

Phase II Environmental Site Assessment

Applewood Thornbury
Thornbury, Ontario

Prepared For:

Manorwood Homes Inc.



DS Project No: 20-265-400

Date: 2020-11-13



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Executive Summary

DS Consultants Ltd. (DS) was retained by Manorwood Homes Inc. to complete a Phase II Environmental Site Assessment (ESA) of the Property located on the northwest corner of the intersection of Huron Street East and Elgin Street North in the village of Thornbury, Ontario. The parcel has been named “Applewood Thornbury” by the client, and is herein referred to as the “Site”. The Site has no municipal address and is bound by Huron Street East to the north, Elgin Street North to the east, commercial structures and King Street East to the south, and residential properties to the west. DS understands that this work has been requested for due diligence purposes in association with the proposed acquisition of the Site.

This Phase II ESA was conducted in general accordance with the CSA Standards Association protocols outlined in the document “*Phase II Environmental Site Assessment, CSA Standard Z769-00 (R2013)*” dated 2000, and reaffirmed in 2013. It should be noted that the CSA methodology is sufficient for due diligence purposes, but cannot be used to support the filing of a Record of Site Condition for the Site. The objective of this Phase II ESA is to confirm whether contaminants are present, and at what concentration are they present on the Site, as related to the Areas of Potential Environmental Concern (APEC) identified in the Phase I ESA.

The Site is an irregular shaped 1.204 hectare (2.98 acres) parcel of land situated within a mixed residential and commercial neighbourhood. The Site is located approximately 60 m north of the intersection of Elgin Street North and King Street East, and was vacant at the time of this investigation.

The Phase I ESA completed in October 2020, indicated that the Site has been vacant, with the exception of a railway track traversing the southern border of the Property, since 1877. A total of thirteen (13) Potentially Contaminating Activities (PCAs) were identified in the Phase I ESA, which were considered to be contributing to six (6) APECs on the Site. A summary of the APECs, associated PCAs, and contaminants of potential concern (COPC) identified is presented in the table below:

Table E-1: Summary of APECs

Area of Potential Environmental Concern	Location of Area of Potential Environmental Concern on Phase I Property	Potentially Contaminating Activity	Location of PCA (on-site or off-site)	Contaminants of Potential Concern	Media Potentially Impacted (Ground water, soil and/or sediment)
APEC-1	West side of the Property	<u>PCA-1, 2</u> : #28 – Gasoline and associated products storage in fixed tanks <u>PCA-6</u> : N/S – Fuel Leak <u>PCA-7</u> : #22 – Fertilizer Manufacturing, Processing and Bulk Storage	Off-Site	Metals, PHCs, BTEX	Groundwater
APEC-2	Centre south portion of the Property	<u>PCA-3</u> : #58 – Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use of biosoils as soil conditioners	Off-Site	PHCs, VOCs, Metals	Groundwater
APEC-3	East side of the Property	<u>PCA-4, 5</u> : #33 – Metal Treatment, Coating, Plating, and Finishing	Off-Site	Metals, As, Sb, Se, PHCs, VOCs, PAHs	Groundwater
APEC-4	Southern border of the Property	<u>PCA-10</u> : #46 – Rail Yards, Tracks and Spurs	Off-Site	Metals, PHCs, BTEX, PAHs	Soil
APEC-5	Entire Property	<u>PCA-11</u> : #30 – Importation of Fill Material of Unknown Quality	On-Site	Metals, As, Sb, Se, B-HWS, CN, EC, Cr (VI), Hg, low or high pH, SAR, PHCs, VOCs, PAHs	Soil
APEC-6	Vicinity of previous test pits	<u>PCA-13</u> : N/S-Known soil contamination	On-Site	PAHs	Soil

Based on the findings of the Phase I ESA it was concluded that a Phase II ESA is warranted in order to assess the soil and groundwater conditions on the Site.

This investigation involved the advancement of three (3) boreholes, which were completed on October 1 and October 2, 2020, and nine (9) test pits, completed on October 29, 2020. The boreholes and test pits were advanced to maximum depths of 7.5 and 2.5 (respectively) metres below ground surface (mbgs) respectively, under the supervision of DS personnel.

Groundwater monitoring wells were installed in the three (3) boreholes to facilitate the collection of groundwater samples.

Soil samples were collected and submitted for chemical analysis as follows:

- ◆ Nine (9) samples (including 1 QAQC duplicate) for analysis of metals and inorganics
- ◆ Eight (8) samples for analysis of petroleum hydrocarbons (PHCs)
- ◆ Three (3) samples for analysis of volatile organic compounds (VOCs)
- ◆ Thirteen (13) samples (including 1 QAQC duplicate) for analysis of polycyclic aromatic hydrocarbons (PAHs)

Groundwater samples were collected from the three (3) monitoring wells installed as part of this investigation and submitted for analysis of metals and inorganics, PHCs, VOCs and PAHs.

The soil and groundwater analytical results were compared to the “Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition for Residential/Parkland/Institutional” provided in the MECP document entitled, “*Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act*” dated April 15, 2011 (Table 2 RPI Standards) for coarse textured soils in a residential/parkland/institutional property use.

Based on the results of the information gathered through the course of the investigation, DS presents the following findings:

- ◆ A layer of topsoil approximately 50 to 300 mm in thickness was encountered at the surface of all boreholes and test pits advanced, with the exception of test pits TP3-2 and TP5, where topsoil was observed below a surficial layer of fill. The fill material encountered at TP3-2 and TP5 extended from the surface to approximately 1.5 mbgs, and contained clayey silt, trace sand, trace gravel and debris such as pieces of asphalt. A layer of possible alluvial deposits consisting of sand and gravel with cobbles and boulders was found below the topsoil and varied in thickness across the Site. Underlying the possible alluvial deposit layer was a clayey silt unit that extended to the maximum explored depth of 7.5 mbgs in BH20-1 and to a depth of approximately 4.9 and 2.3 mbgs in boreholes BH20-2 and BH20-3 respectively. Beneath the clayey silt unit in BH20-2 and BH20-3 a silty sand/sandy silt/sand layer containing rock fragments, was encountered and extended to the explored depth of the boreholes. Bedrock was not visually observed at any of the borehole locations, however auger refusal occurred in borehole BH20-3 at 6.7 mbgs, possibly indicating that bedrock was encountered at this depth;

- ◆ Groundwater levels were measured from the three (3) monitoring wells installed on Site. The depth to groundwater was found to range between 2.30 and 4.30 mbgs on October 6, 2020;
- ◆ The groundwater flow direction was inferred based on the topography of the Site and surrounding properties, and the location of the nearest body of water (Georgian Bay, approximately 170 m north of the Property). The inferred groundwater flow direction is north, towards Georgian Bay;
- ◆ The results of the soil chemical analyses indicated the following:
 - Two (2) samples (TP6 and TP7) exceeded Table 2 RPI SCS for lead and mercury. All of the remaining samples analysed met the MECP Table 2 RPI SCS.
 - Four (4) samples (TP3-2, TP6, TP7, and TP8) exceeded Table 2 RPI SCS for various PAH parameters. All of the remaining samples analysed met the MECP Table 2 RPI SCS.
- ◆ All of the groundwater samples analysed met the MECP Table 2 Standards.

Based on the findings of this Phase II ESA DS provides the following recommendations and conclusions:

- ◆ Soil impacts were identified on-Site at depths ranging between 0-1.2 mbgs. Additional vertical delineation is recommended to understand the depth of the soil impacts. The impacted soils may require off-site disposal in the future at the time of Site development. Disposal premiums may be incurred for the disposal of impacted soils.
- ◆ Given the historic industrial use as a railway line, future residential development will trigger the requirement for the filing of a Record of Site Condition with the Ministry of Environment, Conservation and Parks. Additional Environmental Site Assessment in accordance with O.Reg. 153/04 (as amended), followed by soil remediation or completion of a risk assessment will be required in the future to support the filing of a Record of Site Condition.
- ◆ The results of the groundwater sampling completed to date has indicated that the soil impacts identified do not appear to have adversely affected the groundwater quality on-Site.
- ◆ All monitoring wells should be decommissioned in accordance with O.Reg. 903 when no longer required.

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1.0 Introduction

DS Consultants Ltd. (DS) was retained by Manorwood Homes Inc. to complete a Phase II Environmental Site Assessment (ESA) of the Property located on the northwest corner of the intersection of Huron Street East and Elgin Street North in the village of Thornbury, Ontario. The parcel has been named “Applewood Thornbury” by the client, and is herein referred to as the “Site”. The Site has no municipal address and is bounded by Huron Street East to the north, Elgin Street North to the east, commercial structures and King Street East to the south, and residential properties to the west. It is DS’s understanding that this Phase II ESA has been requested for due diligence purposes in association with the proposed acquisition of the Property.

This Phase II ESA was conducted in general accordance with the CSA Standards Association protocols outlined in the document “*Phase II Environmental Site Assessment, CSA Standard Z769-00 (R2013)*” dated 2000, and reaffirmed in 2013. It should be noted that the CSA methodology is sufficient for due diligence purposes, but cannot be used to support the filing of a Record of Site Condition for the Site.

The objective of this Phase II ESA is to confirm whether contaminants are present, and at what concentration are they present on the Site, as related to the Areas of Potential Environmental Concern (APEC) identified in the Phase I ESA.

1.1 Site Description

The Site is a 1.204 hectare (2.98 acres) parcel of land situated within a mixed residential and commercial neighbourhood in the Town of Thornbury, Ontario. The Site is located approximately 50 m north of the intersection of Elgin Street North and King Street East, and was occupied vacant at the time of this investigation. A Site Location Plan is provided in Figure 1.

For the purposes of this report, Elgin Street North is assumed to be aligned in a north-south orientation and King Street East is assumed to be aligned in an east-west orientation. A Plan of Survey for the Site dated January 1, 2013, and prepared by Patten & Thomsen, O.L.S, an Ontario Land Surveyor, has been provided under Appendix A. Additional details regarding the Site are provided in the table below.

Table 1-1: Site Property Information

Criteria	Information	Source
Legal Description	King Street East Thornbury Town Plan PT Lotd 16 to 18 NE King St RP	E-mail Questionnaire

	16R9726 Part 9 Elgin Street North Thornbury Town Plot PT Lots 15 to 19 PT Mcauly St RP 16R8184 Parts 2 and 4	
Municipal Address	Applewood Thornbury, Huron Street, Thornbury, Ontario	Client
Current Site Occupants	Vacant	Client
Site Area	1.204 hectares (2.98 acres)	Google Earth

1.2 Property Ownership

The ownership details for the Site are provided in the table below.

Table 1-2: Site Ownership

Property Owner	Address	Contact
Dante Carinci, Nick Sgro (1136965 Ontario Ltd.)	1136965 Ontario Ltd. 7-60 Saramia Crescent Vaughan, Ontario L4K 4J7	1136965 Ontario Ltd. 7-60 Saramia Crescent Vaughan, Ontario L4K 4J7

1.3 Current and Proposed Future Use

The Site is currently unoccupied and was historically used for industrial purposes as part of a railway line. It is DS's understanding that the Client intends to redevelop the Site for residential purposes.

1.4 Applicable Site Condition Standards

The applicable Site Condition Standards (SCS) for the Site are considered by the Qualified Person (QP) to be the Table 2 SCS: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition for Residential/Parkland/Institutional Use with coarse-textured soils as contained in the April 15, 2011 Ontario Ministry of Environment and Climate Change (MOECC) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", herein referred to as the "Table 2 SCS".

The selection of the Table 2 SCS is considered appropriate based on the following rationale:

- ◆ The Town of Thornbury obtains its potable water from Georgian Bay, however parts of Thornbury may rely on groundwater as a potable water source;
- ◆ The Site is not considered to be environmentally sensitive, as defined under O.Reg. 153/04 (as amended);
- ◆ The proposed future use of the Site will be residential;
- ◆ The Site is not located within 30 m of a water body;

- ◆ The pH of the soils analyzed during this Phase II ESA are within the accepted range specified under O.Reg. 153/04 (as amended); and
- ◆ Bedrock was not encountered within 2 metres of the ground surface

2.0 Background Information

2.1 Physical Setting

2.1.1 Water Bodies and Areas of Natural Significance

Georgian Bay is the closest body of water to the Site, located approximately 170 m north of the Site.

A review of the Ministry of Natural Resources and Forestry (MNR) online interactive map of natural heritage areas did not identify areas of natural and scientific interest on the Phase I Property or within the Phase I Study Area. The Grey County Natural Heritage Systems Study (dated 2017) categorized the region associated with the Phase I Property and Study Area as the Grey County Settlement Area. A 'Woodland (County)' area is depicted west adjacent to the Site, within the Phase I Study Area, however it was not considered a natural heritage area or an area of natural or scientific interest.

2.1.2 Topography and Surface Water Draining Features

The Site is located in an urban setting, at an elevation of 185 metres above sea level (masl). The topography of the Site is generally flat. The neighbouring property are at similar elevations, and the topography in the vicinity of the Site generally slopes to the north, towards Georgian Bay. Surface water flow associated with precipitation events is anticipated to run overland and drain into the municipal storm sewer catch basins.

2.2 Past Investigations

2.2.1 Previous Report Summary

The following reports were available for DS for review:

- ◆ *"Phase 2 Assessment – PIN 44438, Parcels A, B, and C, Thornbury, Ontario"* dated May 4, 1995, was prepared by XCG Environmental Services Inc. for CN Real Estate
- ◆ *"Phase I Environmental Site Assessment"* dated October, 2020, prepared by DS Consultants Ltd. for Manorwood Homes Inc.

Phase 2 Assessment – PIN 44438, Parcels A, B and C, Thornbury, Ontario

The Phase 2 Assessment was conducted in general accordance with the Proposed MOEE Guidelines for the Clean-up of Contaminated Sites in Ontario, and included a site description,

summary of previous investigations, the geology and hydrogeology of the Site, and analytical results and analysis. The land included in this investigation was divided into Parcels A, B and C. Parcels A and B correspond to the area within the Phase II Property boundary, while Parcel C is southwest adjacent. The review of the previous Phase I investigation and study area research allowed for the following potentially contaminating activities to be identified:

- The presence of a gasoline service station (Co-op) located southwest of the Site (off-Site).
- Historical usage of the parcel of land as railway lines and loading docks (on-site).
- The presence of a site identified in the MOEE Inventory of Coal Gasification Plant Waste Sites, Standard Chemical Co Ltd, approximately 150 m north of the Site (off-Site).
- Three (3) waste piles were identified on the Property (on-site).

Soil and groundwater samples were submitted for chemical analysis and compared to Table B concentrations of the Proposed MOEE Guidelines at the time of the investigation. For the purposes of the current investigation the results were also compared to the current applicable site condition standards for the Phase II Property (Table 2 RPI). A summary of the exceedances is provided in the table below:

Table 2-1: Summary of Exceedances Identified in the Previous Report

Sample ID	Parameter	MOEE Guidelines (1995)	Table 2 RPI SCS (ug/g)	Result (ug/g)
PARCEL A				
TP8	Beryllium	2.5	4	3.1
PARCEL B				
TP1	Fluoranthene	40	0.69	0.99
	Benzo(a)anthracene	170	0.5	0.52
	Benzo(a)pyrene	1.9	0.3	0.65
	Indeno(1,2,3-cd)pyrene	19	0.38	0.66
	Dibenzo(a,h)anthracene	1.9	0.1	0.19
TP5	Beryllium	2.5	4	2.8
TP6	Fluoranthene	40	0.69	1.8
	Benzo(a)anthracene	170	0.5	0.6
	Benzo(b)fluoranthene	19	0.78	1.4
	Benzo(a)pyrene	1.9	0.3	1.1
	Indeno(1,2,3-cd)pyrene	1.9	0.38	1.2
	Dibenzo(a,h)anthracene	1.9	0.1	0.23
PARCEL C (not part of the Phase I Property)				
TP12	Beryllium	2.5	4	2.7

Notes: **0.0** = exceeds MOEE Guidelines, meets T2 RPI SCS

0.0 = meets MOEE Guidelines, exceeds T2 RPI SCS

The results indicated that two (2) samples located on Parcel B exceeded Table 2 RPI SCS for several PAH parameters. The groundwater results indicated that the samples submitted for

analysis exceeded the previous MOEE Guidelines for chloride and sodium, however they met current Table 2 RPI SCS. These exceedances were not considered environmentally significant in the previous investigation because the shallow groundwater was not identified as a drinking water source.

DS identified five (5) PCAs associated with the historic property uses and soil chemical analyses conducted during the investigation.

Phase I Environmental Site Assessment

The Phase I ESA conducted by DS in October 2020, was conducted for due diligence purposes in association with the proposed acquisition of the Site. It is anticipated that the Site will be developed for residential purposes.

The County Atlas dated 1877 was consulted to determine the first developed land use of the Site. The Property was identified as being vacant with the exception of a railway track along the southern border of the Property, oriented east-west, until the late 1900s, when the tracks appeared non-operational. The Property appears to have been vacant since the railway tracks were removed.

The investigation identified a total of thirteen (13) PCAs on the Phase I Property and within the Phase I Study Area. Ten (10) of the thirteen (13) PCAs were considered to contribute to six (6) APECs on the Phase II Property. The PCAs contributing to APECs have been summarized in the following table:

Table 2-2: Summary of APECs

Area of Potential Environmental Concern	Location of Area of Potential Environmental Concern on Phase I Property	Potentially Contaminating Activity	Location of PCA (on-site or off-site)	Contaminants of Potential Concern	Media Potentially Impacted (Ground water, soil and/or sediment)
APEC-1	West side of the Property	<u>PCA-1, 2</u> : #28 – Gasoline and associated products storage in fixed tanks <u>PCA-6</u> : N/S – Fuel Leak <u>PCA-7</u> : #22 – Fertilizer Manufacturing, Processing and Bulk Storage	Off-Site	Metals, PHCs, BTEX	Groundwater
APEC-2	Centre south portion of the Property	<u>PCA-3</u> : #58 – Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of	Off-Site	PHCs, VOCs, Metals	Groundwater

Area of Potential Environmental Concern	Location of Area of Potential Environmental Concern on Phase I Property	Potentially Contaminating Activity	Location of PCA (on-site or off-site)	Contaminants of Potential Concern	Media Potentially Impacted (Ground water, soil and/or sediment)
		waste, other than use of biosoils as soil conditioners			
APEC-3	East side of the Property	<u>PCA-4, 5</u> : #33 – Metal Treatment, Coating, Plating, and Finishing	Off-Site	Metals, As, Sb, Se, PHCs, VOCs, PAHs	Groundwater
APEC-4	Southern portion of the Property	<u>PCA-10</u> : #46 – Rail Yards, Tracks and Spurs	Off-Site	Metals, PHCs, BTEX, PAHs	Soil
APEC-5	Entire Property	<u>PCA-11</u> : #30 – Importation of Fill Material of Unknown Quality	On-Site	Metals, As, Sb, Se, B-HWS, CN, EC, Cr (VI), Hg, low or high pH, SAR, PHCs, VOCs, PAHs	Soil
APEC-6	Vicinity of previous test pits	<u>PCA-13</u> : N/S-Known soil contamination	On-Site	PAHs	Soil

The PCAs and APECs identified in the Phase I ESA were used to determine the relevant contaminants of concern, Metals, As, Sb, Se, B-HWS, CN, EC, Cr (VI), Hg, low or high pH, SAR, PHCs, VOCs, PAHs, BTEX, and conduct the Phase II ESA.

