acid Extractable Thallium (Tl)	2014/06/19	93	75 - 125	101	80 - 120	ND, RDL=0.050	ug/g	NC	30		
3646988	Acid Extractable Uranium (U)	2014/06/19	101	75 - 125	103	80 - 120	ND, RDL=0.050	ug/g	1.3	30		
3646988	Acid Extractable Vanadium (V)	2014/06/19	NC	75 - 125	104	80 - 120	ND, RDL=5.0	ug/g	2.3	30		
3646988	Acid Extractable Zinc (Zn)	2014/06/19	NC	75 - 125	102	80 - 120	ND, RDL=5.0	ug/g	57.8(1)	30		
3646988	Acid Extractable Mercury (Hg)	2014/06/19	91	75 - 125	96	80 - 120	ND, RDL=0.050	ug/g	NC	30		
3647000	Hot Water Ext. Boron (B)	2014/06/19	96	75 - 125	102	75 - 125	ND, RDL=0.050	ug/g	NC	40		
3647212	Conductivity	2014/06/19			99	90 - 110	ND, RDL=0.002	mS/cm	0	10		
3647889	Chromium (VI)	2014/06/20	95	75 - 125	95	80 - 120	ND, RDL=0.2	ug/g	NC	35	107	80 - 120
3647911	1,4-Difluorobenzene	2014/06/20	103	60 - 140	102	60 - 140	103	%				
3647911	4-Bromofluorobenzene	2014/06/20	104	60 - 140	106	60 - 140	94	%				
3647911	D10-Ethylbenzene	2014/06/20	93	60 - 140	90	60 - 140	87	%				

Maxxam Job #: B4A1726
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
3647911	D4-1,2-Dichloroethane	2014/06/20	106	60 - 140	106	60 - 140	109	%				
3647911	Benzene	2014/06/20	97	60 - 140	97	60 - 140	ND, RDL=0.020	ug/g	NC	50		
3647911	Toluene	2014/06/20	102	60 - 140	99	60 - 140	ND, RDL=0.020	ug/g	NC	50		
3647911	Ethylbenzene	2014/06/20	110	60 - 140	109	60 - 140	ND, RDL=0.020	ug/g	NC	50		
3647911	o-Xylene	2014/06/20	112	60 - 140	110	60 - 140	ND, RDL=0.020	ug/g	NC	50		
3647911	p+m-Xylene	2014/06/20	100	60 - 140	100	60 - 140	ND, RDL=0.040	ug/g	NC	50		
3647911	F1 (C6-C10)	2014/06/20	92	60 - 140	97	80 - 120	ND, RDL=10	ug/g	NC	30		
3647911	Total Xylenes	2014/06/20					ND, RDL=0.040	ug/g	NC	50		
3647911	F1 (C6-C10) - BTEX	2014/06/20					ND, RDL=10	ug/g	NC	30		
3650477	F4G-sg (Grav. Heavy Hydrocarbons)	2014/06/22	103	65 - 135	102	65 - 135	ND, RDL=100	ug/g	31.5	50		

N/A = Not Applicable
RDL = Reportable Detection Limit
RPD = Relative Percent Difference
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.
Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).
NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).
(1) - Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.
(2) - The recovery of chromium VI in the matrix spike was below the acceptance criteria. The sample was reanalyzed with the same results

Validation Signature Page

Maxxam Job #: B4A1726

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Cristina Carriere, Scientific Services

Eva Pranjic, M.Sc., C.Chem, Scientific Specialist

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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6740 Campobello Road, Mississauga, Ontario Canada L5N 2L8 Tel (905) 817-5700 Toll-Free 800-563-6266 Fax (905) 817-5777 www.maxxam.ca

13-Jun-14 13:35
Krystal Seedial

B4A1726

FW ENV-187

Page 1 of 1

e Only:

Bottle Order #: 461791

Project Manager: Krystal Seedial

Chain of Custody #: C#461791-07-01

INVOICE INFORMATION:		REPORT INFORMATION(if differs from invoice):		PROJECT INFORMATION:	
Company Name	#3101 Peto MacCallum Ltd	Company Name		Quotation #	B41439
Contact Name	Sarah Murray	Contact Name		P.O. #	
Address	45 Burford Rd	Address		Project #	13HX002 Clean-Up
	Hamilton ON L8E 3C6			Project Name	
Phone	(905) 561-2231 x Fax (905) 561-6366 x	Phone	Fax	Site #	
Email	smurray@petomaccallum.com	Email		Sampled By	

Regulation 153 (2011): [x] Table1 [ ] Table2 [ ] Table3 [ ] Table ___ | [ ] Res/Park [ ] Ind/Comm [ ] Agri/Other | [ ] Medium/Fine [ ] Coarse | [x] For RSC

Other Regulations: [ ] CCME [ ] Reg 558 [ ] MISA [ ] PWQO [ ] Other | [ ] Sanitary Sewer Bylaw [ ] Storm Sewer Bylaw | Municipality

Special Instructions:

Include Criteria on Certificate of Analysis (Y/N)? ____

Note: For MOE regulated drinking water samples - please use the Drinking Water Chain of Custody Form

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

Turnaround Time (TAT) Required

Please provide advance notice for rush projects

Regular (Standard) TAT: [x]
(will be applied if Rush TAT is not specified)
Standard TAT = 5-7 Working days for most tests
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required ____ Time Required ____ [ ]
Rush Confirmation Number ____ *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Regulated Drinking Water ? (Y/N)	Metals Field Filtered ? (Y/N)	Petroleum Hydrocarbons F1 to F4 + BTEX	Electrical Conductivity	Hot Water Extractable Boron	Reg 153 ICPMS Metals only package	PCBs	Metals + Inorganics					# of Bottles	Comments
1		Area 2 GS5	June 11 2014	3:00	S			X				X	X					5	
2		Area 2 GS6	"	3:15	S			X				X	X					5	
3		GS4 - 11	"	4.00	S			X				X	X					5	
4																			
5																			
6																			
7																			
8																			
9																			
10																			

*RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# jars used and not submitted
S. Murray / Sarah Murray	14/06/13	8:30	ASHLEY HA SUTHERLAND	2014/06/13	13:35	

Laboratory Use Only

Time Sensitive	Temperature (°C) on Receipt	Custody Seal	Yes	No
	18/20/21 °C	Present		✓
		Intact		

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

White: Maxxam Yellow: Client

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Your Project #: 13HX002 Clean-Up
Your C.O.C. #: 46179109

Attention: Sarah Murray
Peto MacCallum Ltd
45 Burford Rd
Hamilton, ON
L8E 3C6

Report Date: 2014/09/03
Report #: R3143686
Version: 5R

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B4E7389
Received: 2014/08/15, 13:40

Sample Matrix: Soil
Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Conductivity	6	N/A	2014/08/18	CAM SOP-00414	OMOE E3138 v2 m
Petroleum Hydro. CCME F1 & BTEX in Soil	6	2014/08/15	2014/08/18	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Soil	6	2014/08/16	2014/08/18	CAM SOP-00316	CCME CWS
F4G (CCME Hydrocarbons Gravimetric)	3	2014/08/19	2014/08/19	CAM SOP-00316	CCME PHC-CWS m
Moisture	6	N/A	2014/08/15	CAM SOP-00445	R.Carter,1993

Remarks:

Maxxam Analytics has performed all analytical testing herein in accordance with ISO 17025 and the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. All methodologies comply with this document and are validated for use in the laboratory. The methods and techniques employed in this analysis conform to the performance criteria (detection limits, accuracy and precision) as outlined in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act.

The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following the 'Alberta Environment Draft Addenda to the CWS-PHC, Appendix 6, Validation of Alternate Methods'. Documentation is available upon request. Maxxam has made the following improvements to the CWS-PHC reference benchmark method: (i) Headspace for F1; and, (ii) Mechanical extraction for F2-F4. Note: F4G cannot be added to the C6 to C50 hydrocarbons. The extraction date for samples field preserved with methanol for F1 and Volatile Organic Compounds is considered to be the date sampled.

Maxxam Analytics is accredited for all specific parameters as required by Ontario Regulation 153/04. Maxxam Analytics is limited in liability to the actual cost of analysis unless otherwise agreed in writing. There is no other warranty expressed or implied. Samples will be retained at Maxxam Analytics for three weeks from receipt of data or as per contract.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
* Results relate only to the items tested.

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

Maxxam Job #: B4E7389
Report Date: 2014/09/03

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Krystal Seedial, Project Manager
Email: KSeedial@maxxam.ca
Phone# (905) 817-5700

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 2

Maxxam Job #: B4E7389
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

RESULTS OF ANALYSES OF SOIL

Maxxam ID			XD3773	XD3774	XD3775	XD3776	XD3777	XD3778		
Sampling Date			2014/08/14 08:30	2014/08/14 08:35	2014/08/14 08:42	2014/08/14 08:48	2014/08/14 08:55	2014/08/14 09:10		
	Units	**Criteria A**	**TOPSOIL AREA A1**	**TOPSOIL AREA B0**	**TOPSOIL AREA D1**	**TOPSOIL AREA E2.5**	**TOPSOIL AREA B2**	**TOPSOIL AREA C1**	**RDL**	**QC Batch**
Inorganics										
Conductivity	mS/cm	**0.7**	**0.83**	**1.1**	**0.85**	**0.85**	**0.82**	**2.7**	0.002	3714637
Moisture	%		10	9.7	11	36	24	17	1.0	3713589

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria A: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Texture