2.2.2 Use of Previous Analytical Results

DS has reviewed the reports provided for the purpose of identifying Areas of Potential Environmental Concern on the Site. The analytical data referenced in the previous reports was not relied upon as DS cannot verify the methodology used to obtain the analytical data, with respect to whether the methodology used conforms to the present day requirements. As such the previous analytical results have not be relied upon for the purposes of this report.

3.0 Scope of the Investigation

The scope of the Phase II ESA was designed to investigate the portions of the Site determined in the Phase I ESA to be Areas of Potential Environmental Concern. This Phase II ESA was conducted in general accordance with the CSA Standards Association protocols outlined in the document “*Phase II Environmental Site Assessment, CSA Standard Z769-00 (R2013)*” dated 2000, and reaffirmed in 2013. The scope of the investigation including the subsurface investigation, sampling, and laboratory analysis was based on the findings of the Phase I ESA and was limited to the portions of the site which were accessible.

3.1 Overview of Site Investigation

The following tasks were completed as part of the Phase II ESA:

- ◆ Clearance of public private underground utility services prior to commencement of subsurface investigative operations;
- ◆ Retained a MECP licenced driller between October 1 and 2, 2020, to advance a total of three (3) boreholes on the Site, to depths ranging between 6.7 to 7.5 mbgs. All three (3) of the boreholes were instrumented with groundwater monitoring wells upon completion. The soil lithology was logged during drilling, and representative soil samples were collected at regular intervals. The soil samples were screened for organic vapours using an Eagle 2 Multigas Detector and examined for visual and olfactory indications of soil impacts;
- ◆ DS personnel conducted a second sampling event on October 29, 2020, to advance an additional nine (9) test pits across the Site. The test pits were advanced using a hydraulic backhoe to a maximum depth of 2.5 mbgs.
- ◆ Submitted “worst case” soil samples collected from the boreholes for laboratory analysis of relevant contaminants of potential environmental concern (COPCs) as identified in the Phase I ESA;
- ◆ Conducted groundwater level measurements in the monitoring wells in order to determine the groundwater elevation, and to establish the local groundwater flow direction;
- ◆ Surveyed all monitoring wells to a geodetic benchmark;
- ◆ Developed and purged all monitoring wells prior to sampling. Groundwater samples were collected for all COPCs identified in the Phase I ESA;
- ◆ Compared all soil and groundwater analytical data to the applicable MOECC SCS; and
- ◆ Prepared a Phase II ESA Report.

3.2 Media Investigated

3.2.1 Rationale for Inclusion or Exclusion of Media

Table 3-1: Rationale of Sampling Media

Media	Included or Excluded	Rationale
Soil	Included	Soil was identified as a media of potential impact in the Phase I ESA, based on the historical operations conducted on-Site.
Groundwater	Included	Groundwater was identified as a media of potential impact in the Phase I ESA, based on the historical operations conducted on-Site.
Sediment	Excluded	Sediment is not present on the Site.
Surface Water	Excluded	Surface water is not present on the Site.

3.2.2 Overview of Field Investigation of Media

Table 3-2: Field Investigation of Media

Media	Methodology of Investigation
Soil	A total of three (3) boreholes and nine (9) test pits were advanced on the Site, to a maximum depth of 7.5 mbgs. Seventeen (17) soil samples were collected and submitted for analysis of all relevant COPCs.
Groundwater	A total of three (3) monitoring wells were present on the Site at the time of the investigation. Representative groundwater samples were collected from each monitoring well and submitted for analysis of all relevant COPCs.

4.0 Investigation Method

4.1 General

The Phase II ESA followed the methodology outlined in the following documents:

- Ontario Ministry of the Environment “Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario” (December 1996);
- Ontario Ministry of the Environment “Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act” (July 2011) (Analytical Protocol);

The methods used in the Phase II ESA investigation did not differ from the associated standard operating procedures.

4.2 Drilling and Excavating

A site visit was conducted prior to drilling in order to identify the borehole locations based on the APECs identified in the Phase I ESA. The selected borehole and test pit locations are presented on Figure 5. The borehole locations were cleared of underground public and

private utility services prior to commencement of drilling. A summary of the drilling and test pit advancement activities is provided in the table below.

Table 4-1: Summary of Drilling Activities

Parameter	Details
Drilling Investigation	
Drilling Contractor	Walker Drilling Ltd.
Drilling Dates	October 1, 2020
Drilling Equipment Used	Track-mounted CME 55
Measures taken to minimize the potential for cross contamination	◆ Soil sampling was conducted using a 50 mm stainless steel split spoon sampler was used to collect soil samples from the boreholes. The split spoon sampler was brushed clean of soil, washed in municipal water containing phosphate free detergent, rinsed in municipal water, and then rinsed with distilled water for each sampling interval in order to reduce the potential for cross contamination;
Sample collection frequency	Samples were collected at a frequency of every 0.6 m per 0.8 m from the ground surface to 7.5 mbgs in BH20-1. In BH20-2 and BH20-3 the samples were collected every 0.6 m per 0.8 m until 3.1 mbgs, followed by one sample per 1.5 m to borehole termination depth.
Test Pit Investigation	
Date of Investigation	October 29, 2020
Equipment Used	Hydraulic Backhoe
Measures taken to minimize the potential for cross contamination	◆ Each sample was collected from the test pits using dedicated nitrile gloves.
Sample collection frequency	Soil samples were collected between 0 and 1.2 mbgs.

4.3 Soil Sampling

The samples gathered from boreholes BH20-1, BH20-2 and BH20-3 were collected using a 50 mm stainless steel split spoon sampler. Discrete soil samples were collected from the split-spoon samplers by DS personnel using dedicated acrylonitrile gloves. Samples taken from test pits TP1 through TP8 were collected by DS personnel using dedicated nitrile gloves.

A portion of each sample was placed in a resealable plastic bag for field screening, and the remaining portion was placed into laboratory supplied glass sampling jars. Samples intended for VOC and the F1 fraction of petroleum hydrocarbons analysis were collected using a laboratory-supplied soil core sampler, placed into the vials containing methanol for preservation purposes and sealed using Teflon lined septa lids. All sample jars were stored in dedicated coolers with ice for storage, pending transport to the analytical laboratory. A formal chain of custody was maintained for all samples submitted to the laboratory.

The subsurface soil conditions were logged by DS personnel at the time of drilling and recorded on field borehole logs. The borehole logs are presented under Appendix B. Additional detail regarding the lithology encountered in the boreholes is presented under Section 6.1.

4.4 Field Screening Measurements

All retrieved soil samples were screened in the field for visual and olfactory observations. No obvious visual or olfactory evidence of potential contamination were noted. No aesthetic impacts (e.g. cinders, slag, hydrocarbon odours) were encountered during this investigation. The soil sample headspace vapour concentrations for all soil samples recovered during the investigation were screened using portable organic vapour testing equipment in accordance with the procedure outlined in the MECP's *'Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario'*.

The soil samples were inspected and examined to assess soil type, ground water conditions, and possible chemical contamination by visual and olfactory observations or by organic vapour screening. Samples submitted for chemical analysis were collected from locations judged by the assessor to be most likely to exhibit the highest concentrations of contaminants based on several factors including (i) visual or olfactory observations, (ii) sample location, depth, and soil type (iii) ground water conditions and headspace reading. A summary of the equipment used for field screening is provided below:

Table 4-2: Field Screening Equipment

Parameter	Details
Make and Model of Field Screening Instrument	Eagle 2, Model 5101-P2
Chemicals the equipment can detect and associated detection limits	VOCs with dynamic range of 0 parts per million (ppm) to 2,000 ppm PHCs with range of 0 to 50,000 ppm
Precision of the measurements	3 significant figures
Accuracy of the measurements	VOCs: $\pm 10\%$ display reading + one digit Hydrocarbons: $\pm 5\%$ display reading + one digit
Calibration reference standards	PID: Isobutylene CGD: Hexane
Procedures for checking calibration of equipment	In-field re-calibration of the CGI was conducted (using the gas standard in accordance with the operator's manual instructions) if the calibration check indicated that the calibration had drifted by more than $\pm 10\%$.

A summary of the soil headspace measurements are provided in the borehole logs, appended under Appendix B.

4.5 Groundwater Monitoring Well Installation

Monitoring wells were installed upon completion of all three (3) boreholes advanced on the Site. The monitoring wells were constructed of 51-millimetre (2-inch) inner diameter (ID) flush-threaded schedule 40 polyvinyl chloride (PVC) risers, equipped with a 3.05 m length of No. 10 slot PVC screen. The well screens were sealed at the bottom using a threaded cap and at the top with a lockable J-plug.

Silica sand was placed around and up to 0.6m above the well screen to act as a filter pack. Bentonite was placed from the ground surface to the top of the sand pack. The wells were completed with protective aboveground monument casings. Details regarding the monitoring well construction can be found in Table 1, and on the borehole logs provided in Appendix B.

Disposable nitrile gloves were used to minimize the potential for cross-contamination during well installation. Dedicated equipment was used for well development and sampling for further minimize the risk of cross contamination.

The monitoring wells were developed on October 6, 2020 in accordance with DS SOPs for monitoring well development, the wells were developed by removing a minimum of three standing water column volumes using dedicated inertial pumps comprised of Waterra polyethylene tubing and dedicated foot valves.

4.6 Groundwater Field Measurement of Water Quality Parameters

Groundwater field measurements of water quality parameters were not taken while groundwater sampling during this investigation. The monitoring wells were purged dry and allowed to recover prior to sampling to ensure that fresh formation groundwater was obtained for sampling purposes.

4.7 Groundwater Sampling

Groundwater samples were collected a minimum of 24 hours after the development of the monitoring wells. The monitoring wells were purged and were allowed to recover prior to sampling. The wells were sampled using low flow methodology, and samples were collected using a peristaltic pump with dedicated 6.4 mm ID polyethylene tubing.

Groundwater samples for metals analysis were field filtered using dedicated 0.45 micro in-line filters. The groundwater was transferred directly into laboratory supplied containers, and preserved as appropriate using the containers supplied by the analytical laboratory. The samples were placed in coolers upon completion of sampling and stored on ice for storage,

pending transport to the analytical laboratory. A formal chain of custody was maintained for all samples submitted to the laboratory.

4.8 Sediment Sampling

No sediment as defined under O.Reg. 153/04 (as amended) was present on the Site at the time of this investigation. Sediment sampling was not conducted as a result.

4.9 Analytical Testing

The soil and groundwater samples collected were submitted to SGS Canada under chain of custody protocols. SGS is an independent laboratory accredited by the Canadian Association for Laboratory Accreditation. SGS conducted the analyses in accordance with the MECP document “Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act” dated March 9, 2004 (revised on July 1, 2011).

4.10 Residue Management Procedures

4.10.1 Soil Cuttings From Drilling and Excavations

The soil cuttings generated by the borehole drilling program were stored in 205 L drums, and left on-site for disposal by a MECP approved waste-hauler for disposal at a MECP approved waste management facility.

4.10.2 Water from Well Development and Purging

Excess water derived from well purging activities was stored in 20-L sealed plastic pails, and temporarily stored on site. Upon receipt of the analytical results it was determined that the purged groundwater meets the applicable Table 2 RPI SCS. Based on this the purged groundwater was allowed to re-infiltrate adjacent to the monitoring wells.

4.10.3 Fluids from Equipment Cleaning

Excess equipment cleaning fluids were stored in 20-L sealed plastic pails and temporarily stored on site for disposal by a MECP approved waste-hauler for disposal at a MECP approved waste management facility.

4.11 Elevation Surveying

The geodetic benchmark identified within the vicinity of the Property is station #00819720779, at approximately 185 masl.

The ground surface elevations can be found on the borehole logs presented in Appendix B.

4.12 Quality Assurance and Quality Control Measures

All soil and groundwater samples were stored in laboratory-supplied sample containers in accordance with the MOECC Analytical Protocol. A summary of the preservatives supplied by the laboratory is provided in the table below.

Table 4-3: Summary of Sample Bottle Preservatives

Media	Parameter	Sample Container
Soil	PHCs F1 VOCs	40 mL methanol preserved glass vial with septum lid.
	PHCs F2-F4 metals and ORPs PAHs	120 mL or 250 mL unpreserved glass jar with Teflon™-lined lid.
Groundwater	PHCs F1 VOCs	40 mL glass vial with septum lid, containing sodium bisulphate preservative.
	PHCs F2-F4	250 mL amber glass bottle with sodium bisulphate preservative
	PAHs	250 mL amber glass bottle (unpreserved)
	Inorganics	500 mL high density polyethylene bottle (unpreserved)
	Metals	125 mL high density polyethylene bottle containing nitric acid preservative
	Hexavalent Chromium	125 mL high density polyethylene bottle containing ammonium sulphate/ammonium hydroxide preservative
	Mercury	125 mL glass bottle containing hydrochloric acid preservative
	Cyanide	125 mL high density polyethylene bottle containing sodium hydroxide preservative

Groundwater samples were collected using dedicated equipment for each well. Groundwater samples collected for analysis of dissolved metals, mercury and hexavalent chromium were filtered in the field using a dedicated 0.45-micron in-line filter. Each sample container was labelled with a unique sample identification, the project number, and the sampling date. All samples were placed in an ice-filled cooler upon completion of sampling, and kept under refrigerated conditions until the time of delivery to the analytical laboratory. A formal chain of custody was maintained for all samples submitted to the laboratory.

Dedicated, disposable nitrile gloves were used for each sampling event to reduce the potential for cross-contamination.

The split spoon sampler was brushed clean of soil, washed in municipal water containing phosphate free detergent, rinsed in municipal water, and then rinsed with distilled water for each sampling interval in order to reduce the potential for cross contamination. Dedicated equipment was used for well development and sampling for further minimize the

risk of cross contamination. Non-dedicated equipment (i.e. interface probe) was cleaned before initial use and between all measurement points with a solution of Alconox™ and distilled water. The Alconox™ solution was rinsed off using distilled water.

All field screening devices (i.e. PID, CGD, HI98129) were calibrated prior to use by the supplier. Calibration checks were completed, and re-calibrations were conducted as required.

5.0 Review and Evaluation

5.1 Geology

A summary of the subsurface conditions is presented below. Additional details may be found in the borehole logs appended in Appendix B.

A layer of topsoil approximately 50 to 300 mm in thickness was encountered at the surface of all boreholes and test pits advanced, with the exception of test pits TP3-2 and TP5, where topsoil was observed below a surficial layer of fill. The fill material encountered at TP3-2 and TP5 extended from the surface to approximately 1.5 mbgs, and contained clayey silt, trace sand, trace gravel and debris such as pieces of asphalt. A layer of possible alluvial deposits consisting of sand and gravel with cobbles and boulders was found below the topsoil and varied in thickness across the Site. Underlying the possible alluvial deposit layer was a clayey silt unit that extended to the maximum explored depth of 7.5 mbgs in BH20-1 and to a depth of approximately 4.9 and 2.3 mbgs in boreholes BH20-2 and BH20-3 respectively. Beneath the clayey silt unit in BH20-2 and BH20-3 a silty sand/sandy silt/sand layer containing rock fragments, was encountered and extended to the explored depth of the boreholes. Bedrock was not visually observed at any of the borehole locations, however auger refusal occurred in borehole BH20-3 at 6.7 mbgs, possibly indicating that bedrock was encountered at this depth.

5.2 Ground Water Elevations and Flow Direction

5.2.1 Rationale for Monitoring Well Location and Well Screen Intervals

A total of three (3) monitoring wells were installed on the Site in order to assess the groundwater quality in relation to APECs 1, 2 and 3. The COPCs associated with these APECs were Metals, As, Sb, Se, PHCs, BTEX, VOCs, and PAHs. The monitoring wells were screened to intersect the first water bearing formation encountered, in order to allow for the assessment of LNAPL, and to provide information regarding the quality of the groundwater at the water table. The monitoring wells were screened between 2.5 and 5.5 mbgs, in varying materials including fill, silty sand and silty clay, and sandy silt. The groundwater encountered is inferred to be situated in an unconfined aquifer.

5.2.2 Results of Interface Probe Measurements

A summary of the groundwater level measurements is provided in Table 1. The groundwater level measurements were collected using a Solinst interface probe. The depth to groundwater was found to range between 2.30 and 4.30 mbgs on October 6, 2020. There was no indication of DNAPL or LNAPL in the monitoring wells at this time.

5.2.3 Product Thickness and Free Flowing Product

No evidence of product was observed in the monitoring wells at the time of the investigation.

5.2.4 Groundwater Elevation

The groundwater elevation was calculated by subtracting the depth to groundwater from the surface elevation determined by the surface elevation survey conducted as part of this investigation. A summary of the groundwater elevations calculated is presented in Table 1. Generally, the groundwater elevation was found to range from 181.90 to 183.60 masl in the upper aquifer investigated.

5.2.5 Groundwater Flow Direction

The groundwater flow direction was interpreted based on the topography of the site and surrounding properties, and the location of the closest body of water, Georgian Bay, which is approximately 170 m north of the Phase Two Property. The inferred groundwater flow direction is north, towards Georgian Bay. The groundwater elevations and flow direction are presented on Figure 6.

5.3 Fine-Medium Soil Texture

The results of the grain size analysis determined that less than two-thirds of the soils encountered on the Site were identified to be medium-fine textured. The results are summarized in the table below:

Table 5-1: Summary of Grain Size Analyses

Sample	%Cobble	% Gravel	% Sand	% Silt	% Clay	Classification
BH20-1 SS4	-	40	53	7		Coarse Textured
TP2	26.5	46	26	1		Coarse Textured
BH20-2 SS5	-	0	8	75	17	Medium-Fine Textured
BH20-3 SS3	-	8	8	64	20	Medium-Fine Textured

For the purposes of evaluating the SCS, all soils on the Site are considered coarse textured.

5.3.1 Rational for the Number of Samples Collected and Analyzed

The grain size analyses were conducted for the purposes of this Phase II ESA, in addition to a geotechnical investigation which was conducted concurrently. At least one sample was analyzed per stratigraphic unit encountered in order to characterize the various strata encountered.

5.4 Soil Field Screening

Soil vapour headspace readings were collected at the time of sample collection, the results of which are presented on the borehole logs (Appendix B). The soil vapour headspace readings were collected using a calibrated RKI Eagle 2 operated in methane elimination mode. The PID readings were non detect (0 ppm) for all samples measured. The CGD readings ranged between 0 and 35 ppm.

The soil samples were also screened for visual and olfactory indicators of impacts (e.g. staining, odours). No staining, odours or other aesthetic impacts were noted during sampling.

5.5 Soil Quality

The results of the chemical analyses conducted are presented in Tables 5 through 8. A visual summary of the location of the sample locations is provided in Figures 7A through 7D. The laboratory certificates of analysis have been provided under Appendix C.

5.5.1 Metals and ORPs

A total of eight (8) samples, including one (1) field duplicate for QA/QC purposes were submitted for analysis of metals and ORPs. The results of the analyses are tabulated in Table 5, and presented on Figure 7A. The results of the analyses indicated the following exceedances of the Table 2 RPI SCS:

Table 5-2: Summary of Metals and ORPs Exceedances in Soil

Sample ID	Sample Depth (mbgs)	Parameter	Units	Table 2 RPI SCS	Reported Value
TP6	0-0.3	Lead	µg/g	120	170
		Mercury	µg/g	0.27	0.35
TP6 Dup2	0-0.3	Lead	µg/g	120	160
		Mercury	µg/g	0.27	0.36
TP7	0-0.3	Lead	µg/g	120	170

5.5.2 Petroleum Hydrocarbons

A total of eight (8) samples were submitted for analysis of PHCs (incl. BTEX). The results of the analyses are tabulated in Table 6, and presented on Figure 7B. The results of the analyses indicated that the samples submitted met Table 2 RPI SCS for PHCs.

5.5.3 Volatile Organic Compounds

A total of three (3) samples were submitted for analysis of VOCs. The results of the analyses are tabulated in Table 7, and presented on Figure 7C. The results of the analyses indicated that the samples submitted met Table 2 RPI SCS for VOCs.

5.5.4 Polycyclic Aromatic Hydrocarbons

A total of thirteen (13) samples were submitted for analysis of VOCs. The results of the analyses are tabulated in Table 8, and presented on Figure 7D. The results of the analyses indicated the following exceedances of the Table 2 RPI SCS:

Table 5-3: Summary of PAH Exceedances in Soil

Sample ID	Sample Depth (mbgs)	Parameter	Units	Table 2 RPI SCS	Reported Value
TP3-2	1.0-1.2	Fluoranthene	µg/g	0.69	0.73
TP6	0-0.3	Methylnaphthalene, 2-(1-)	µg/g	0.99	4.51
		Benzo(a)anthracene	µg/g	0.5	0.8
		Benzo(a)pyrene	µg/g	0.3	0.94
		Benzo(b+j)fluoranthene	µg/g	0.78	1.49
		Dibenz(a,h)anthracene	µg/g	0.1	0.12
		Fluoranthene	µg/g	0.69	1.57
		Indeno(1,2,3-cd)pyrene	µg/g	0.38	0.43
		Naphthalene	µg/g	0.6	1.64
TP7	0-0.3	Benzo(a)anthracene	µg/g	0.5	1.19
		Benzo(a)pyrene	µg/g	0.3	1.15
		Benzo(b+j)fluoranthene	µg/g	0.78	1.75
		Dibenz(a,h)anthracene	µg/g	0.1	0.12
		Fluoranthene	µg/g	0.69	2.52
		Indeno(1,2,3-cd)pyrene	µg/g	0.38	0.42
TP8	0-0.3	Benzo(a)anthracene	µg/g	0.5	1.86
		Benzo(a)pyrene	µg/g	0.3	1.73
		Benzo(b+j)fluoranthene	µg/g	0.78	2.27
		Benzo(k)fluoranthene	µg/g	0.78	0.98
		Dibenz(a,h)anthracene	µg/g	0.1	0.19
		Fluoranthene	µg/g	0.69	3.42
		Indeno(1,2,3-cd)pyrene	µg/g	0.38	0.67

5.5.5 Commentary on Soil Quality

Soil impacted with metals was identified in test pits TP6 and TP7 at depths of 0-0.3 mbgs. The vertical extent of the metals impact in soil is currently unknown. The metals impacts appear to be localized in nature. A visual illustration of the distribution of metals impacts in soil is provided in Figure 7A.

PAH impacts in soil were identified in six (6) discrete sampling locations, indicating a wider distribution of impacts across the Site. The PAH impacts were identified at depths ranging between 0 to 1.2 mbgs. The vertical extent of the PAH impacts in soil is currently unknown. A visual illustration of the distribution of PAH impacts in soil is provided in Figure 7D.

Additional investigation is required to determine the vertical extent of the soil impacts on-Site.

5.6 Ground Water Quality

The results of the chemical analyses conducted are presented in Tables 9 through 12. A visual summary of the location of the sample locations is provided in Figures 8A through 8D. The laboratory certificates of analysis have been provided under Appendix C.

5.6.1 Metals and ORPs

A total of three (3) samples were submitted for analysis of metals and ORPs. The results of the analyses are tabulated in Table 9, and presented on Figure 8A. The groundwater samples transferred into the metals, mercury, and hexavalent chromium bottles were field filtered using a 0.45-micron in-line filter. The results of the analyses indicated the groundwater samples submitted met Table 2 RPI standards for metals and ORPs.

5.6.2 Petroleum Hydrocarbons

A total of three (3) samples were submitted for analysis of PHCs (incl. BTEX). The results of the analyses are tabulated in Table 10, and presented on Figure 8B. The results of the analyses indicated that the groundwater samples submitted met Table 2 RPI standards for PHC (incl. BTEX).

5.6.3 Volatile Organic Compounds

A total of three (3) samples were submitted for analysis of VOCs. The results of the analyses are tabulated in Table 11 and presented on Figure 8C. The results of the analyses indicated that the samples submitted met Table 2 RPI standards for VOCs.

5.6.4 Polycyclic Aromatic Hydrocarbons

A total of three (3) samples were submitted for analysis of PAHs. The results of the analyses are tabulated in Table 12, and presented on Figure 8D. The results of the analyses indicated that the samples submitted met Table 2 RPI standards for PAHs.

5.7 Sediment Quality

Sediment was not identified as a medium of concern during this investigation.

6.0 Conclusions

This Phase II ESA involved that advancement of three (3) boreholes, three (3) monitoring wells, nine (9) test pits and the collection of soil and groundwater samples for analysis of the potential contaminants of concern, including: Metals, As, Sb, Se, B-HWS, CN, EC, Cr (VI), Hg, low or high pH, SAR, PHCs, VOCs, PAHs, BTEX.

Based on the results of the information gathered through the course of the investigation, DS presents the following conclusions:

- ◆ Soil impacts were identified on-Site at depths ranging between 0-0.3 mbgs. Additional vertical delineation is recommended to understand the depth of the soil impacts. The impacted soils may require off-site disposal in the future at the time of Site development. Disposal premiums may be incurred for the disposal of impacted soils.
- ◆ Given the historic industrial use as a railway line, future residential development will trigger the requirement for the filing of a Record of Site Condition with the Ministry of Environment, Conservation and Parks. Additional Environmental Site Assessment in accordance with O.Reg. 153/04 (as amended), followed by soil remediation or completion of a risk assessment will be required in the future to support the filing of a Record of Site Condition.
- ◆ The results of the groundwater sampling completed to date has indicated that the soil impacts identified do not appear to have adversely affected the groundwater quality on-Site.
- ◆ All monitoring wells should be decommissioned in accordance with O.Reg. 903 when no longer required.

6.1 Qualifications of the Assessors

Patrick (Rick) Fioravanti, B.Sc., P.Geo., QP_{ESA}

Mr. Fioravanti the Manager of Environmental Services with DS Consultants Limited. Rick holds a Honours Bachelor of Science with distinction in Toxicology from the University of Guelph, and is a practicing member of the Association of Professional Geoscientists of Ontario (APGO). Patrick has over eight years of environmental consulting experience and has conducted and/or managed over 100 projects in his professional experience. Patrick has extensive experience conducting Phase One and Phase Two Environmental Site Assessments in support of brownfields redevelopment in urban settings, and been involved in numerous remediation projects, supported many risk assessments, and successfully filed Records of Site Condition with the Ministry of Environment and Climate Change. Patrick is considered a Qualified Person to conduct Environmental Site Assessments as defined by Ontario Regulation 153/04 (as amended).

Mr. Drew Doak, B.Sc.E., P.Eng., QP_{ESA}

Mr. Doak is an Environmental Project Manager with DS Consultants Limited. Drew holds a Bachelor of Science in Engineering from Queen's University and is a practicing member of the Professional Engineers of Ontario (PEO). Drew has five years of environmental consulting experience and has conducted and/or managed a multitude of projects in his professional experience. Drew has extensive experience conducting Phase One and Phase II Environmental Site Assessments in support of brownfields redevelopment in urban settings, and been involved in numerous remediation projects, and supported many risk assessments and Records of Site Conditions with the Ministry of Environment, Conservation and Parks. He has also conducted a variety of Hydrogeological investigations within the GTA. Drew is considered a Qualified Person to conduct Environmental Site Assessments as defined by Ontario Regulation 153/04 (as amended).

Genevieve Klein, B.Sc.

Ms. Klein is an environmental technician with DS Consultants Ltd. Genevieve holds a Bachelor of Science in Environmental Science Degree from the University of Guelph, has been working in the environmental sector since 2017 and has experience conducting Phase One and Phase Two Environmental Site Assessments.

6.2 Signatures

This Phase II ESA was conducted under the supervision of Drew Doak, P.Eng., QP_{ESA} in accordance with the requirements CSA Standard Z769-00 (R2013). The findings and conclusions presented have been determined based on the information obtained at the time of the investigation, and on an assessment of the conditions of the Site at this time.

We trust this report meets with your requirements. Should you have any questions regarding the information presented, please do not hesitate to contact our office.

Yours truly,

DS Consultants Ltd

Prepared by:



Genevieve Klein, BSc.
Environmental Technician



Drew Doak, B.Sc.E., P.Eng., QP_{ESA}
Environmental Project Manager



Rick Fioravanti, B.Sc., P.Geo., QP_{ESA}
Manager – Environmental Services



6.3 Limitations

This report was prepared for the sole use of Manorwood Homes Inc. and is intended to provide an assessment of the environmental condition on the property located at [Abstract], Applewood Thornbury. The information presented in this report is based on information collected during the completion of the Phase II Environmental Site Assessment by DS Consultants Ltd. The material in this report reflects DS' judgment in light of the information available at the time of report preparation. This report may not be relied upon by any other person or entity without the written authorization of DS Consultants Ltd. The scope of services performed in the execution of this investigation may not be appropriate to satisfy the needs of other users, and any use or reuse of this documents or findings, conclusions and recommendations represented herein, is at the sole risk of said users.

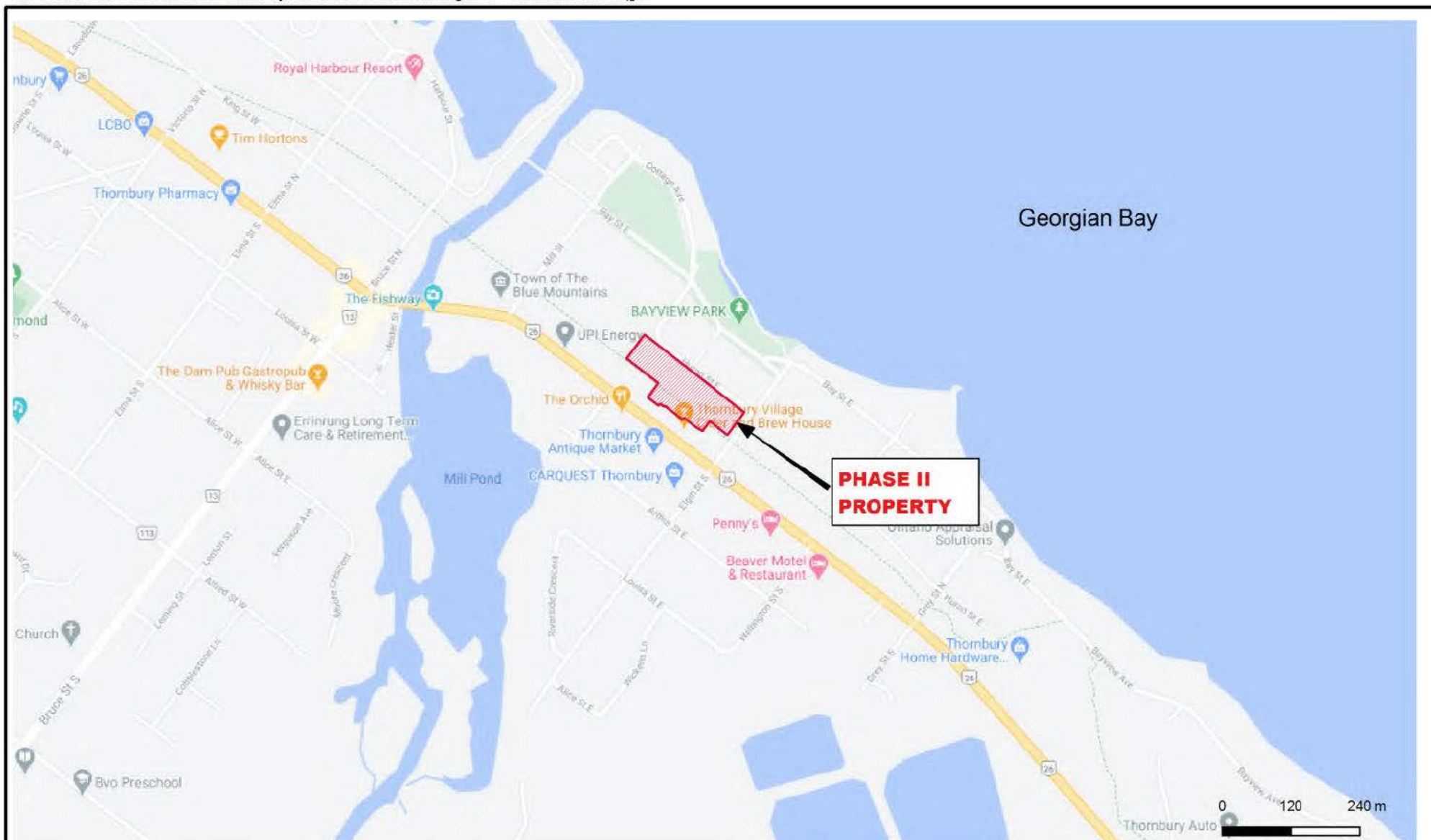
The conclusions drawn from the Phase II ESA were based on information at selected observation and sampling locations. Conditions between and beyond these locations may become apparent during future investigations or on-site work, which could not be detected or anticipated at the time of this investigation. The sampling locations were chosen based upon a cursory historical search, visual observations and limited information provided by persons knowledgeable about past and current activities on this site during the Phase II ESA activities. As such, DS Consultants Ltd. cannot be held responsible for environmental conditions at the site that was not apparent from the available information.

7.0 REFERENCES

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Figures



Legend

 Approx Property Boundary



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Client:

MANORWOOD HOMES INC.

Project:

PHASE II ENVIRONMENTAL SITE ASSESSMENT
Town of the Blue Mountains, ON

Title:

SITE LOCATION PLAN

Size:
8.5 x 11

Approved By:

R.F

Drawn By:

S.Y

Date:

November 2020

Rev:
0

Scale:

As Shown

Project No.:

20-265-400

Figure No.:

1

Image/Map Source: Google Street Map





Legend

-  Approx Property Boundary
-  Monitoring well (XCG 1995)
-  Test Pit (XCG 1995)



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Project: **PHASE II ENVIRONMENTAL SITE ASSESSMENT
Town of the Blue Mountains, ON**

Title: **PHASE II PROPERTY SITE PLAN**



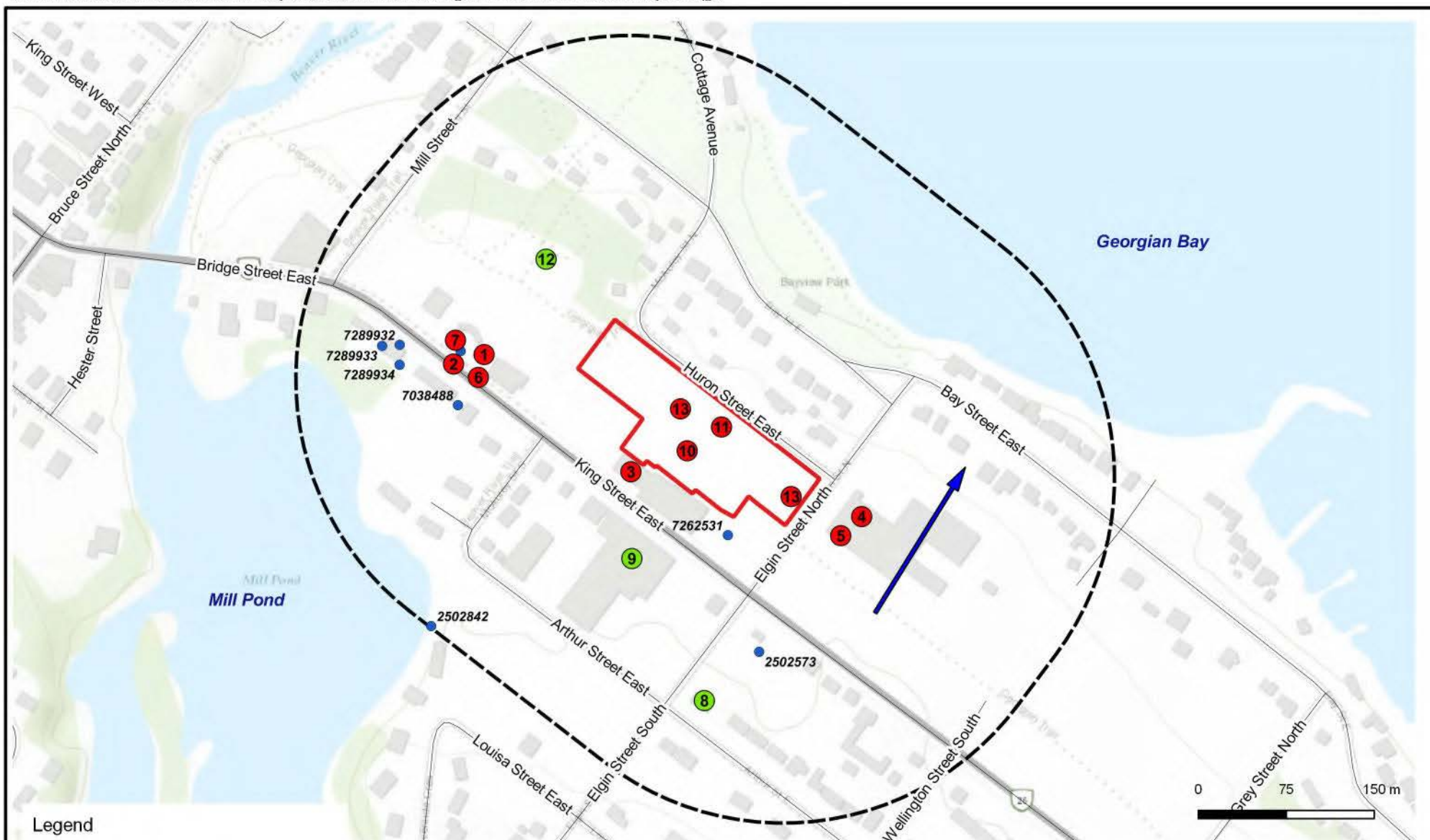
Size: 8.5 x 11	Approved By: R.F	Drawn By: S.Y	Date: November 2020
Rev: 0	Scale: As Shown	Project No.: 20-265-400	Figure No.: 2
Image/Map Source: Google Satellite Image			



Legend

- Approx Property Boundary
- 250m Buffer
- Commercial
- Community
- Industrial
- Residential
- Agricultural or Other
- Parkland
- Waterbody

 DS CONSULTANTS LTD. 6221 Highway 7, UNIT 16 Vaughan, Ontario L4H 0K8 Telephone: (905) 264-9393 www.dsconsultants.ca	Project: PHASE II ENVIRONMENTAL SITE ASSESSMENT Town of the Blue Mountains, ON				
	Title: PHASE I STUDY AREA				
Client: MANORWOOD HOMES INC.	Size: 8.5 x 11	Approved By: R.F	Drawn By: S.Y	Date: November 2020	
	Rev: 0	Scale: As Shown	Project No.: 20-265-400	Figure No.: 3	
	Image/Map Source: Google Satellite Image				



Legend

- Approx Property Boundary
- 250m Buffer
- ➔ Inferred Groundwater Flow Direction
- Registered Water Well (MECP WWR)
- PCA not contributing to APEC
- PCA contributing to APEC



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Client:

MANORWOOD HOMES INC.