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B4E7389
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID			XD3773	XD3774	XD3775	XD3776	XD3777	XD3778		
Sampling Date			2014/08/14 08:30	2014/08/14 08:35	2014/08/14 08:42	2014/08/14 08:48	2014/08/14 08:55	2014/08/14 09:10		
	Units	**Criteria A**	**TOPSOIL AREA A1**	**TOPSOIL AREA B0**	**TOPSOIL AREA D1**	**TOPSOIL AREA E2.5**	**TOPSOIL AREA B2**	**TOPSOIL AREA C1**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons										
Benzene	ug/g	**0.21**	ND	ND	ND	ND	ND	ND	0.020	3714307
Toluene	ug/g	**2.3**	ND	ND	ND	ND	ND	ND	0.020	3714307
Ethylbenzene	ug/g	**2**	ND	ND	ND	ND	ND	ND	0.020	3714307
o-Xylene	ug/g		0.023	ND	ND	ND	ND	ND	0.020	3714307
p+m-Xylene	ug/g		0.054	ND	ND	ND	ND	ND	0.040	3714307
Total Xylenes	ug/g	**3.1**	0.077	ND	ND	ND	ND	ND	0.040	3714307
F1 (C6-C10)	ug/g	**55**	ND	ND	ND	ND	ND	ND	10	3714307
F1 (C6-C10) - BTEX	ug/g	**55**	ND	ND	ND	ND	ND	ND	10	3714307
F2-F4 Hydrocarbons										
F4G-sg (Grav. Heavy Hydrocarbons)	ug/g	**2800**			470	600		470	100	3716078
F2 (C10-C16 Hydrocarbons)	ug/g	**98**	ND	ND	ND	ND	18	ND	10	3714065
F3 (C16-C34 Hydrocarbons)	ug/g	**300**	ND	140	100	**320**	51	250	50	3714065
F4 (C34-C50 Hydrocarbons)	ug/g	**2800**	ND	ND	91	150	ND	130	50	3714065
Reached Baseline at C50	ug/g		YES	YES	NO	NO	YES	NO		3714065
Surrogate Recovery (%)										
1,4-Difluorobenzene	%		104	103	103	102	102	103		3714307
4-Bromofluorobenzene	%		98	101	99	98	98	98		3714307
D10-Ethylbenzene	%		86	78	86	82	75	83		3714307
D4-1,2-Dichloroethane	%		99	97	96	96	97	98		3714307
o-Terphenyl	%		83	83	84	86	86	86		3714065

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria A: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Texture

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Maxxam Job #: B4E7389
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

Test Summary

Maxxam ID XD3773 **Collected** 2014/08/14
Sample ID TOPSOIL AREA A1 **Shipped**
Matrix Soil **Received** 2014/08/15

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Conductivity	COND	3714637	N/A	2014/08/18	Lemeneh Addis
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3714307	2014/08/15	2014/08/18	Anca Ganea
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3714065	2014/08/16	2014/08/18	Dorina Popa
Moisture	BAL	3713589	N/A	2014/08/15	Chamika Deeyagaha

Maxxam ID XD3774 **Collected** 2014/08/14
Sample ID TOPSOIL AREA B0 **Shipped**
Matrix Soil **Received** 2014/08/15

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Conductivity	COND	3714637	N/A	2014/08/18	Lemeneh Addis
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3714307	2014/08/15	2014/08/18	Anca Ganea
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3714065	2014/08/16	2014/08/18	Dorina Popa
Moisture	BAL	3713589	N/A	2014/08/15	Chamika Deeyagaha

Maxxam ID XD3775 **Collected** 2014/08/14
Sample ID TOPSOIL AREA D1 **Shipped**
Matrix Soil **Received** 2014/08/15

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Conductivity	COND	3714637	N/A	2014/08/18	Lemeneh Addis
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3714307	2014/08/15	2014/08/18	Anca Ganea
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3714065	2014/08/16	2014/08/18	Dorina Popa
F4G (CCME Hydrocarbons Gravimetric)	BAL	3716078	2014/08/19	2014/08/19	Raheela Usmani
Moisture	BAL	3713589	N/A	2014/08/15	Chamika Deeyagaha

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Maxxam Job #: B4E7389
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

Test Summary

Maxxam ID XD3776 **Collected** 2014/08/14
Sample ID TOPSOIL AREA E2.5 **Shipped**
Matrix Soil **Received** 2014/08/15

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Conductivity	COND	3714637	N/A	2014/08/18	Lemeneh Addis
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3714307	2014/08/15	2014/08/18	Anca Ganea
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3714065	2014/08/16	2014/08/18	Dorina Popa
F4G (CCME Hydrocarbons Gravimetric)	BAL	3716078	2014/08/19	2014/08/19	Raheela Usmani
Moisture	BAL	3713589	N/A	2014/08/15	Chamika Deeyagaha

Maxxam ID XD3777 **Collected** 2014/08/14
Sample ID TOPSOIL AREA B2 **Shipped**
Matrix Soil **Received** 2014/08/15

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Conductivity	COND	3714637	N/A	2014/08/18	Lemeneh Addis
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3714307	2014/08/15	2014/08/18	Anca Ganea
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3714065	2014/08/16	2014/08/18	Dorina Popa
Moisture	BAL	3713589	N/A	2014/08/15	Chamika Deeyagaha

Maxxam ID XD3778 **Collected** 2014/08/14
Sample ID TOPSOIL AREA C1 **Shipped**
Matrix Soil **Received** 2014/08/15

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Conductivity	COND	3714637	N/A	2014/08/18	Lemeneh Addis
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3714307	2014/08/15	2014/08/18	Anca Ganea
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3714065	2014/08/16	2014/08/18	Dorina Popa
F4G (CCME Hydrocarbons Gravimetric)	BAL	3716078	2014/08/19	2014/08/19	Raheela Usmani
Moisture	BAL	3713589	N/A	2014/08/15	Chamika Deeyagaha

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Maxxam Job #: B4E7389
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

GENERAL COMMENTS

Revised report (2014/09/03): Criteria added to report as per client request.