Project:

PHASE II ENVIRONMENTAL SITE ASSESSMENT
Town of the Blue Mountains, ON

Title:

PCA WITHIN PHASE I STUDY AREA

Size:
8.5 x 11

Rev:
0

Approved By:

R.F

Scale:

As Shown

Image/Map Source: Esri Topo Map

Drawn By:

S.Y

Project No.:

20-265-400

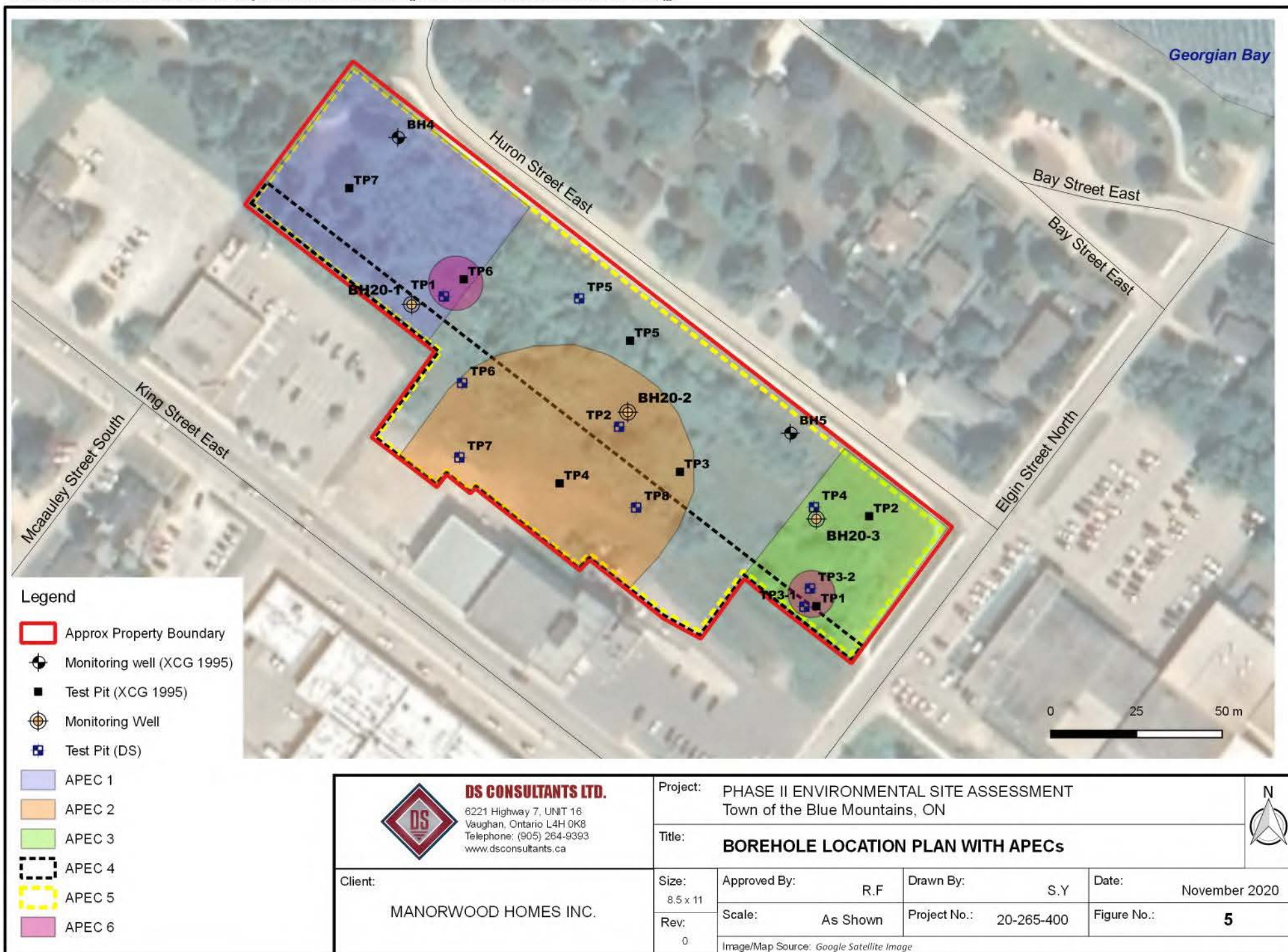
Date:

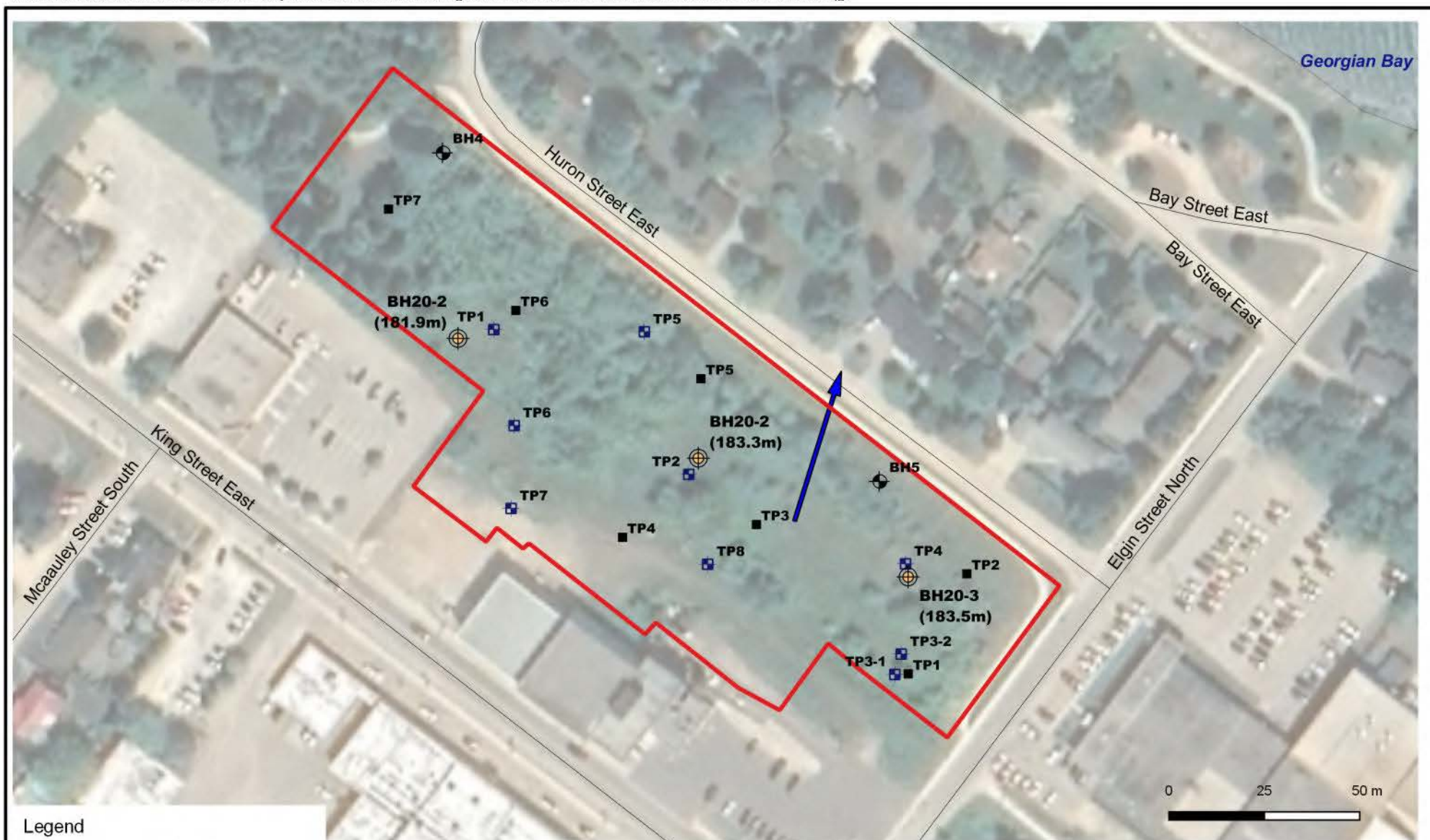
November 2020

Figure No.:

4



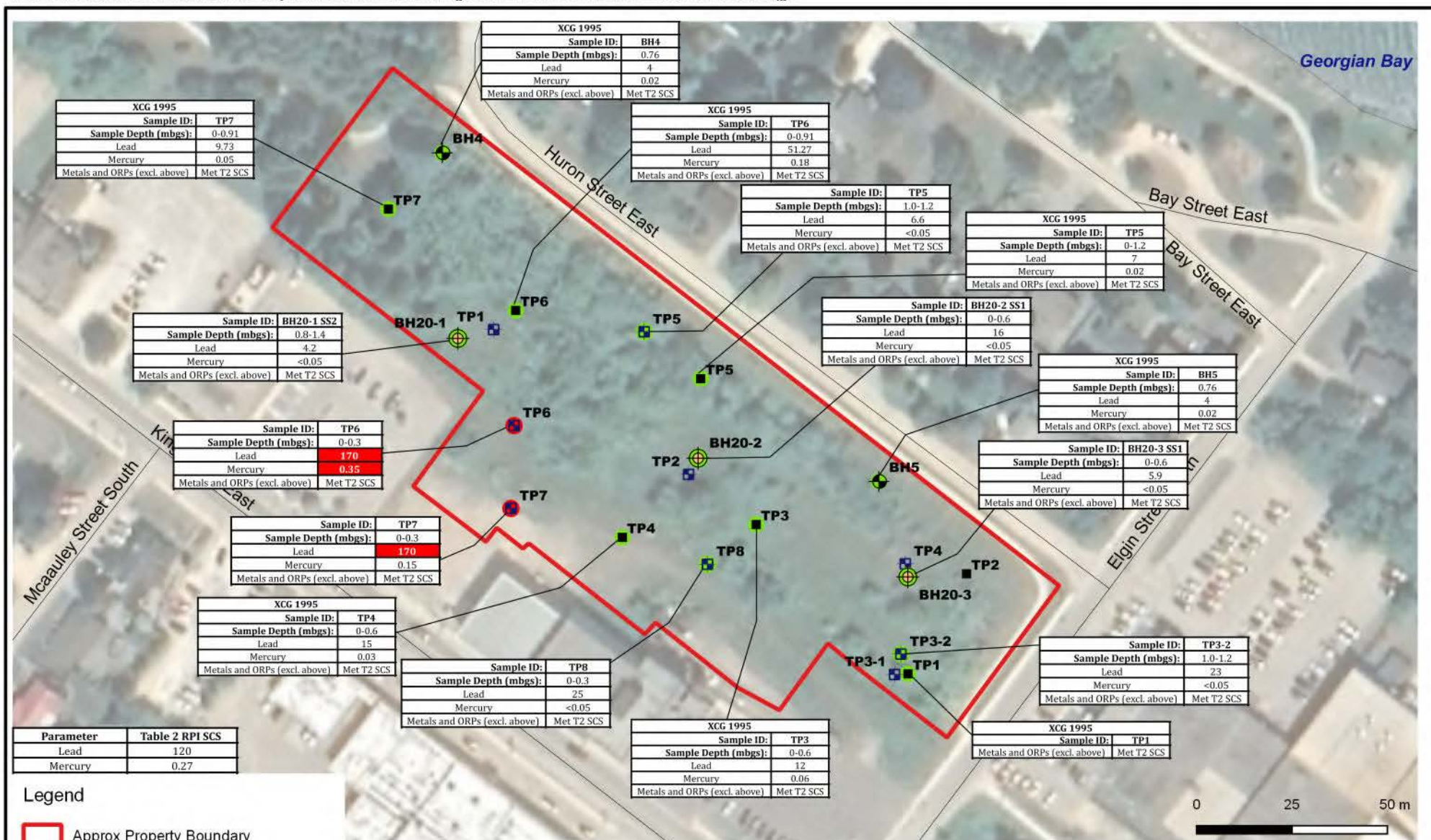




Legend

- Approx Property Boundary
-  Monitoring well (XCG 1995)
-  Test Pit (XCG 1995)
-  Test Pit (DS)
-  Monitoring Well
-  Inferred Groundwater Flow Direction

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	Title: GROUNDWATER ELEVATION CONTOURS AND FLOW DIRECTION				
Client: MANORWOOD HOMES INC.	Size: 8.5 x 11	Approved By: R.F	Drawn By: S.Y	Date: November 2020	
	Rev: 0	Scale: As Shown	Project No.: 20-265-400	Figure No.: 6	
	Image/Map Source: Google Satellite Image				


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Project:

PHASE II ENVIRONMENTAL SITE ASSESSMENT
Town of the Blue Mountains, ON

Title:

SOIL CHARACTERIZATION – METALS AND ORPs

 Size:
8.5 x 11

 Rev:
0

Approved By:

R.F

Drawn By:

S.Y

Date:

November 2020

Scale:

As Shown

Project No.:

20-265-400

Figure No.:

7A

Image/Map Source: Google Satellite Image



Legend

- Approx Property Boundary
- ⊗ Monitoring Well
- ⊗ Monitoring well (XCG 1995)
- Test Pit (XCG 1995)
- Test Pit (DS)
- Sample Met Applicable Standards

 DS CONSULTANTS LTD. 6221 Highway 7, UNIT 16 Vaughan, Ontario L4H 0K8 Telephone: (905) 264-9393 www.dsconsultants.ca	Project: PHASE II ENVIRONMENTAL SITE ASSESSMENT Town of the Blue Mountains, ON				
	Title: SOIL CHARACTERIZATION – PHCs				
Client: MANORWOOD HOMES INC.	Size: 8.5 x 11	Approved By: R.F	Drawn By: S.Y	Date: November 2020	
	Rev: 0	Scale: As Shown	Project No.: 20-265-400	Figure No.: 7B	
	Image/Map Source: Google Satellite Image				



Legend

- Approx Property Boundary
-  Monitoring Well
-  Monitoring well (XCG 1995)
-  Test Pit (XCG 1995)
-  Test Pit (DS)
-  Sample Met Applicable Standards

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	Title: SOIL CHARACTERIZATION – VOCs				
Client: MANORWOOD HOMES INC.	Size: 8.5 x 11	Approved By: R.F	Drawn By: S.Y	Date: November 2020	
	Rev: 0	Scale: As Shown	Project No.: 20-265-400	Figure No.: 7C	
	Image/Map Source: Google Satellite Image				

-  Approx Property Boundary
-  Monitoring Well
-  Monitoring well (XCG 1995)
-  Test Pit (XCG 1995)
-  Test Pit (DS)
-  Sample Met Applicable Standards
-  Sample Exceeds Applicable Standards



Size: 11x17	Approved By: R.F	Drawn By: S.Y	Date: November 2020
Rev. 0	Scale: As Shown	Project No.: 20-265-400	Figure No.: 7D
	Image/Map Source: <i>Google Satellite Image</i>		





Legend

- Approx Property Boundary
- ⊗ Monitoring Well
- ⊗ Monitoring well (XCG 1995)
- Test Pit (XCG 1995)
- Test Pit (DS)
- Sample Met Applicable Standards

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	Title: GROUNDWATER CHARACTERIZATION – METALS AND ORPs				
Client: MANORWOOD HOMES INC.	Size: 8.5 x 11	Approved By: R.F	Drawn By: S.Y	Date: November 2020	
	Rev: 0	Scale: As Shown	Project No.: 20-265-400	Figure No.: 8A	
	Image/Map Source: Google Satellite Image				



Legend

- Approx Property Boundary
- Monitoring Well
- Monitoring well (XCG 1995)
- Test Pit (XCG 1995)
- Test Pit (DS)
- Sample Met Applicable Standards



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Project:

PHASE II ENVIRONMENTAL SITE ASSESSMENT
Town of the Blue Mountains, ON

Title:

GROUNDWATER CHARACTERIZATION – PHCs

Size:
8.5 x 11

Approved By:

R.F

Drawn By:

S.Y

Date:

November 2020

Rev:
0

Scale:

As Shown

Project No.:

20-265-400

Figure No.:

8B

Image/Map Source: Google Satellite Image





Legend

- Approx Property Boundary
-  Monitoring Well
-  Monitoring well (XCG 1995)
-  Test Pit (XCG 1995)
-  Test Pit (DS)
-  Sample Met Applicable Standards



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Client:

MANORWOOD HOMES INC.

Project:

PHASE II ENVIRONMENTAL SITE ASSESSMENT
Town of the Blue Mountains, ON

Title:

GROUNDWATER CHARACTERIZATION – VOCs

Size:
8.5 x 11

Approved By:

R.F

Drawn By:

S.Y

Date:

November 2020

Rev:
0

Scale:

As Shown

Project No.:

20-265-400

Figure No.:

8C

Image/Map Source: Google Satellite Image





Legend

- Approx Property Boundary
- ⊗ Monitoring Well
- ⊗ Monitoring well (XCG 1995)
- Test Pit (XCG 1995)
- Test Pit (DS)
- Sample Met Applicable Standards



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Client:

MANORWOOD HOMES INC.

Project:

PHASE II ENVIRONMENTAL SITE ASSESSMENT
Town of the Blue Mountains, ON

Title:

GROUNDWATER CHARACTERIZATION – PAHs

Size:
8.5 x 11

Approved By: R.F

Drawn By: S.Y

Date: November 2020

Rev:
0

Scale: As Shown

Project No.: 20-265-400

Figure No.: **8D**

Image/Map Source: Google Satellite Image





Tables



Table 1: Summary of Monitoring Well Installation and Groundwater Data

Well ID			BH4	BH5	BH20-1	BH20-2	BH20-3
Installed By:			XCG	XCG	DS	DS	DS
Installation Date:			12-Apr-95	12-Apr-95	01-Oct-20	01-Oct-20	01-Oct-20
Well Status:			Decommissioned	Decommissioned	Active	Active	Active
EastUTM17			NM	NM	543947	544010.1	544065.32
NorthUTM17			NM	NM	4934285	4934254	4934223.6
Inner Diameter	(mm)	50	50	50	50	50	
Surface Elevation	(masl)	186*	186*	186.20	185.90	186.80	
Bottom of Concrete Seal/Top of Bentonite Seal	mbgs	0.3	0.3	0.30	0.30	0.30	
	masl	185.7	185.7	185.90	185.60	186.50	
Bottom of Bentonite Seal/Top of Sand Pack	mbgs	0.5	0.5	2.10	2.10	1.80	
	masl	185.5	185.5	184.10	183.80	185.00	
Top of Well Screen	mbgs	2.5	2.5	2.40	2.40	2.40	
	masl	183.5	183.5	183.80	183.50	184.40	
Well Screen Length	m	3	3	3.10	3.10	3.10	
Bottom of Well Screen	mbgs	5.5	5.5	5.50	5.50	5.50	
	masl	180.5	180.5	180.70	180.40	181.30	
GW Monitoring							
06-Oct-20	Depth to GW	mbgs	5.47	3.98	4.30	2.30	3.30
	GW Elevation	masl	180.53	182.02	181.90	183.60	183.50

For Table Notes see **Notes for Soil and Groundwater Summary Tables**, included at the end of this Section.

* = The surface elevation for the monitoring wells installed by XCG is estimated from google earth.
A survey was not completed by the XCG investigation, and the monitoring wells are no longer present.



Table 2: Summary of Soil Samples Submitted for Chemical Analysis

Borehole ID	Sample No.	Sample Depth (mbgs)	Soil Description	Parameter Analyzed	APEC Investigated
BH20-1	SS2	0.8-1.4	Sand and Gravel	Metals and ORPs, PAHs	APEC-4, APEC-5
	SS7	4.6-5.2	Clayey Silt	PHCs, VOCs	APEC-4, APEC-5
BH20-2	SS1	0-0.6	Sand and Gravel	Metals and ORPs	APEC-5
	SS2	0.8-1.4	Sand and Gravel	PAHs	APEC-5
	SS5	3.0-3.7	Clayey Silt	PHCs, VOCs	APEC-5
BH20-3	SS1	0-0.6	Sand and Gravel	Metals and ORPs	APEC-5
	SS2	0.8-1.4	Sand and Gravel	PAHs	APEC-5
	SS7	6.1-6.7	Sand	PHCs, VOCs	APEC-5
TP1	TP1-A	0.9	Sand and Gravel	PAHs	APEC-6
	TP1-B	1.2-1.5	Sand and Gravel	PAHs	APEC-6
TP3-1	TP3-1A	0.6	Sand and Gravel	PAHs	APEC-4, APEC-5, APEC-6
	TP3-1A Dup1				
	TP3-1B	1.0-1.2	Sand and Gravel	PAHs	APEC-4, APEC-5, APEC-6
TP3-2	TP3-2	1.0-1.2	Fill	Metals and ORPs, PHCs, PAHs	APEC-5, APEC-6
TP5	TP5	1.0-1.2	Fill	Metals and ORPs, PHCs	APEC-5
TP6	TP6	0-0.3	Sand and Gravel	Metals and ORPs, PHCs	APEC-4, APEC-5
TP6 Dup2	TP6 Dup2			Metals and ORPs	
TP7	TP7	0-0.3	Sand and Gravel	Metals and ORPs, PHCs	APEC-4, APEC-5
TP8	TP8	0-0.3	Sand and Gravel	Metals and ORPs, PHCs	APEC-4, APEC-5

For Table Notes see **Notes for Soil and Groundwater Summary Tables**, included at the end of this Section.



Table 3: Summary of Groundwater Samples Submitted for Chemical Analysis

Well ID	Well Screen Interval (masl)			Sample Date	Parameter Analyzed	APEC Investigated
BH20-1	180.70	-	183.80	15-Oct-20	Metals and ORPs, PAHs, PHCs, VOCs	APEC-1
BH20-2	180.40	-	183.50	15-Oct-20	Metals and ORPs, PAHs, PHCs, VOCs	APEC-2
BH20-3	181.30	-	184.40	15-Oct-20	Metals and ORPs, PAHs, PHCs, VOCs	APEC-3

For Table Notes see **Notes for Soil and Groundwater Summary Tables**, included at the end of this Section.



Table 4: Summary of APECs Investigated

APEC	Description	PCOCs	Media	Boreholes Within APEC	Samples Analysed	Parameter Analyzed
APEC-1	West side of Property - attributed to western off-site potentially contaminating activities	Metals, PHCs, BTEX	Groundwater	BH20-1	BH20-1	Metals and ORPs, PAHs, PHCs, VOCs
APEC-2	Centre south portion of the Property	PHCs, VOCs, Metals	Groundwater	BH20-2	BH20-2	Metals and ORPs, PAHs, PHCs, VOCs
APEC-3	East side of the Property	Metals, As, Sb, Se, PHCs, VOCs, PAHs	Groundwater	BH20-3	BH20-3	Metals and ORPs, PAHs, PHCs, VOCs
APEC-4	Southern border of the Property	Metals, PHCs, BTEX, PAHs	Soil	TP3-1	TP3-1A	PAHs
					TP3-1A Dup1	
					TP3-1B	
				TP6	TP6	Metals and ORPs, PHCs, PAHs
				TP6 Dup2	TP6 Dup2	Metals and ORPs
				TP7	TP7	Metals and ORPs, PHCs, PAHs
				TP8	TP8	Metals and ORPs, PHCs, PAHs
APEC-5	Entire Property	Metals, As, Sb, Se, B-HWS, CN, EC, Cr (VI), Hg, low or high pH, SAR, PHCs, VOCs, PAHs	Soil	BH20-1	SS1	PAHs
					SS2	Metals and ORPs
					SS7	PHCs, VOCs
				BH20-2	SS1	Metals and ORPs
					SS2	PAHs
					SS5	PHCs, VOCs



Table 4: Summary of APECs Investigated

APEC	Description	PCOCs	Media	Boreholes Within APEC	Samples Analysed	Parameter Analyzed
APEC-5	Entire Property	Metals, As, Sb, Se, B-HWS, CN, EC, Cr (VI), Hg, low or high pH, SAR, PHCs, VOCs, PAHs	Soil	BH20-3	SS1	Metals and ORPs
					SS2	PAHs
					SS7	PHCs, VOCs
				TP3-1	TP3-1A	PAHs
					TP3-1A Dup1	
					TP3-1B	
				TP3-2	TP3-2	Metals and ORPs, PHCs, PAHs
				TP5	TP5	Metals and ORPs, PHCs, PAHs
				TP6	TP6	Metals and ORPs, PHCs, PAHs
				TP6 Dup2	TP6 Dup2	Metals and ORPs
APEC-6	Vicinity of previous test pits	PAHs	Soil	TP1	TP1-A	PAHs
					TP1-B	
				TP3-1	TP3-1A	PAHs
					TP3-1A Dup1	
					TP3-1B	
				TP3-2	TP3-2	PAHs

For Table Notes see **Notes for Soil and Groundwater Summary Tables**, included at the end of this Section



Table 5: Summary of Metals and ORPs in Soil

Parameter	MECP Table 2 RPI SCS	BH4	BH5	TP1	TP2	TP3	TP4	TP5	TP6	TP7	BH20-1 SS2
Date of Collection		13-Apr-95	13-Apr-95	13-Apr-95	13-Apr-95	13-Apr-95	13-Apr-95	13-Apr-95	13-Apr-95	13-Apr-95	Oct-5-20
Date Reported		25-Apr-95	25-Apr-95	25-Apr-95	25-Apr-95	25-Apr-95	25-Apr-95	25-Apr-95	25-Apr-95	25-Apr-95	Oct-14-2020
Sampling Depth (mbgs)		0.76	0.76	0-0.6	0-0.6	0-0.6	0-0.6	0-1.21	0-0.91	0-0.91	0.8-1.4
Analytical Report Reference No.		95-630-4, 3810	95-630-4, 3811	95-630-4, 3812	95-630-4, 3813	95-630-4, 3814	95-630-4, 3815	95-630-4, 3816	95-630-4, 3817	95-630-4, 3818	CA15940- OCT20 9
Antimony	7.5	<1	<1	<1	-	-	-	-	-	-	< 0.8
Arsenic	18	1	2	2	2	1	4	2	4.91	2.72	4.1
Barium	390	8.6	12.4	32.1	14.2	13.2	31.1	11.1	31.63	12.64	21
Beryllium	4	0.9	1.8	2	1	0.9	2.8	0.9	1.09	0.97	0.19
Boron (total)	120	-	-	-	-	-	-	-	-	-	7
Boron (Hot Water Soluble)	1.5	-	-	-	-	-	-	-	-	-	< 0.5
Cadmium	1.2	0.9	<0.3	<0.03	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.04
Chromium Total	160	8.6	10.6	8	14.2	10.4	10.4	9.4	7.64	7.78	8.5
Chromium VI	8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.2
Cobalt	22	3.4	4.4	3	4.1	3.8	7.5	3.4	2.18	2.92	3.5
Copper	140	8.6	10.6	8	11.2	12.3	19.8	7.7	19.63	10.7	12
Cyanide (CN-)	0.051	-	-	-	-	-	-	-	-	-	< 0.05
Electrical Conductivity (mS/cm)	0.7	117	164	81	41	53	50	46	126	52	0.13
Lead	120	4	4	36	8	12	15	7	51.27	9.73	4.2
Mercury	0.27	0.02	0.02	0.09	0.03	0.06	0.03	0.02	0.18	0.05	< 0.05
Molybdenum	6.9	<1	<1	<1	<1	<1	<1	<1	<1	<1	0.5
Nickel	100	5	6	15	5	7	10	5	5.45	3.89	8.3
Selenium	2.4	<1	<1	<1	<1	<1	<1	<1	<1	<1	< 0.7
Silver	20	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	< 0.05
Sodium Adsorption Ratio	5	0.12	0.08	0.16	0.11	0.08	0.17	0.09	0.08	0.09	0.2
Thallium	1	-	-	-	-	-	-	-	-	-	0.05
Uranium	23	-	-	-	-	-	-	-	-	-	0.41
Vanadium	86	7.7	9.8	9	9.2	10.4	12.2	7.7	9.82	7.78	9
Zinc	340	22.3	14.2	44.1	25.4	23.6	26.4	23.9	74.18	26.26	43
pH	NV	7.2	7.7	7.1	6.8	7	6.8	8.04	7.41	6.56	8.11

For Table Notes see **Notes for Soil and Groundwater Summary Tables**, included at the end of this Section



Table 5: Summary of Metals and ORPs in Soil

Parameter	MECP Table 2 RPI SCS	BH20-2 SS1	BH20-3 SS1	TP3-2	TP5	TP6	TP6 Dup2	TP7	TP8
Date of Collection		Oct-5-20	Oct-5-20	Oct-29-20	Oct-29-20	Oct-29-20	Oct-29-20	Oct-29-20	Oct-29-20
Date Reported		Oct-14-2020	Oct-14-2020	Nov-9-20	Nov-9-20	Nov-9-20	Nov-9-20	Nov-9-20	Nov-9-20
Sampling Depth (mbgs)		0-0.6	0-0.6	1.0-1.2	1.0-1.2	0-0.3	0-0.3	0-0.3	0-0.3
Analytical Report Reference No.		CA15940- OCT20 11	CA15940- OCT20 14	CA14932- OCT20 14	CA14932- OCT20 15	CA14932- OCT20 16	CA14932- OCT20 17	CA14932- OCT20 18	CA14932- OCT20 19
Antimony	7.5	< 0.8	< 0.8	< 0.8	< 0.8	0.9	0.9	< 0.8	< 0.8
Arsenic	18	3.9	4.7	4.4	2.9	9.5	9.2	16	4
Barium	390	27	31	35	26	61	58	50	36
Beryllium	4	0.32	0.24	0.3	0.3	0.4	0.37	0.26	0.27
Boron (total)	120	9	7	8	9	9	9	7	8
Boron (Hot Water Soluble)	1.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Cadmium	1.2	0.1	0.08	0.14	0.04	0.51	0.5	0.34	0.15
Chromium Total	160	13	9.9	11	11	12	11	12	12
Chromium VI	8	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Cobalt	22	6.6	4.8	5.5	5.1	5.6	5.2	4.6	5.6
Copper	140	26	20	24	17	60	59	31	30
Cyanide (CN-)	0.051	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Electrical Conductivity (mS/cm)	0.7	0.15	0.2	0.14	0.14	0.2	0.19	0.27	0.21
Lead	120	16	5.9	23	6.6	170	160	170	25
Mercury	0.27	< 0.05	< 0.05	< 0.05	< 0.05	0.35	0.36	0.15	< 0.05
Molybdenum	6.9	0.2	0.6	0.4	0.2	1.2	1.2	0.5	0.4
Nickel	100	15	11	13	11	16	17	11	13
Selenium	2.4	< 0.7	< 0.7	< 0.7	< 0.7	0.9	0.9	< 0.7	< 0.7
Silver	20	0.17	< 0.05	0.07	< 0.05	0.13	0.12	0.12	0.07
Sodium Adsorption Ratio	5	0.03	0.2	< 0.2	< 0.2	< 0.2	< 0.2	0.2	< 0.2
Thallium	1	0.09	0.07	0.09	0.08	0.22	0.21	0.1	0.09
Uranium	23	0.41	0.42	0.5	0.45	0.56	0.58	0.49	0.39
Vanadium	86	16	11	14	14	17	17	15	17
Zinc	340	46	42	64	40	190	180	200	88
pH	NV	7.74	7.81	7.08	7.52	7.64	7.61	7.66	7.58

For Table Notes see **Notes for Soil and Groundwa**



Table 6: Summary of PHCs in Soil

Parameter	MECP Table 2 RPI SCS	BH20-1 SS7	BH20-2 SS5	BH20-3 SS7	TP3-2	TP5	TP6	TP7	TP8
Date of Collection		Oct-5-20	Oct-5-20	Oct-5-20	Oct-29-20	Oct-29-20	Oct-29-20	Oct-29-20	Oct-29-20
Date Reported		Oct-14-2020	Oct-14-2020	Oct-14-2020	Nov-9-20	Nov-9-20	Nov-9-20	Nov-9-20	Nov-9-20
Sampling Depth (mbgs)		4.6-5.2	3.0-3.7	6.1-6.7	1.0-2.1	1.0-2.1	0-0.3	0-0.3	0-0.3
Analytical Report Reference No.		CA15940- OCT20 10	CA15940-OCT20 13	CA15940- OCT20 16	CA14932- OCT20 14	CA14932- OCT20 15	CA14932- OCT20 16	CA14932- OCT20 18	CA14932- OCT20 19
Benzene	0.21	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.07	< 0.02	< 0.02
Ethylbenzene	1.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.17	< 0.05	< 0.05
Toluene	2.3	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.51	0.06	< 0.05
Xylenes (Total)	3.1	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	1.25	< 0.05	< 0.05
F1 (C6-C10) -BTX	55	< 10	< 10	< 10	< 10	< 10	21	< 10	< 10
F2 (C10-C16)	98	11	< 10	20	< 10	< 10	20	< 10	< 10
F3 (C16-C34)	300	< 50	< 50	52	51	<50	157	194	81
F4 (C34-C50)	2800	< 50	< 50	< 50	<50	<50	125	251	55

For Table Notes see **Notes for Soil and Groundwater Summary Tables**, included at the end of this Section.