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Maxxam Job #: B4E7389
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002 Clean-Up

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
3713589	Moisture	2014/08/15							3.2	20
3714065	o-Terphenyl	2014/08/17	80	60 - 130	88	60 - 130	86	%		
3714065	F2 (C10-C16 Hydrocarbons)	2014/08/17	96	50 - 130	92	80 - 120	ND, RDL=10	ug/g		
3714065	F3 (C16-C34 Hydrocarbons)	2014/08/17	89	50 - 130	82	80 - 120	ND, RDL=50	ug/g		
3714065	F4 (C34-C50 Hydrocarbons)	2014/08/17	93	50 - 130	95	80 - 120	ND, RDL=50	ug/g		
3714307	1,4-Difluorobenzene	2014/08/18	100	60 - 140	98	60 - 140	100	%		
3714307	4-Bromofluorobenzene	2014/08/18	122	60 - 140	121	60 - 140	103	%		
3714307	D10-Ethylbenzene	2014/08/18	92	60 - 140	105	60 - 140	91	%		
3714307	D4-1,2-Dichloroethane	2014/08/18	96	60 - 140	95	60 - 140	96	%		
3714307	Benzene	2014/08/18	99	60 - 140	114	60 - 140	ND, RDL=0.020	ug/g		
3714307	Toluene	2014/08/18	97	60 - 140	107	60 - 140	ND, RDL=0.020	ug/g		
3714307	Ethylbenzene	2014/08/18	111	60 - 140	128	60 - 140	ND, RDL=0.020	ug/g		
3714307	o-Xylene	2014/08/18	115	60 - 140	133	60 - 140	ND, RDL=0.020	ug/g		
3714307	p+m-Xylene	2014/08/18	105	60 - 140	121	60 - 140	ND, RDL=0.040	ug/g		
3714307	F1 (C6-C10)	2014/08/18	97	60 - 140	112	80 - 120	ND, RDL=10	ug/g		
3714307	Total Xylenes	2014/08/18					ND, RDL=0.040	ug/g		
3714307	F1 (C6-C10) - BTEX	2014/08/18					ND, RDL=10	ug/g		
3714637	Conductivity	2014/08/18			100	90 - 110	ND, RDL=0.002	mS/cm	1.9	10
3716078	F4G-sg (Grav. Heavy Hydrocarbons)	2014/08/19	83	65 - 135	104	65 - 135	ND, RDL=100	ug/g	NC	50

N/A = Not Applicable
RDL = Reportable Detection Limit
RPD = Relative Percent Difference
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

Validation Signature Page

Maxxam Job #: B4E7389

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Brad Newman, Scientific Specialist

Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

==========

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RUSH

rnational Corporation o/a Maxxam Analytics
d, Mississauga, Ontario Canada L5N 2L8 Tel:(905) 817-5700 Toll-Free:800-563-6266 Fax:(905) 817-5777 www.maxxam.ca

15-Aug-14 13:40
Krystal Seedial
B4E7389
MAF ENV-926

		REPORT INFORMATION(if differs from invoice):		PROJECT INFORMATION:	
Company Name:	#3101 Peto MacCallum Ltd	Company Name:		Quotation #:	B41439
Contact Name:	Sarah Murray	Contact Name:		P.O. #:	
Address:	45 Burford Rd	Address:		Project #:	13HX002 Clean-Up
	Hamilton ON L8E 3C6			Project Name:	
Phone:	(905) 561-2231 x Fax: (905) 561-6366 x	Phone:	Fax:	Site #:	
Email:	smurray@petomaccallum.com	Email:		Sampled By:	

Bottle Order #: 461791

C#461791-09-01

Project Manager: Krystal Seedial

Regulation 153 (2011): [✓] Table1 [ ] Table2 [ ] Table3 [ ] Table ___ ; [ ] Res/Park [ ] Ind/Comm [ ] Agri/Other ; [ ] Medium/Fine [ ] Coarse ; [ ] For RSC

Other Regulations: [ ] CCME [ ] Reg 558. [ ] MISA [ ] PWQO [ ] Other ; [ ] Sanitary Sewer Bylaw [ ] Storm Sewer Bylaw ; Municipality

Special Instructions

Include Criteria on Certificate of Analysis (Y/N)? Y

Note: For MOE regulated drinking water samples - please use the Drinking Water Chain of Custody Form