Table 7: Summary of VOCs in Soil

Parameter	MECP Table 2 RPI SCS	BH20-1 SS7	BH20-2 SS5	BH20-3 SS7
Date of Collection		Oct-5-20	Oct-5-20	Oct-5-20
Date Reported		Oct-14-2020	Oct-14-2020	Oct-14-2020
Sampling Depth (mbgs)		4.6-5.2	3.0-3.7	6.1-6.7
Analytical Report Reference No.		CA15940- OCT20 10	CA15940- OCT20 13	CA15940- OCT20 16
Tetrachloroethane, 1,1,1,2-	0.058	< 0.05	< 0.05	< 0.05
Trichloroethane, 1,1,1-	0.38	< 0.05	< 0.05	< 0.05
Tetrachloroethane, 1,1,2,2-	0.05	< 0.05	< 0.05	< 0.05
Trichloroethane, 1,1,2-	0.05	< 0.05	< 0.05	< 0.05
Dichloroethane, 1,1-	0.47	< 0.05	< 0.05	< 0.05
Dichloroethylene, 1,1-	0.05	< 0.05	< 0.05	< 0.05
Dichlorobenzene, 1,2-	1.2	< 0.05	< 0.05	< 0.05
Dichloroethane, 1,2-	0.05	< 0.05	< 0.05	< 0.05
Dichloropropane, 1,2-	0.05	< 0.05	< 0.05	< 0.05
Dichlorobenzene, 1,3-	4.8	< 0.05	< 0.05	< 0.05
Dichloropropene, 1,3-	0.05	< 0.05	< 0.05	< 0.05
Dichlorobenzene, 1,4-	0.083	< 0.05	< 0.05	< 0.05
Acetone	16	< 0.5	< 0.5	< 0.5
Bromomethane	0.05	< 0.05	< 0.05	< 0.05
Carbon Tetrachloride	0.05	< 0.05	< 0.05	< 0.05
Chlorobenzene	2.4	< 0.05	< 0.05	< 0.05
Chloroform	0.05	< 0.05	< 0.05	< 0.05
Dichloroethylene, 1,2-cis-	1.9	< 0.05	< 0.05	< 0.05
Dichloroethylene, 1,2-trans-	0.084	< 0.05	< 0.05	< 0.05
Dichlorodifluoromethane	16	< 0.05	< 0.05	< 0.05
Ethylene dibromide	0.05	< 0.05	< 0.05	< 0.05
Methyl Ethyl Ketone	16	< 0.5	< 0.5	< 0.5
Methyl Isobutyl Ketone	1.7	< 0.5	< 0.5	< 0.5
Methyl tert-Butyl Ether (MTBE)	0.75	< 0.05	< 0.05	< 0.05
Methylene Chloride	0.1	< 0.05	< 0.05	< 0.05
Hexane (n)	2.8	< 0.05	< 0.05	< 0.05



Table 7: Summary of VOCs in Soil

Parameter	MECP Table 2 RPI SCS	BH20-1 SS7	BH20-2 SS5	BH20-3 SS7
Date of Collection		Oct-5-20	Oct-5-20	Oct-5-20
Date Reported		Oct-14-2020	Oct-14-2020	Oct-14-2020
Sampling Depth (mbgs)		4.6-5.2	3.0-3.7	6.1-6.7
Analytical Report Reference No.		CA15940- OCT20 10	CA15940- OCT20 13	CA15940- OCT20 16
Styrene	0.7	< 0.05	< 0.05	< 0.05
Tetrachloroethylene	0.28	< 0.05	< 0.05	< 0.05
Trichloroethylene	0.061	< 0.05	< 0.05	< 0.05
Trichlorofluoromethane	4	< 0.05	< 0.05	< 0.05
Vinyl Chloride	0.02	< 0.02	< 0.02	< 0.02

For Table Notes see **Notes for Soil and Groundwater Summary Tables**, included at the end of this Section



Table 8: Summary of PAHs in Soil

Parameter	MECP Table 2 RPI SCS	BH4	TP1	TP3	TP6	BH20-2 SS2	BH20-3 SS2	BH20-1 SS1	TP1-A
Date of Collection		13-Apr-95	13-Apr-95	13-Apr-95	13-Apr-95	Oct-5-20	Oct-5-20	Oct-5-20	Oct-29-20
Date Reported		25-Apr-95	25-Apr-95	25-Apr-95	25-Apr-95	Oct-14-2020	Oct-14-2020	Oct-14-2020	Nov-9-20
Sampling Depth (mbgs)		0.76	0-0.6	0-0.6	0-0.91	0.8-1.4	0.8-1.4	0-0.6	0.9
Analytical Report Reference No.		95-630-4, 3810	95-630-4, 3812	95-630-4, 3814	95-630-4, 3817	CA15940-OCT20 12	CA15940-OCT20 15	CA15940- OCT20 17	CA14932- OCT20 9
Methylnaphthalene, 2-(1-)	0.99	-	-	-	-	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	7.9	<0.007	0.015	<0.007	<0.007	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	0.15	<0.007	<0.007	<0.007	<0.007	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	0.67	<0.007	0.032	0.022	0.2	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	0.5	<0.007	0.52	0.051	0.6	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	0.3	<0.007	0.65	0.084	1.1	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b+j)fluoranthene	0.78	<0.007	0.67	0.11	1.4	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(g,h,i)perylene	6.6	<0.007	0.62	0.062	0.59	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	0.78	<0.007	0.31	0.038	0.49	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	7	<0.007	0.58	0.068	0.95	< 0.05	< 0.05	< 0.05	< 0.05
Dibenzo(a,h)anthracene	0.1	<0.007	0.19	0.025	0.23	< 0.06	< 0.06	< 0.06	< 0.06
Fluoranthene	0.69	<0.007	0.99	0.14	1.8	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	62	<0.007	0.014	0.007	<0.007	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	0.38	<0.007	0.66	0.11	1.2	< 0.1	< 0.1	< 0.1	< 0.1
Naphthalene	0.6	<0.007	0.03	<0.007	<0.007	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	6.2	<0.007	0.24	0.085	1.1	< 0.05	< 0.05	< 0.05	< 0.05
Pyrene	78	<0.007	0.83	0.11	1.4	< 0.05	< 0.05	< 0.05	< 0.05

For Table Notes see **Notes for Soil and Groundwater Summary Tables**, included at the end of this Section.



Table 8: Summary of PAHs in Soil

Parameter	MECP Table 2 RPI SCS	TP1-B	TP3-1A	TP3-1B	TP3-1A Dup1	TP3-2	TP5	TP6	TP7	TP8
Date of Collection		Oct-29-20	Oct-29-20	Oct-29-20	Oct-29-20	Oct-29-20	Oct-29-20	Oct-29-20	Oct-29-20	Oct-29-20
Date Reported		Nov-9-20	Nov-9-20	Nov-9-20	Nov-9-20	Nov-9-20	Nov-9-20	Nov-9-20	Nov-9-20	Nov-9-20
Sampling Depth (mbgs)		1.2-1.5	0.6	1.0-1.2	0.6	1.0-1.2	1.0-1.2	0-0.3	0-0.3	0-0.3
Analytical Report Reference No.		CA14932- OCT20 10	CA14932- OCT20 11	CA14932- OCT20 12	CA14932-OCT20 13	CA14932- OCT20 14	CA14932- OCT20 15	CA14932- OCT20 16	CA14932- OCT20 18	CA14932- OCT20 19
Methylnaphthalene, 2-(1-)	0.99	< 0.05	< 0.05	< 0.05	< 0.05	0.1	< 0.05	4.51	0.85	0.21
Acenaphthene	7.9	< 0.05	< 0.05	< 0.05	< 0.05	0.05	< 0.05	0.08	0.2	0.28
Acenaphthylene	0.15	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.11	0.11	< 0.05
Anthracene	0.67	< 0.05	< 0.05	< 0.05	< 0.05	0.1	< 0.05	0.2	0.44	0.66
Benzo(a)anthracene	0.5	< 0.05	< 0.05	< 0.05	< 0.05	0.3	< 0.05	0.8	1.19	1.86
Benzo(a)pyrene	0.3	< 0.05	< 0.05	< 0.05	< 0.05	0.3	< 0.05	0.94	1.15	1.73
Benzo(b+j)fluoranthene	0.78	< 0.05	< 0.05	< 0.05	< 0.05	0.43	< 0.05	1.49	1.75	2.27
Benzo(g,h,i)perylene	6.6	< 0.1	< 0.1	< 0.1	< 0.1	0.22	< 0.1	0.55	0.48	0.71
Benzo(k)fluoranthene	0.78	< 0.05	< 0.05	< 0.05	< 0.05	0.16	< 0.05	0.43	0.49	0.98
Chrysene	7	< 0.05	< 0.05	< 0.05	< 0.05	0.31	< 0.05	0.91	1.1	1.66
Dibenzo(a,h)anthracene	0.1	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.12	0.12	0.19
Fluoranthene	0.69	< 0.05	< 0.05	< 0.05	< 0.05	0.73	< 0.05	1.57	2.52	3.42
Fluorene	62	< 0.05	< 0.05	< 0.05	< 0.05	0.07	< 0.05	0.07	0.24	0.3
Indeno(1,2,3-cd)pyrene	0.38	< 0.1	< 0.1	< 0.1	< 0.1	0.18	< 0.1	0.43	0.42	0.67
Naphthalene	0.6	< 0.05	< 0.05	< 0.05	< 0.05	0.08	< 0.05	1.64	0.39	0.15
Phenanthrene	6.2	< 0.05	< 0.05	< 0.05	< 0.05	0.68	< 0.05	1.45	2.24	3.46
Pyrene	78	< 0.05	< 0.05	< 0.05	< 0.05	0.57	< 0.05	1.31	2.12	3.06

For Table Notes see **Notes for Soil and Groundwater Summary Tables**, included at the end of this Section.



Table 9: Summary of Metals and ORPs in Groundwater

Parameter	MECP Table 2 RPI SCS	BH4	BH5	BH20-1	BH20-2	BH20-3
Date of Collection		13-Apr-95	13-Apr-95	15-Oct-20	15-Oct-20	15-Oct-20
Date Reported		25-Apr-95	25-Apr-95	22-Oct-20	22-Oct-20	22-Oct-20
Screen Interval (mbgs)		2.5-5.5	2.5-5.5	2.4-5.5	2.4-5.5	2.4-5.5
Analytical Report Reference No.		95-630-4, 3803	95-630-4, 3804	CA14445- OCT20 7	CA14445- OCT20 8	CA14445- OCT20 9
Antimony	6	-	-	0.15	< 0.09	0.3
Arsenic	25	-	-	< 0.2	< 0.2	0.7
Barium	1000	-	-	43.7	31.2	58.2
Beryllium	4	-	-	< 0.007	< 0.007	< 0.007
Boron (total)	5000	-	-	15	17	85
Cadmium	2.7	-	-	< 0.003	0.005	< 0.003
Chromium Total	50	-	-	0.14	3.94	0.11
Chromium VI	25	-	-	< 0.2	< 0.2	< 0.2
Cobalt	3.8	-	-	0.12	0.672	0.802
Copper	87	-	-	1.9	3.4	2.4
Cyanide (CN-)	66	-	-	< 2	< 2	< 2
Lead	10	<0.02	<0.02	0.1	0.6	0.09
Mercury	0.29	-	-	< 0.01	< 0.01	< 0.01
Molybdenum	70	-	-	0.32	0.88	4.8
Nickel	100	-	-	0.3	1.7	2.2
Selenium	10	-	-	0.04	< 0.04	0.14
Silver	1.5	-	-	< 0.05	< 0.05	< 0.05
Thallium	2	-	-	< 0.005	0.011	0.029
Uranium	20	-	-	0.008	0.596	1.37
Vanadium	6.2	-	-	0.07	0.53	0.25
Zinc	1100	0.02	0.01	< 2	5	< 2
pH	NV	8.3	8.1	7.35	7.64	7.63

For Table Notes see **Notes for Soil and Groundwater Summary Tables**, included at the end of this Section.



Table 10: Summary of PHCs in Groundwater

Parameter	MECP Table 2 RPI SCS	BH4	BH5	BH20-1	BH20-2	BH20-3
Date of Collection		13-Apr-95	13-Apr-95	15-Oct-20	15-Oct-20	15-Oct-20
Date Reported		25-Apr-95	25-Apr-95	22-Oct-20	22-Oct-20	22-Oct-20
Screen Interval (mbgs)		2.5-5.5	2.5-5.5	2.4-5.5	2.4-5.5	2.4-5.5
Analytical Report Reference No.		95-630-4, 3803	95-630-4, 3804	CA14445- OCT20 7	CA14445- OCT20 8	CA14445- OCT20 9
Benzene	5	<0.0005	0.0016	< 0.5	< 0.5	< 0.5
Ethylbenzene	2.4	<0.0005	0.0003	< 0.5	< 0.5	< 0.5
Toluene	24	<0.0005	0.0015	< 0.5	< 0.5	< 0.5
Xylenes (Total)	300	<0.0005	0.0002	< 0.5	< 0.5	< 0.5
F1 (C6 to C10) minus BTEX	750	-	-	<25	<25	<25
F2 (C10 to C16)	150	-	-	<100	<100	<100
F3 (C16 to C34)	500	-	-	<200	<200	<200
F4 (C34 to C50) minus PAHs	500	-	-	<200	<200	<200

For Table Notes see **Notes for Soil and Groundwater Summary Tables**, included at the end of this Section.



Table 11: Summary of VOCs in Groundwater

Parameter	MECP Table 2 RPI SCS	BH20-1	BH20-2	BH20-3
Date of Collection		15-Oct-20	15-Oct-20	15-Oct-20
Date Reported		22-Oct-20	22-Oct-20	22-Oct-20
Screen Interval (mbgs)		2.4-5.5	2.4-5.5	2.4-5.5
Analytical Report Reference No.		CA14445- OCT20 7	CA14445- OCT20 8	CA14445- OCT20 9
Tetrachloroethane, 1,1,1,2-	1.1	< 0.5	< 0.5	< 0.5
Trichloroethane, 1,1,1-	200	< 0.5	< 0.5	< 0.5
Tetrachloroethane, 1,1,2,2-	1	< 0.5	< 0.5	< 0.5
Trichloroethane, 1,1,2-	4.7	< 0.5	< 0.5	< 0.5
Dichloroethane, 1,1-	5	< 0.5	< 0.5	< 0.5
Dichloroethylene, 1,1-	1.6	< 0.5	< 0.5	< 0.5
Dichlorobenzene, 1,2-	3	< 0.5	< 0.5	< 0.5
Dichloroethane, 1,2-	1.6	< 0.5	< 0.5	< 0.5
Dichloropropane, 1,2-	5	< 0.5	< 0.5	< 0.5
Dichlorobenzene, 1,3-	59	< 0.5	< 0.5	< 0.5
Dichloropropene, 1,3-	0.5	< 0.5	< 0.5	< 0.5
Dichlorobenzene, 1,4-	1	< 0.5	< 0.5	< 0.5
Acetone	2700	< 30	< 30	< 30
Bromomethane	0.89	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride	0.79	< 0.2	< 0.2	< 0.2
Chlorobenzene	30	< 0.5	< 0.5	< 0.5
Chloroform	2.4	< 0.5	< 0.5	< 0.5
Dichloroethylene, 1,2-cis-	1.6	< 0.5	< 0.5	< 0.5
Dichloroethylene, 1,2-trans-	1.6	< 0.5	< 0.5	< 0.5
Dichlorodifluoromethane	590	< 2	< 2	< 2
Ethylene dibromide	0.2	< 0.2	< 0.2	< 0.2
Methyl Ethyl Ketone	1800	< 20	< 20	< 20
Methyl Isobutyl Ketone	640	< 20	< 20	< 20
Methyl tert-Butyl Ether (MTBE)	15	< 2	< 2	< 2
Methylene Chloride	50	< 0.5	< 0.5	< 0.5



Table 11: Summary of VOCs in Groundwater

Parameter	MECP Table 2 RPI SCS	BH20-1	BH20-2	BH20-3
Date of Collection		15-Oct-20	15-Oct-20	15-Oct-20
Date Reported		22-Oct-20	22-Oct-20	22-Oct-20
Screen Interval (mbgs)		2.4-5.5	2.4-5.5	2.4-5.5
Analytical Report Reference No.		CA14445- OCT20 7	CA14445- OCT20 8	CA14445- OCT20 9
Hexane (n)	51	< 1	< 1	< 1
Styrene	5.4	< 0.5	< 0.5	< 0.5
Tetrachloroethylene	1.6	< 0.5	< 0.5	< 0.5
Trichloroethylene	1.6	< 0.5	< 0.5	< 0.5
Trichlorofluoromethane	150	< 5	< 5	< 5
Vinyl Chloride	0.5	< 0.2	< 0.2	< 0.2

For Table Notes see **Notes for Soil and Groundwater Summary Tables**, included at the end of this Section.

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Table 12: Summary of PAHs in Groundwater

Parameter	MECP Table 2 RPI SCS	BH4	BH20-1	BH20-2	BH20-3
Date of Collection		13-Apr-95	15-Oct-20	15-Oct-20	15-Oct-20
Date Reported		25-Apr-95	22-Oct-20	22-Oct-20	22-Oct-20
Screen Interval (mbgs)		2.5-5.5	2.4-5.5	2.4-5.5	2.4-5.5
Analytical Report Reference No.		95-630-4, 3803	CA14445- OCT20 7	CA14445- OCT20 8	CA14445- OCT20 9
Methylnaphthalene, 2-(1-)	3.2	<0.001	< 0.5	< 0.5	< 0.5
Acenaphthene	4.1	<0.001	< 0.1	< 0.1	< 0.1
Acenaphthylene	1	<0.001	< 0.1	< 0.1	< 0.1
Anthracene	2.4	<0.001	< 0.1	< 0.1	< 0.1
Benz(a)anthracene	1	<0.001	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	0.01	<0.001	< 0.01	< 0.01	< 0.01
Benzo(b+j)fluoranthene	0.1	<0.001	< 0.1	< 0.1	< 0.1
Benzo(g,h,i)perylene	0.2	<0.001	< 0.2	< 0.2	< 0.2
Benzo(k)fluoranthene	0.1	<0.001	< 0.1	< 0.1	< 0.1
Chrysene	0.1	<0.001	< 0.1	< 0.1	< 0.1
Dibenz(a,h)anthracene	0.2	<0.001	< 0.1	< 0.1	< 0.1
Fluoranthene	0.41	<0.001	< 0.1	< 0.1	< 0.1
Fluorene	120	<0.001	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-cd)pyrene	0.2	<0.001	< 0.2	< 0.2	< 0.2
Naphthalene	11	<0.001	< 0.5	< 0.5	< 0.5
Phenanthrene	1	<0.001	< 0.1	< 0.1	< 0.1
Pyrene	4.1	<0.001	< 0.1	< 0.1	< 0.1

For Table Notes see **Notes for Soil and Groundwater Summary Tables**, included at the end of this Section.



Table 13: Summary of Maximum Concentrations in Soil

	Parameter	Standard	Maximum Concentration	Location
Metals and ORPs	Antimony	7.5	0.9	TP6
	Arsenic	18	16	TP7
	Barium	390	61	TP6
	Beryllium	4	0.4	TP6
	Boron (total)	120	9	BH20-2 SS1
	Boron (Hot Water Soluble)	1.5	< 0.5	All Samples
	Cadmium	1.2	0.51	TP6
	Chromium Total	160	13	BH20-2 SS1
	Chromium VI	8	< 0.2	All Samples
	Cobalt	22	6.6	BH20-2 SS1
	Copper	140	60	TP6
	Cyanide (CN ⁻)	0.051	< 0.05	All Samples
	Electrical Conductivity (mS/cm)	0.7	0.27	TP7
	Lead	120	170	TP6
	Mercury	0.27	0.36	TP6 Dup2
	Molybdenum	6.9	1.2	TP6
	Nickel	100	17	TP6 Dup2
	Selenium	2.4	0.9	TP6
	Silver	20	0.17	BH20-2 SS1
	Sodium Adsorption Ratio	5	0.2	BH20-1 SS2
	Thallium	1	0.22	TP6
	Uranium	23	0.58	TP6 Dup2
	Vanadium	86	17	TP6
	Zinc	340	200	TP7
	pH	NV	8.11	BH20-1 SS2
PHCs	Benzene	0.21	0.07	TP6
	Ethylbenzene	1.1	0.17	TP6
	Toluene	2.3	0.51	TP6
	Xylenes (Total)	3.1	1.25	TP6
	F1 (C6-C10) -BTEX	55	21	TP6
	F2 (C10-C16)	98	20	BH20-3 SS7
	F3 (C16-C34)	300	194	TP7



Table 13: Summary of Maximum Concentrations in Soil

	Parameter	Standard	Maximum Concentration	Location
	F4 (C34-C50)	2800	251	TP7
VOCs	Tetrachloroethane, 1,1,1,2-	0.058	< 0.05	All Samples
	Trichloroethane, 1,1,1-	0.38	< 0.05	All Samples
	Tetrachloroethane, 1,1,2,2-	0.05	< 0.05	All Samples
	Trichloroethane, 1,1,2-	0.05	< 0.05	All Samples
	Dichloroethane, 1,1-	0.47	< 0.05	All Samples
	Dichloroethylene, 1,1-	0.05	< 0.05	All Samples
	Dichlorobenzene, 1,2-	1.2	< 0.05	All Samples
	Dichloroethane, 1,2-	0.05	< 0.05	All Samples
	Dichloropropane, 1,2-	0.05	< 0.05	All Samples
	Dichlorobenzene, 1,3-	4.8	< 0.05	All Samples
	Dichloropropene, 1,3-	0.05	< 0.05	All Samples
	Dichlorobenzene, 1,4-	0.083	< 0.05	All Samples
	Acetone	16	< 0.5	All Samples
	Bromomethane	0.05	< 0.05	All Samples
	Carbon Tetrachloride	0.05	< 0.05	All Samples
	Chlorobenzene	2.4	< 0.05	All Samples
	Chloroform	0.05	< 0.05	All Samples
	Dichloroethylene, 1,2-cis-	1.9	< 0.05	All Samples
	Dichloroethylene, 1,2-trans-	0.084	< 0.05	All Samples
	Dichlorodifluoromethane	16	< 0.05	All Samples
	Ethylene dibromide	0.05	< 0.05	All Samples
	Methyl Ethyl Ketone	16	< 0.5	All Samples
	Methyl Isobutyl Ketone	1.7	< 0.5	All Samples
	Methyl tert-Butyl Ether (MTBE)	0.75	< 0.05	All Samples
	Methylene Chloride	0.1	< 0.05	All Samples
	Hexane (n)	2.8	< 0.05	All Samples
	Styrene	0.7	< 0.05	All Samples
	Tetrachloroethylene	0.28	< 0.05	All Samples
	Trichloroethylene	0.061	< 0.05	All Samples
	Trichlorofluoromethane	4	< 0.05	All Samples
	Vinyl Chloride	0.02	< 0.02	All Samples



Table 13: Summary of Maximum Concentrations in Soil

Parameter		Standard	Maximum Concentration	Location
PAHs	Methylnaphthalene, 2-(1-)	0.99	4.51	TP6
	Acenaphthene	7.9	0.28	TP8
	Acenaphthylene	0.15	0.11	TP6
	Anthracene	0.67	0.66	TP8
	Benzo(a)anthracene	0.5	1.86	TP8
	Benzo(a)pyrene	0.3	1.73	TP8
	Benzo(b+j)fluoranthene	0.78	2.27	TP8
	Benzo(g,h,i)perylene	6.6	0.71	TP8
	Benzo(k)fluoranthene	0.78	0.98	TP8
	Chrysene	7	1.66	TP8
	Dibenzo(a,h)anthracene	0.1	0.19	TP8
	Fluoranthene	0.69	3.42	TP8
	Fluorene	62	0.3	TP8
	Indeno(1,2,3-cd)pyrene	0.38	0.67	TP8
	Naphthalene	0.6	1.64	TP6
	Phenanthrene	6.2	3.46	TP8
	Pyrene	78	3.06	TP8



Table 14: Summary of Maximum Concentrations in Groundwater

	Parameter	Standard	Maximum Concentration	Location
Metals and ORPs	Antimony	6	0.3	BH20-3
	Arsenic	25	0.7	BH20-3
	Barium	1000	58.2	BH20-3
	Beryllium	4	< 0.007	All Samples
	Boron (total)	5000	85	BH20-3
	Cadmium	2.7	0.005	BH20-2
	Chromium Total	50	3.94	BH20-2
	Chromium VI	25	< 0.2	All Samples
	Cobalt	3.8	0.802	BH20-3
	Copper	87	3.4	BH20-2
	Cyanide (CN-)	66	< 2	All Samples
	Lead	10	0.6	BH20-2
	Mercury	0.29	< 0.01	All Samples
	Molybdenum	70	4.8	BH20-3
	Nickel	100	2.2	BH20-3
	Selenium	10	0.14	BH20-3
	Silver	1.5	< 0.05	All Samples
	Thallium	2	0.029	BH20-3
	Uranium	20	1.37	BH20-3
	Vanadium	6.2	0.53	BH20-2
	Zinc	1100	5	BH20-2
	pH	NV	7.64	BH20-2
PHCs	Benzene	5	< 0.5	All Samples
	Ethylbenzene	2.4	< 0.5	All Samples
	Toluene	24	< 0.5	All Samples
	Xylenes (Total)	300	< 0.5	All Samples
	F1 (C6 to C10) minus BTEX	750	<25	All Samples
	F2 (C10 to C16)	150	<100	All Samples
	F3 (C16 to C34)	500	<200	All Samples
	F4 (C34 to C50) minus PAHs	500	<200	All Samples
	Tetrachloroethane, 1,1,1,2-	1.1	< 0.5	All Samples
	Trichloroethane, 1,1,1-	200	< 0.5	All Samples



Table 14: Summary of Maximum Concentrations in Groundwater

	Parameter	Standard	Maximum Concentration	Location
VOCs	Tetrachloroethane, 1,1,2,2-	1	< 0.5	All Samples
	Trichloroethane, 1,1,2-	4.7	< 0.5	All Samples
	Dichloroethane, 1,1-	5	< 0.5	All Samples
	Dichloroethylene, 1,1-	1.6	< 0.5	All Samples
	Dichlorobenzene, 1,2-	3	< 0.5	All Samples
	Dichloroethane, 1,2-	1.6	< 0.5	All Samples
	Dichloropropane, 1,2-	5	< 0.5	All Samples
	Dichlorobenzene, 1,3-	59	< 0.5	All Samples
	Dichloropropene, 1,3-	0.5	< 0.5	All Samples
	Dichlorobenzene, 1,4-	1	< 0.5	All Samples
	Acetone	2700	< 30	All Samples
	Bromomethane	0.89	< 0.5	All Samples
	Carbon Tetrachloride	0.79	< 0.2	All Samples
	Chlorobenzene	30	< 0.5	All Samples
	Chloroform	2.4	< 0.5	All Samples
	Dichloroethylene, 1,2-cis-	1.6	< 0.5	All Samples
	Dichloroethylene, 1,2-trans-	1.6	< 0.5	All Samples
	Dichlorodifluoromethane	590	< 2	All Samples
	Ethylene dibromide	0.2	< 0.2	All Samples
	Methyl Ethyl Ketone	1800	< 20	All Samples
	Methyl Isobutyl Ketone	640	< 20	All Samples
	Methyl tert-Butyl Ether (MTBE)	15	< 2	All Samples
	Methylene Chloride	50	< 0.5	All Samples
	Hexane (n)	51	< 1	All Samples
	Styrene	5.4	< 0.5	All Samples
	Tetrachloroethylene	1.6	< 0.5	All Samples
	Trichloroethylene	1.6	< 0.5	All Samples
	Trichlorofluoromethane	150	< 5	All Samples
	Vinyl Chloride	0.5	< 0.2	All Samples
	Methylnaphthalene, 2-(1-)	3.2	< 0.5	All Samples
	Acenaphthene	4.1	< 0.1	All Samples
	Acenaphthylene	1	< 0.1	All Samples



Table 14: Summary of Maximum Concentrations in Groundwater

	Parameter	Standard	Maximum Concentration	Location
PAHs	Anthracene	2.4	< 0.1	All Samples
	Benz(a)anthracene	1	< 0.1	All Samples
	Benzo(a)pyrene	0.01	< 0.01	All Samples
	Benzo(b+j)fluoranthene	0.1	< 0.1	All Samples
	Benzo(g,h,i)perylene	0.2	< 0.2	All Samples
	Benzo(k)fluoranthene	0.1	< 0.1	All Samples
	Chrysene	0.1	< 0.1	All Samples
	Dibenz(a,h)anthracene	0.2	< 0.1	All Samples
	Fluoranthene	0.41	< 0.1	All Samples
	Fluorene	120	< 0.1	All Samples
	Indeno(1,2,3-cd)pyrene	0.2	< 0.2	All Samples
	Naphthalene	11	< 0.5	All Samples
	Phenanthrene	1	< 0.1	All Samples
	Pyrene	4.1	< 0.1	All Samples

For Table Notes see **Notes for Soil and Groundwater Summary Tables**, included at the end of this Section

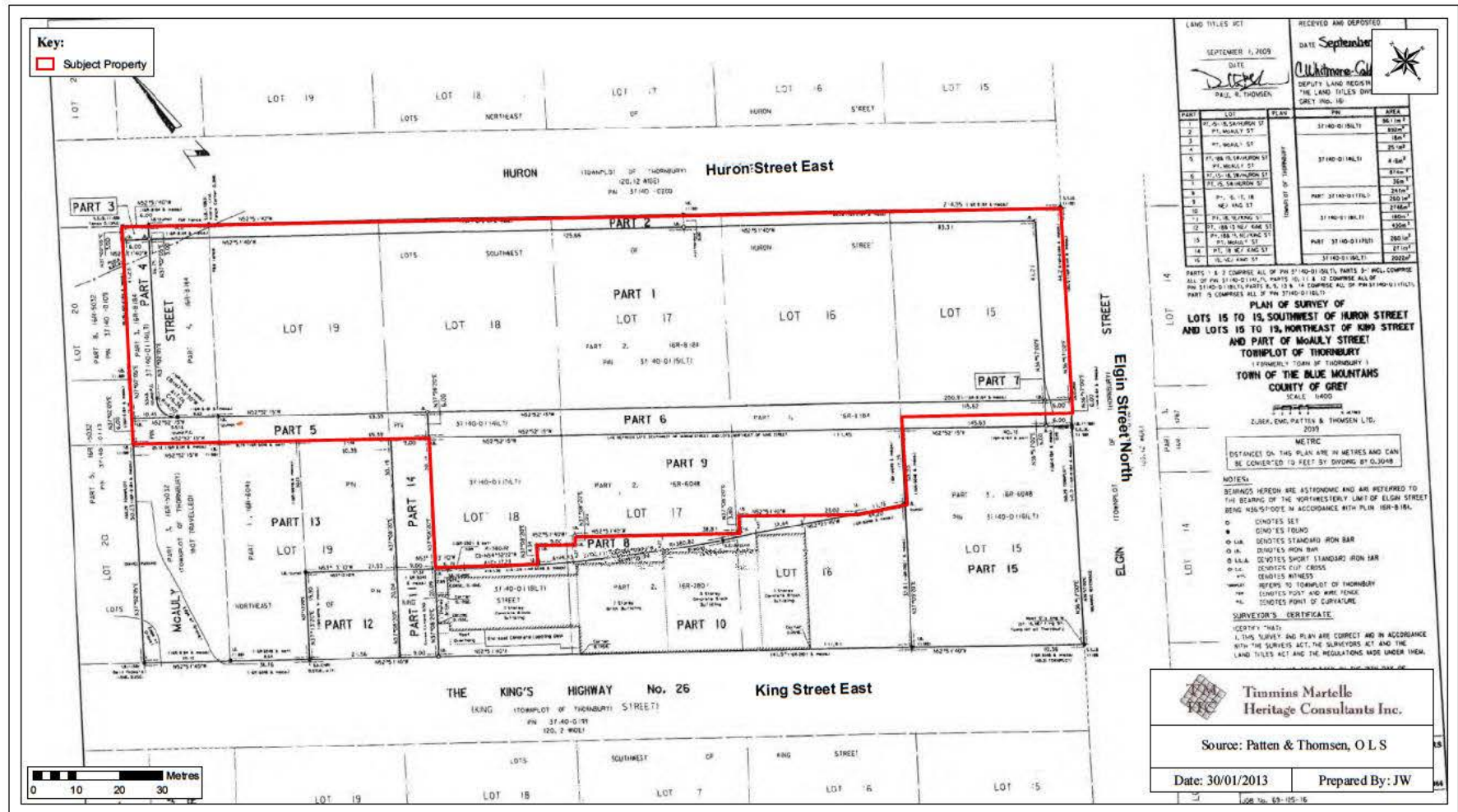


Notes for Soil and Groundwater Summary Tables

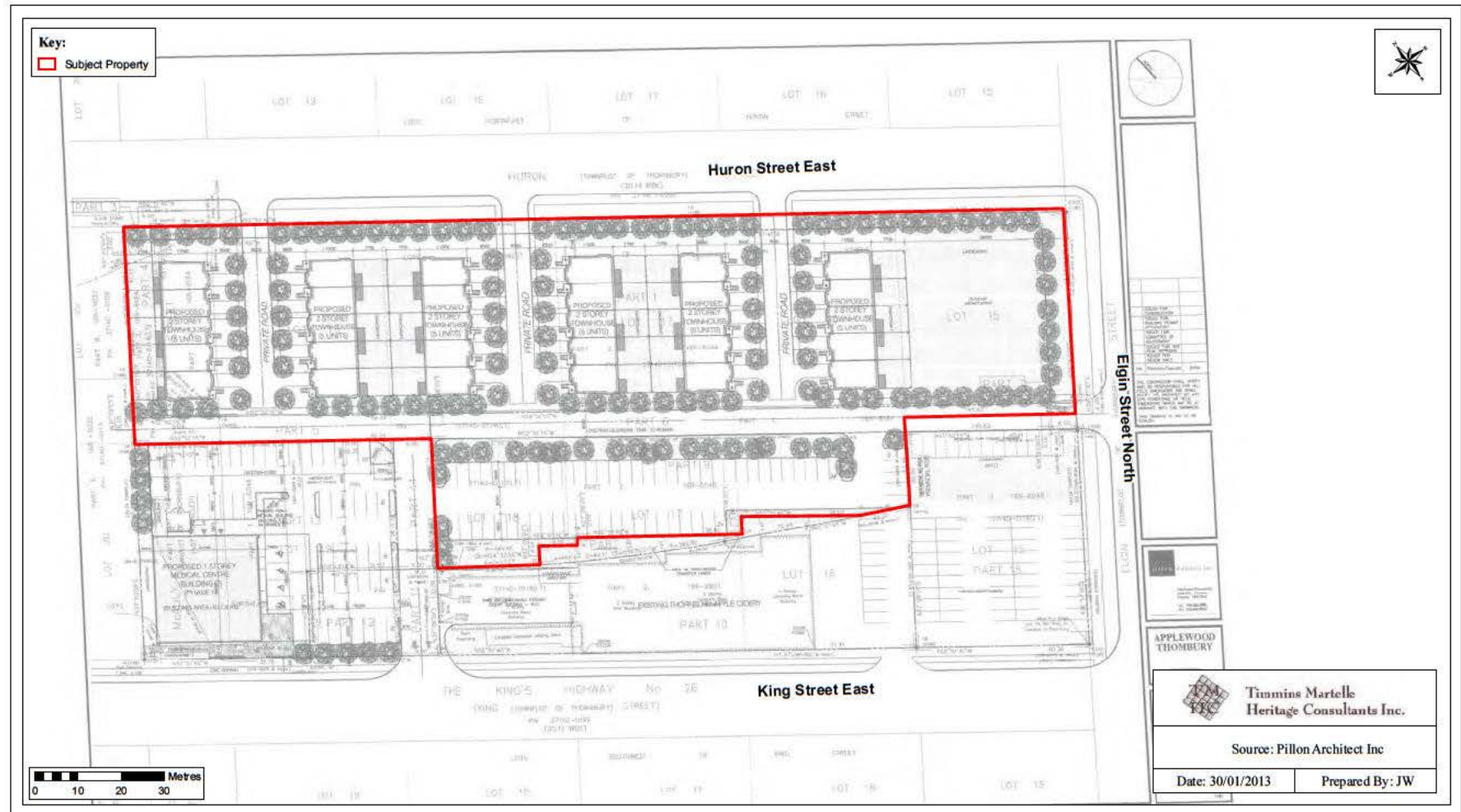
	For soil and groundwater analytical results, concentration exceeds the applicable Standards.
	For soil and groundwater analytical results, laboratory detection limits exceed the applicable Standards.
BTEX	Benzene, Toluene, Ethylbenzene, Xylene
masl	Meters above sea level
MECP Table 2 RPI SCS	Generic Condition Standards in a Potable Groundwater Condition for Residential/Parkland/Institutional Use with coarse textured soils as contained in Table 2 of the "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", published by the MECP on April 15, 2011.
mbgs	Meters below ground surface
NM	Not Monitored
NA	Not Available
OCPs	Organochlorine Pesticides
PAH	Polyaromatic Hydrocarbon
PHC	Petroleum Hydrocarbon
Units	Units for all soil analyses are in µg/g (ppm) unless otherwise indicated
Units	Units for all groundwater analyses are in µg/L (ppb) unless otherwise indicated



Appendix A



Map 9: Proponent Map Defining the Subject Property- Survey Plan



Map 10: Proponent Map Defining the Subject Property- Site Plan



Appendix B

PROJECT: Phase II ESA

CLIENT: Manorwood Homes Inc.

PROJECT LOCATION: Thornbury, Ontario

DATUM: Geodetic

BOREHOLE LOCATION: N 4934285.098 E 543946.978

DRILLING DATA

Method: Hollow Stem Augers

Diameter: 200mm

Date: Oct/01/2020

REF. NO.: 20-265-400

ENCL NO.: 2

SOIL PROFILE			SAMPLES			GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT				PLASTIC LIMIT W _p	NATURAL MOISTURE CONTENT W	LIQUID LIMIT W _L	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m ³)	METHANE AND GRAIN SIZE DISTRIBUTION (%)						
(m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m			SHEAR STRENGTH (kPa)									WATER CONTENT (%)			GR	SA	SI	CL
ELEV DEPTH																							
186.2								20	40	60	80	100											
186.1	TOPSOIL: 50mm																						
	POSSIBLE ILLUVIAL DEPOSIT: sand and gravel with cobbles, brown, moist, compact		1	SS	10		186																
			2	SS	27		185																
			3	SS	20																		
			4	SS	29		184																
			5	SS	11		183																
	trace silt, wet		6	SS	14		182																
	saturated		7	SS	12		181																
181.0	CLAYEY SILT: grey, wet, soft		8	SS	5		180																
5.2																							
	sandy at 5.8m		9	SS	3		179																
			10	VANE																			
178.7	END OF BOREHOLE:																						
7.5	Notes: 1) 50 mm diameter monitoring well installed upon completion 2) Water level Readings: Date: Oct 6, 2020 Water Depth (mbgs) 4.33																						

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES

+ 3, x 3: Numbers refer to Sensitivity

○ = 3% Strain at Failure

PROJECT: Phase II ESA

CLIENT: Manorwood Homes Inc.

PROJECT LOCATION: Thornbury, Ontario

DATUM: Geodetic

BOREHOLE LOCATION: N 4934254.246 E 544010.114

DRILLING DATA

Method: Hollow Stem Augers

Diameter: 200mm

Date: Oct/01/2020

REF. NO.: 20-265-400

ENCL NO: 3

[illegible]

GROUNDWATER ELEVATIONS

Measurement

GRAPH
NOTES

+3, ×3: Numbers refer to Sensitivity

○ $\epsilon = 3\%$ Strain at Failure

DS SOIL LOG 20-265-400.GPJ DS.GDT 11/11/20

PROJECT: Phase II ESA

CLIENT: Manorwood Homes Inc.