SAMPLES MUST BE KEPT COOL (< 10ºC) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

Turnaround Time (TAT) Required: 2 Days

Please provide advance notice for rush projects

Regular (Standard) TAT: [ ]
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission) [✓]
Date Required: August 14 Time Required: ___
Rush Confirmation Number: RS140814-1 *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Regulated Drinking Water ? (Y/N)	Metals Field Filtered ? (Y/N)	Petroleum Hydrocarbons F1 to F4	Electrical Conductivity	Hot Water Extractable Boron	Reg 153 ICPMS Metals only package	# of Bottles	Comments
1		Area 2 H1	Aug. 14 2014	3:30	S			X		X		4	
2		Area 2 E3		3:40				X		X		4	
3		Area 2 J4		3:50				X		X		4	
4		Area 2 I6		4:00				X		X		4	
5		Area 2 K1		4:05						X		1	
6		Area 2 F1		4:10						X		1	
7		Area 2 C3		4:15						X		1	
8		Area 2 C5		4:20						X		1	
9		Area 2 E6		4:25						X		1	
10		Area 2 K7		4:30						X		1	

*RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# jars used and not submitted
S. Murray / Sarah Murray	14/08/14	5:30	MAGDALENA COO	2014/08/15	13:40	

Laboratory Use Only

Time Sensitive	Temperature (ºC) on Receipt	CustodySeal	Yes	No
	5 | 4 | 5 ✓	Present		✓
		Intact		

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

White: Maxxam Yellow: Client

Maxxam Analytics International Corporation o/a Maxxam Analytics
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CHAIN OF CUSTODY RECORD

INVOICE INFORMATION:		REPORT INFORMATION(if differs from invoice):		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#3101 Peto MacCallum Ltd	Company Name:		Quotation #:	B41439	Maxxam Job #:	Bottle Order #:
Contact Name:	Sarah Murray	Contact Name:		P.O. #:		B4E7384 MAK	465560
Address:	45 Burford Rd Hamilton ON L8E 3C6	Address:		Project #:		Chain of Custody #:	Project Manager:
Phone:	(905) 561-2231 x Fax: (905) 561-6366 x	Phone:	Fax:	Project Name:		C#465560-01-01	Krystal Seedial
Email:	smurray@petomaccallum.com	Email:		Site #:			
				Sampled By:			

Regulation 153 (2011)

- [x] Table1
- [ ] Table2
- [ ] Table3
- [ ] Table ___
- [ ] Res/Park
- [ ] Ind/Comm
- [ ] Agri/Other
- [ ] Medium/Fine
- [ ] Coarse
- [ ] For RSC

Other Regulations

- [ ] CCME
- [ ] Reg 558.
- [ ] MISA
- [ ] PWQO
- [ ] Other
- [ ] Sanitary Sewer Bylaw
- [ ] Storm Sewer Bylaw

Municipality ___

Special Instructions

Include Criteria on Certificate of Analysis (Y/N)? Y

Note: For MOE regulated drinking water samples - please use the Drinking Water Chain of Custody Form

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

Turnaround Time (TAT) Required: 2 Days

Please provide advance notice for rush projects

Regular (Standard) TAT:
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: Aug. 19 Time Required: ___ [V]
Rush Confirmation Number: R5140814-1 *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Regulated Drinking Water ? (Y/N)	Metals Field Filtered ? (Y/N)	ANALYSIS REQUESTED (Please be specific): Reg 153 Metals (Regional Only)	Hg in Water by CVAFS	PHCs F1 & F2	# of Bottles	Comments
1		Area 3 G6-1	Aug 14/14	2:10	S			X	X	X	4	
2		Area 3 E9-1	"	2:15	"			X	X	X	4	
3		Area 3 C8-1	"	2:20	"			X	X	X	4	
4		Area 3 D3-1	"	2:30	"			X	X	X	4	
5												
6												
7												
8												
9												
10												

*RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time:	# jars used and not submitted	Laboratory Use Only: Time Sensitive	Temperature (°C) on Receipt	CustodySeal	Yes	No
Sarah Murray S. Murray	14/08/14	5:30 pm	by MAGDALENA COP	2014/08/15	13:40			5 | 5	Present		✓
									Intact		

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

White: Maxxam Yellow: Client

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CHAIN OF CUSTODY RECORD

INVOICE INFORMATION:		REPORT INFORMATION(if differs from invoice):		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#3101 Peto MacCallum Ltd	Company Name:		Quotation #:	B41439	Maxxam Job #:	Bottle Order #:
Contact Name:	Sarah Murray	Contact Name:		P.O. #:		B4E7389	481308
Address:	45 Burford Rd Hamilton ON L8E 3C6	Address:		Project #:	13HX002	Chain of Custody #:	Project Manager:
Phone:	(905) 561-2231 x Fax: (905) 561-6366 x	Phone:	Fax:	Project Name:		C#481308-01-01	Krystal Seedial
Email:	smurray@petomaccallum.com	Email:		Site #:			
				Sampled By:			

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011)	Other Regulations	Special Instructions
☑ Table 1 ☐ Res/Park ☐ Medium/Fine	☐ CCME ☐ Sanitary Sewer Bylaw	
☐ Table 2 ☐ Ind/Comm ☐ Coarse	☐ Reg 558 ☐ Storm Sewer Bylaw	
☐ Table 3 ☐ Agri/Other ☐ For RSC	☐ MISA Municipality ____	
☐ Table ___	☐ PWQO	
	☐ Other ____	

Include Criteria on Certificate of Analysis (Y/N)? Y

Field Filtered (please circle): Metals / Hg / Cr VI

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Turnaround Time (TAT) Required: 2 Days

Please provide advance notice for rush projects

Regular (Standard) TAT:
(will be applied if Rush TAT is not specified): ☐
Standard TAT = 5-7 Working days for most tests..
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: ____ Time Required: ____ ☑
Rush Confirmation Number: KS140814 *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	PHC F1+F2	EC							# of Bottles	Comments
1		Topsoil Area A1	Aug 14 2014	8:30	S	X	X							3	
2		Topsoil Area B0	↓	8:35	↓	X	X							3	
3		Topsoil Area D1		8:42		X	X							3	
4		Topsoil Area E2.5		8:48		X	X							3	
5		Topsoil Area B2		8:55		X	X							3	
6		Topsoil Area C1	↓	9:10	↓	X	X							3	
7															
8															
9															
10															

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
S. Murray Sarah Murray	14/08/14	5:30	Ga MAGDALENA CCO	2014/08/15	13:40	

Laboratory Use Only

Time Sensitive	Temperature (°C) on Receipt	Custody Seal	Yes	No
	5 | 4 | 5°C	Present		✓
		Intact		

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

White: Maxxam Yellow: Client

Your Project #: 13HX002
Your C.O.C. #: na

Attention: Sarah Murray
Peto MacCallum Ltd
45 Burford Rd
Hamilton, ON
L8E 3C6

Report Date: 2014/09/03
Report #: R3143740
Version: 8R

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B4F3052
Received: 2014/08/22, 13:45

Sample Matrix: Soil
Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Conductivity	5	N/A	2014/08/25	CAM SOP-00414	OMOE E3138 v2 m
Conductivity	1	N/A	2014/08/29	CAM SOP-00414	OMOE E3138 v2 m
Petroleum Hydro. CCME F1 & BTEX in Soil	1	2014/08/22	2014/08/23	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Soil	1	2014/08/22	2014/08/23	CAM SOP-00316	CCME CWS
Moisture	1	N/A	2014/08/22	CAM SOP-00445	R.Carter,1993

Remarks:

Maxxam Analytics has performed all analytical testing herein in accordance with ISO 17025 and the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. All methodologies comply with this document and are validated for use in the laboratory. The methods and techniques employed in this analysis conform to the performance criteria (detection limits, accuracy and precision) as outlined in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act.

The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following the 'Alberta Environment Draft Addenda to the CWS-PHC, Appendix 6, Validation of Alternate Methods'. Documentation is available upon request. Maxxam has made the following improvements to the CWS-PHC reference benchmark method: (i) Headspace for F1; and, (ii) Mechanical extraction for F2-F4. Note: F4G cannot be added to the C6 to C50 hydrocarbons. The extraction date for samples field preserved with methanol for F1 and Volatile Organic Compounds is considered to be the date sampled.

Maxxam Analytics is accredited for all specific parameters as required by Ontario Regulation 153/04. Maxxam Analytics is limited in liability to the actual cost of analysis unless otherwise agreed in writing. There is no other warranty expressed or implied. Samples will be retained at Maxxam Analytics for three weeks from receipt of data or as per contract.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
* Results relate only to the items tested.

Peto MacCallum Ltd
Client Project #: 13HX002

Maxxam Job #: B4F3052
Report Date: 2014/09/03

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Krystal Seedial, Project Manager
Email: KSeedial@maxxam.ca
Phone# (905) 817-5700

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 2

Maxxam Job #: B4F3052
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002

RESULTS OF ANALYSES OF SOIL

Maxxam ID			XG2010	XG2011	XG2012	XG2013	XG2014		XG2015		
Sampling Date			2014/08/21 10:55	2014/08/21 10:50	2014/08/21 11:05	2014/08/21 11:00	2014/08/21 10:45		2014/08/21 10:40		
	Units	**Criteria A**	**TOPSOIL AREA A1-1**	**TOPSOIL AREA B0-1**	**TOPSOIL AREA B2-1**	**TOPSOIL AREA C1-1**	**TOPSOIL AREA D1-1**	**QC Batch**	**TOPSOIL AREA E2.5-1**	**RDL**	**QC Batch**
Inorganics											
Conductivity	mS/cm	**0.7**	0.65	**0.88**	**0.89**	**0.90**	**0.74**	3723303	0.69	0.002	3729839
Moisture	%								21	1.0	3722030

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria A: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Texture

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B4F3052
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID			XG2015		
Sampling Date			2014/08/21 10:40		
	Units	**Criteria A**	**TOPSOIL AREA E2.5-1**	**RDL**	**QC Batch**
BTEX & F1 Hydrocarbons					
Benzene	ug/g	**0.21**	ND	0.020	3722452
Toluene	ug/g	**2.3**	ND	0.020	3722452
Ethylbenzene	ug/g	**2**	ND	0.020	3722452
o-Xylene	ug/g		ND	0.020	3722452
p+m-Xylene	ug/g		ND	0.040	3722452
Total Xylenes	ug/g	**3.1**	ND	0.040	3722452
F1 (C6-C10)	ug/g	**55**	ND	10	3722452
F1 (C6-C10) - BTEX	ug/g	**55**	ND	10	3722452
F2-F4 Hydrocarbons					
F2 (C10-C16 Hydrocarbons)	ug/g	**98**	ND	10	3722187
F3 (C16-C34 Hydrocarbons)	ug/g	**300**	ND	50	3722187
F4 (C34-C50 Hydrocarbons)	ug/g	**2800**	ND	50	3722187
Reached Baseline at C50	ug/g		YES		3722187
Surrogate Recovery (%)					
1,4-Difluorobenzene	%		99		3722452
4-Bromofluorobenzene	%		94		3722452
D10-Ethylbenzene	%		114		3722452
D4-1,2-Dichloroethane	%		106		3722452
o-Terphenyl	%		104		3722187

ND = Not detected
RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria A: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Texture

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Maxxam Job #: B4F3052
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002

Test Summary

Maxxam ID XG2010 **Collected** 2014/08/21
Sample ID TOPSOIL AREA A1-1 **Shipped**
Matrix Soil **Received** 2014/08/22

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Conductivity	COND	3723303	N/A	2014/08/25	Lemeneh Addis

Maxxam ID XG2011 **Collected** 2014/08/21
Sample ID TOPSOIL AREA B0-1 **Shipped**
Matrix Soil **Received** 2014/08/22

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Conductivity	COND	3723303	N/A	2014/08/25	Lemeneh Addis

Maxxam ID XG2012 **Collected** 2014/08/21
Sample ID TOPSOIL AREA B2-1 **Shipped**
Matrix Soil **Received** 2014/08/22

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Conductivity	COND	3723303	N/A	2014/08/25	Lemeneh Addis

Maxxam ID XG2013 **Collected** 2014/08/21
Sample ID TOPSOIL AREA C1-1 **Shipped**
Matrix Soil **Received** 2014/08/22

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Conductivity	COND	3723303	N/A	2014/08/25	Lemeneh Addis

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Maxxam Job #: B4F3052
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002

Test Summary

Maxxam ID XG2014 **Collected** 2014/08/21
Sample ID TOPSOIL AREA D1-1 **Shipped**
Matrix Soil **Received** 2014/08/22

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Conductivity	COND	3723303	N/A	2014/08/25	Lemeneh Addis

Maxxam ID XG2015 **Collected** 2014/08/21
Sample ID TOPSOIL AREA E2.5-1 **Shipped**
Matrix Soil **Received** 2014/08/22

Test Description	Instrumentation	Batch	Extracted	Analyzed	Analyst
Conductivity	COND	3729839	N/A	2014/08/29	Lemeneh Addis
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3722452	2014/08/22	2014/08/23	Simon Xi
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3722187	2014/08/22	2014/08/23	Nicoleta Ciublea
Moisture	BAL	3722030	N/A	2014/08/22	Chamika Deeyagaha

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Maxxam Job #: B4F3052
Report Date: 2014/09/03

Peto MacCallum Ltd
Client Project #: 13HX002

GENERAL COMMENTS

Revised report (2014/08/28): Additional analysis on sample Topsoil Area E2.5-1.

Revised report (2014/09/03): Criteria added to report as per client request.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Peto MacCallum Ltd
Client Project #: 13HX002

Maxxam Job #: B4F3052
Report Date: 2014/09/03

QUALITY ASSURANCE REPORT

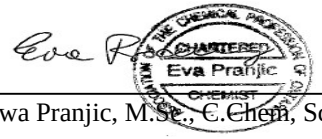
			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
3722030	Moisture	2014/08/22							2.3	20
3722187	o-Terphenyl	2014/08/23	120	60 - 130	88	60 - 130	107	%		
3722187	F2 (C10-C16 Hydrocarbons)	2014/08/23	115	50 - 130	93	80 - 120	ND, RDL=10	ug/g	NC	30
3722187	F3 (C16-C34 Hydrocarbons)	2014/08/23	110	50 - 130	90	80 - 120	ND, RDL=50	ug/g	NC	30
3722187	F4 (C34-C50 Hydrocarbons)	2014/08/23	116	50 - 130	88	80 - 120	ND, RDL=50	ug/g	NC	30
3722452	1,4-Difluorobenzene	2014/08/23	99	60 - 140	100	60 - 140	100	%		
3722452	4-Bromofluorobenzene	2014/08/23	101	60 - 140	100	60 - 140	97	%		
3722452	D10-Ethylbenzene	2014/08/23	115	60 - 140	104	60 - 140	105	%		
3722452	D4-1,2-Dichloroethane	2014/08/23	107	60 - 140	109	60 - 140	108	%		
3722452	Benzene	2014/08/23	106	60 - 140	108	60 - 140	ND, RDL=0.020	ug/g	NC	50
3722452	Toluene	2014/08/23	99	60 - 140	100	60 - 140	ND, RDL=0.020	ug/g	NC	50
3722452	Ethylbenzene	2014/08/23	107	60 - 140	108	60 - 140	ND, RDL=0.020	ug/g	NC	50
3722452	o-Xylene	2014/08/23	110	60 - 140	105	60 - 140	ND, RDL=0.020	ug/g	NC	50
3722452	p+m-Xylene	2014/08/23	103	60 - 140	102	60 - 140	ND, RDL=0.040	ug/g	NC	50
3722452	F1 (C6-C10)	2014/08/23	91	60 - 140	92	80 - 120	ND, RDL=10	ug/g	NC	30
3722452	Total Xylenes	2014/08/23					ND, RDL=0.040	ug/g	NC	50
3722452	F1 (C6-C10) - BTEX	2014/08/23					ND, RDL=10	ug/g	NC	30
3723303	Conductivity	2014/08/25			100	90 - 110	ND, RDL=0.002	mS/cm	1.2	10
3729839	Conductivity	2014/08/29			101	90 - 110	ND, RDL=0.002	mS/cm	5.4	10

N/A = Not Applicable
RDL = Reportable Detection Limit
RPD = Relative Percent Difference
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

Validation Signature Page

Maxxam Job #: B4F3052

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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RUSH

6740 Campobello Road, Mississauga, Ontario L5N 2L8 www.maxxam.ca
Tel: 905-817-5700 Fax: 905-817-5779 Toll Free: 800-563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION	REPORT INFORMATION (if differs from invoice)	PROJECT INFORMATION	TURNAROUND TIME (TAT) REQUIRED
Company Name: Peto MacCallum Ltd	Company Name:	Quotation #: B41439	☐ Regular TAT (5-7 days)
Contact Name: Sarah Murray	Contact Name:	P.O. #:	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address: 45 Burford Rd Hamilton L8E3L6	Address:	Project #: 13HX002	Rush TAT (Applicable Surcharge)
Phone: 905-561-2231 Fax: 905-561-2316	Phone: Fax:	Site Location:	☐ 1 Day (100%)
Email: smurray@petomaccallum.com	Email:	Site #:	☑ 2 Days (50%)
		Sampled By:	☐ 3-4 Days (25%)

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

REGULATION 153 (2011)	OTHER REGULATIONS
☑ Table 1 ☐ Res/Park ☐ Med/Fine	☐ CCME ☐ Sanitary Sewer Bylaw
☐ Table 2 ☐ Ind/Comm ☐ Coarse	☐ MISA ☐ Storm Sewer Bylaw
☐ Table 3 ☐ Agri/Other	☐ PWQO Municipality:
☐ Table ___	☐ Other (Specify):
FOR RSC (PLEASE CIRCLE) YES / (NO)	☐ REG 558 (MINIMUM 3 DAY TAT REQUIRED)

Include Criteria on Certificate of Analysis (Y/N)? Y

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED

FIELD FILTERED (PLEASE CIRCLE) Metals / Hg / CrVI

	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	MATRIX	# OF CONT.	Electrical Conductivity	PHCs F1 to F4	Boron (HWS)	COMMENTS / TAT COMMENTS
1	Topsoil Area A1-1	Aug21/14	10:55	S	1	X			
2	Topsoil Area B0-1	"	10:50	"	1	X			
3	Topsoil Area B2-1	"	11:05	"	1	X			
4	Topsoil Area C1-1	"	11:00	"	1	X			
5	Topsoil Area D1-1	"	10:45	"	1	X			
6	Topsoil Area E2.5-1	"	10:40	"	3		X		
7									
8	Area 2 J4-1	Aug21/14	11:10	S	1			X	report separately
9	Area 3 J3-2	"	10:20	S	3		X		report separately
10									

Rush Confirmation #: KS140820-84

Date Required:

LABORATORY USE ONLY

CUSTODY SEAL (Y/N)	Temperature (°C) on Receipt
Present: N	9/9/10
Intact:	
COOLING MEDIA PRESENT (Y/N): Y	

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME:	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME:
S. Murray / Sarah Murray	2014/08/22	8:20	RACHEL DERLIN	2014/08/22	13:45

22-Aug-14 13:45
Krystal Seedial
B4F3052
AAF ENV-636

Maxxam Analytics International Corporation o/a Maxxam Analytics

Appendix D

Statement of Limitations

STATEMENT OF LIMITATIONS

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

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

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

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

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

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

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

STATEMENT OF LIMITATIONS

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

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

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

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

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