PROJECT LOCATION: Thornbury, Ontario

DATUM: Geodetic

BOREHOLE LOCATION: N 4934223.603 E 544065.324

DRILLING DATA

Method: Hollow Stem Augers

Diameter: 200mm

Date: Oct/02/2020

REF. NO.: 20-265-400

ENCL NO.: 4

[illegible]

GROUNDWATER ELEVATIONS

Measurement

GRAPH
NOTES

+ 3, × 3: Numbers refer to Sensitivity

○ $\epsilon = 3\%$ Strain at Failure

DS SOIL LOG 20-265-400.GPJ DS.GDT 11/11/20



Appendix C



FINAL REPORT

CA15940-OCT20 R1

20-265-400, Thornbury

Prepared for

DS Consultants

First Page

CLIENT DETAILS

Client DS Consultants

Address 6221 Highway 7
Vaughan, Ontario
L4H 0K8, Canada

Contact Drew Doak

Telephone 905-264-9393

Facsimile 905-264-2685

Email drew.doak@dsconsultants.ca

Project 20-265-400, Thornbury

Order Number

Samples Soil (9)

LABORATORY DETAILS

Project Specialist Brad Moore Hon. B.Sc

Laboratory SGS Canada Inc.

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

Telephone 705-652-2143

Facsimile 705-652-6365

Email brad.moore@sgs.com

SGS Reference CA15940-OCT20

Received 10/06/2020

Approved 10/14/2020

Report Number CA15940-OCT20 R1

Date Reported 11/11/2020

COMMENTS

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

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

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

nC10, nC16 and nC34 response factors within 10% of the average response for the

three compounds: YES

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

Linearity is within 15%: YES

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

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

Hydrocarbon results are expressed on a dry weight basis.

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

Temperature of Sample upon Receipt: 7 degrees C

Cooling Agent Present: Yes

Custody Seal Present: Yes

Chain of Custody Number: NA

SIGNATORIES

Brad Moore Hon. B.Sc

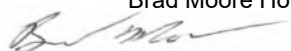




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FINAL REPORT

CA15940-OCT20 R1

Client: DS Consultants
Project: 20-265-400, Thornbury
Project Manager: Drew Doak
Samplers: Matt Z

PACKAGE: REG153 - BTEX (SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 2 - Residential/Parkland - UNDEFINED

Sample Number	10	14	18
Sample Name	BH20-1 SS7	BH20-2 SS5	BH20-3 SS7
Sample Matrix	Soil	Soil	Soil
Sample Date	05/10/2020	05/10/2020	05/10/2020

Parameter	Units	RL	L1	Result	Result	Result
BTEX						
Benzene	µg/g	0.02	0.21	< 0.02	< 0.02	< 0.02
Ethylbenzene	µg/g	0.05	1.1	< 0.05	< 0.05	< 0.05
Toluene	µg/g	0.05	2.3	< 0.05	< 0.05	< 0.05
Xylene (total)	µg/g	0.05	3.1	< 0.05	< 0.05	< 0.05
m/p-xylene	µg/g	0.05		< 0.05	< 0.05	< 0.05
o-xylene	µg/g	0.05		< 0.05	< 0.05	< 0.05

PACKAGE: REG153 - Hydrides (SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 2 - Residential/Parkland - UNDEFINED

Sample Number	9	12	16
Sample Name	BH20-1 SS2	BH20-2 SS1	BH20-3 SS1
Sample Matrix	Soil	Soil	Soil
Sample Date	05/10/2020	05/10/2020	05/10/2020

Parameter	Units	RL	L1	Result	Result	Result
Hydrides						
Antimony	µg/g	0.8	7.5	< 0.8	< 0.8	< 0.8
Arsenic	µg/g	0.5	18	4.1	3.9	4.7
Selenium	µg/g	0.7	2.4	< 0.7	< 0.7	< 0.7



FINAL REPORT

CA15940-OCT20 R1

Client: DS Consultants

Project: 20-265-400, Thornbury

Project Manager: Drew Doak

Samplers: Matt Z

PACKAGE: REG153 - Metals and Inorganics
(SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 2 - Residential/Parkland - UNDEFINED

				Sample Number	9	10	12	13	14	16	17	18
				Sample Name	BH20-1 SS2	BH20-1 SS7	BH20-2 SS1	BH20-2 SS2	BH20-2 SS5	BH20-3 SS1	BH20-3 SS2	BH20-3 SS7
				Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
				Sample Date	05/10/2020	05/10/2020	05/10/2020	05/10/2020	05/10/2020	05/10/2020	05/10/2020	05/10/2020
Parameter	Units	RL	L1	Result	Result	Result	Result	Result	Result	Result	Result	Result
Metals and Inorganics												
Moisture Content	%	-		3.9	16.1	15.4	5.3	19.7	13.6	5.0	12.0	
Barium	µg/g	0.1	390	21		27			31			
Beryllium	µg/g	0.02	4	0.19		0.32			0.24			
Boron	µg/g	1	120	7		9			7			
Cadmium	µg/g	0.02	1.2	0.04		0.10			0.08			
Chromium	µg/g	0.5	160	8.5		13			9.9			
Cobalt	µg/g	0.01	22	3.5		6.6			4.8			
Copper	µg/g	0.1	140	12		26			20			
Lead	µg/g	0.1	120	4.2		16			5.9			
Molybdenum	µg/g	0.1	6.9	0.5		0.2			0.6			
Nickel	µg/g	0.5	100	8.3		15			11			
Silver	µg/g	0.05	20	< 0.05		0.17			< 0.05			
Thallium	µg/g	0.02	1	0.05		0.09			0.07			
Uranium	µg/g	0.002	23	0.41		0.41			0.42			
Vanadium	µg/g	3	86	9		16			11			
Zinc	µg/g	0.7	340	43		46			42			
Water Soluble Boron	µg/g	0.5	1.5	< 0.5		< 0.5			< 0.5			



FINAL REPORT

CA15940-OCT20 R1

Client: DS Consultants

Project: 20-265-400, Thornbury

Project Manager: Drew Doak

Samplers: Matt Z

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

Sample Number 19

Sample Name BH20-1 SS1

Sample Matrix Soil

Sample Date 05/10/2020

L1 = REG153 / SOIL / COARSE - TABLE 2 - Residential/Parkland - UNDEFINED

Parameter	Units	RL	L1	Result
Moisture Content	%	-		8.1

Metals and Inorganics

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

Sample Number 9

12

16

Sample Name BH20-1 SS2

BH20-2 SS1

BH20-3 SS1

Sample Matrix Soil

Soil

Soil

Sample Date 05/10/2020

05/10/2020

05/10/2020

L1 = REG153 / SOIL / COARSE - TABLE 2 - Residential/Parkland - UNDEFINED

Parameter	Units	RL	L1	Result	Result	Result
Mercury	ug/g	0.05	0.27	< 0.05	< 0.05	< 0.05
Sodium Adsorption Ratio	No unit	0.2	5	0.20	0.03	0.20
SAR Calcium	mg/L	0.09		18.2	29.5	30.5
SAR Magnesium	mg/L	0.02		1.5	2.8	2.4
SAR Sodium	mg/L	0.15		3.3	0.72	4.4
Conductivity	mS/cm	0.002	0.7	0.13	0.15	0.20
pH	pH Units	0.05		8.11	7.74	7.81
Chromium VI	µg/g	0.2	8	< 0.2	< 0.2	< 0.2
Free Cyanide	µg/g	0.05	0.051	< 0.05	< 0.05	< 0.05

Other (ORP)



FINAL REPORT

CA15940-OCT20 R1

Client: DS Consultants
Project: 20-265-400, Thornbury
Project Manager: Drew Doak
Samplers: Matt Z

PACKAGE: REG153 - PAHs (SOIL)

Sample Number	13	17	19
Sample Name	BH20-2 SS2	BH20-3 SS2	BH20-1 SS1
Sample Matrix	Soil	Soil	Soil
Sample Date	05/10/2020	05/10/2020	05/10/2020

L1 = REG153 / SOIL / COARSE - TABLE 2 - Residential/Parkland - UNDEFINED

Parameter	Units	RL	L1	Result	Result	Result
PAHs						
Acenaphthene	µg/g	0.05	7.9	< 0.05	< 0.05	< 0.05
Acenaphthylene	µg/g	0.05	0.15	< 0.05	< 0.05	< 0.05
Anthracene	µg/g	0.05	0.67	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	µg/g	0.05	0.5	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	µg/g	0.05	0.3	< 0.05	< 0.05	< 0.05
Benzo(b+j)fluoranthene	µg/g	0.05	0.78	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	µg/g	0.1	6.6	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	µg/g	0.05	0.78	< 0.05	< 0.05	< 0.05
Chrysene	µg/g	0.05	7	< 0.05	< 0.05	< 0.05
Dibenzo(a,h)anthracene	µg/g	0.06	0.1	< 0.06	< 0.06	< 0.06
Fluoranthene	µg/g	0.05	0.69	< 0.05	< 0.05	< 0.05
Fluorene	µg/g	0.05	62	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	µg/g	0.1	0.38	< 0.1	< 0.1	< 0.1
1-Methylnaphthalene	µg/g	0.05		< 0.05	< 0.05	< 0.05
2-Methylnaphthalene	µg/g	0.05		< 0.05	< 0.05	< 0.05
Methylnaphthalene, 2-(1-)	µg/g	0.05	0.99	< 0.05	< 0.05	< 0.05
Naphthalene	µg/g	0.05	0.6	< 0.05	< 0.05	< 0.05
Phenanthrene	µg/g	0.05	6.2	< 0.05	< 0.05	< 0.05
Pyrene	µg/g	0.05	78	< 0.05	< 0.05	< 0.05



FINAL REPORT

CA15940-OCT20 R1

Client: DS Consultants
Project: 20-265-400, Thornbury
Project Manager: Drew Doak
Samplers: Matt Z

PACKAGE: REG153 - PHCs (SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 2 - Residential/Parkland - UNDEFINED

Sample Number	10	14	18
Sample Name	BH20-1 SS7	BH20-2 SS5	BH20-3 SS7
Sample Matrix	Soil	Soil	Soil
Sample Date	05/10/2020	05/10/2020	05/10/2020

Parameter	Units	RL	L1	Result	Result	Result
PHCs						
F1 (C6-C10)	µg/g	10	55	< 10	< 10	< 10
F1-BTEX (C6-C10)	µg/g	10		< 10	< 10	< 10
F2 (C10-C16)	µg/g	10	98	11	< 10	20
F3 (C16-C34)	µg/g	50	300	< 50	< 50	52
F4 (C34-C50)	µg/g	50	2800	< 50	< 50	< 50
Chromatogram returned to baseline at nC50	Yes / No	-		YES	YES	YES

PACKAGE: REG153 - SVOC Surrogates (SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 2 - Residential/Parkland - UNDEFINED

Sample Number	13	17	19
Sample Name	BH20-2 SS2	BH20-3 SS2	BH20-1 SS1
Sample Matrix	Soil	Soil	Soil
Sample Date	05/10/2020	05/10/2020	05/10/2020

Parameter	Units	RL	L1	Result	Result	Result
SVOC Surrogates						
Surr Nitrobenzene-d5	Surr Rec %	-		98	95	102
Surr 2-Fluorobiphenyl	Surr Rec %	-		89	84	92
Surr 4-Terphenyl-d14	Surr Rec %	-		102	98	108
Surr 2-Fluorophenol	Surr Rec %	-		86	75	90
Surr Phenol-d6	Surr Rec %	-		89	84	94
Surr 2,4,6-Tribromophenol	Surr Rec %	-		91	72	98



FINAL REPORT

CA15940-OCT20 R1

Client: DS Consultants

Project: 0 65 400, Thornbury

Project Manager: Drew Doak

Samplers: Matt Z

PACKAGE: REG153 - THMs (VOC) (SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 2 - Residential/Parkland - UNDEFINED

Sample Number	10	14	18
Sample Name	BH20-1 SS7	BH20-2 SS5	BH20-3 SS7
Sample Matrix	Soil	Soil	Soil
Sample Date	05/10/2020	05/10/2020	05/10/2020

Parameter	Units	RL	L1	Result	Result	Result
THMs (VOC)						
Bromodichloromethane	µg/g	0.05	1.5	< 0.05	< 0.05	< 0.05
Bromoform	µg/g	0.05	0.27	< 0.05	< 0.05	< 0.05
Dibromochloromethane	µg/g	0.05	2.3	< 0.05	< 0.05	< 0.05

PACKAGE: REG153 - VOC Surrogates (SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 2 - Residential/Parkland - UNDEFINED

Sample Number	10	14	18
Sample Name	BH20-1 SS7	BH20-2 SS5	BH20-3 SS7
Sample Matrix	Soil	Soil	Soil
Sample Date	05/10/2020	05/10/2020	05/10/2020

Parameter	Units	RL	L1	Result	Result	Result
VOC Surrogates						
Surr 1,2-Dichloroethane-d4	Surr Rec %	-		101	101	101
Surr 4-Bromofluorobenzene	Surr Rec %	-		94	91	93
Surr 2-Bromo-1-Chloropropane	Surr Rec %	-		91	91	90

PACKAGE: REG153 - VOCs (SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 2 - Residential/Parkland - UNDEFINED

Sample Number	10	14	18
Sample Name	BH20-1 SS7	BH20-2 SS5	BH20-3 SS7
Sample Matrix	Soil	Soil	Soil
Sample Date	05/10/2020	05/10/2020	05/10/2020

Parameter	Units	RL	L1	Result	Result	Result
VOCs						
Acetone	µg/g	0.5	16	< 0.5	< 0.5	< 0.5
Bromomethane	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05
Carbon tetrachloride	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05
Chlorobenzene	µg/g	0.05	2.4	< 0.05	< 0.05	< 0.05



FINAL REPORT

CA15940-OCT20 R1

Client: DS Consultants

Project: 20-265-400, Thornbury

Project Manager: Drew Doak

Samplers: Matt Z

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

Sample Number	10	14	18
Sample Name	BH20-1 SS7	BH20-2 SS5	BH20-3 SS7
Sample Matrix	Soil	Soil	Soil
Sample Date	05/10/2020	05/10/2020	05/10/2020

L1 = REG153 / SOIL / COARSE - TABLE 2 - Residential/Parkland - UNDEFINED

Parameter	Units	RL	L1	Result	Result	Result
VOCs (continued)						
Chloroform	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05
1,2-Dichlorobenzene	µg/g	0.05	1.2	< 0.05	< 0.05	< 0.05
1,3-Dichlorobenzene	µg/g	0.05	4.8	< 0.05	< 0.05	< 0.05
1,4-Dichlorobenzene	µg/g	0.05	0.083	< 0.05	< 0.05	< 0.05
Dichlorodifluoromethane	µg/g	0.05	16	< 0.05	< 0.05	< 0.05
1,1-Dichloroethane	µg/g	0.05	0.47	< 0.05	< 0.05	< 0.05
1,2-Dichloroethane	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05
1,1-Dichloroethylene	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05
trans-1,2-Dichloroethylene	µg/g	0.05	0.084	< 0.05	< 0.05	< 0.05
cis-1,2-Dichloroethylene	µg/g	0.05	1.9	< 0.05	< 0.05	< 0.05
1,2-Dichloropropane	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05
cis-1,3-dichloropropene	µg/g	0.03		< 0.03	< 0.03	< 0.03
trans-1,3-dichloropropene	µg/g	0.03		< 0.03	< 0.03	< 0.03
1,3-dichloropropene (total)	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05
Ethylenedibromide	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05
n-Hexane	µg/g	0.05	2.8	< 0.05	< 0.05	< 0.05
Methyl ethyl ketone	µg/g	0.5	16	< 0.5	< 0.5	< 0.5
Methyl isobutyl ketone	µg/g	0.5	1.7	< 0.5	< 0.5	< 0.5
Methyl-t-butyl Ether	µg/g	0.05	0.75	< 0.05	< 0.05	< 0.05
Methylene Chloride	µg/g	0.05	0.1	< 0.05	< 0.05	< 0.05
Styrene	µg/g	0.05	0.7	< 0.05	< 0.05	< 0.05
Tetrachloroethylene	µg/g	0.05	0.28	< 0.05	< 0.05	< 0.05
1,1,1,2-Tetrachloroethane	µg/g	0.05	0.058	< 0.05	< 0.05	< 0.05



FINAL REPORT

CA15940-OCT20 R1

Client: DS Consultants
Project: 20-265-400, Thornbury
Project Manager: Drew Doak
Samplers: Matt Z

PACKAGE: REG153 - VOCs (SOIL)

Sample Number	10	14	18
Sample Name	BH20-1 SS7	BH20-2 SS5	BH20-3 SS7
Sample Matrix	Soil	Soil	Soil
Sample Date	05/10/2020	05/10/2020	05/10/2020

L1 = REG153 / SOIL / COARSE - TABLE 2 - Residential/Parkland - UNDEFINED

Parameter	Units	RL	L1	Result	Result	Result
VOCs (continued)						
1,1,2,2-Tetrachloroethane	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05
1,1,1-Trichloroethane	µg/g	0.05	0.38	< 0.05	< 0.05	< 0.05
1,1,2-Trichloroethane	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05
Trichloroethylene	µg/g	0.05	0.061	< 0.05	< 0.05	< 0.05
Trichlorofluoromethane	µg/g	0.05	4	< 0.05	< 0.05	< 0.05
Vinyl Chloride	µg/g	0.02	0.02	< 0.02	< 0.02	< 0.02



EXCEEDANCE SUMMARY

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



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QC SUMMARY

Conductivity

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Conductivity	EWL0235-OCT20	mS/cm	0.002	<0.002	1	10	100	90	110	NA		

Cyanide by SFA

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Free Cyanide	SKA5023-OCT20	µg/g	0.05	<0.05	ND	20	100	80	120	114	75	125

Hexavalent Chromium by SFA

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chromium VI	SKA5025-OCT20	ug/g	0.2	<0 2	9	20	88	80	120	93	75	125



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QC SUMMARY

Mercury by CVAAS

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury	EMS0049-OCT20	ug/g	0.05	<0.05	ND	20	103	80	120	102	70	130

Metals in aqueous samples - ICP-OES

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
SAR Calcium	ESG0035-OCT20	mg/L	0.09	<0.09	6	20	98	80	120	98	70	130
SAR Magnesium	ESG0035-OCT20	mg/L	0.02	<0.02	12	20	97	80	120	101	70	130
SAR Sodium	ESG0035-OCT20	mg/L	0.15	<0.15	9	20	97	80	120	98	70	130



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QC SUMMARY

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver	EMS0049-OCT20	ug/g	0.05	<0.05	ND	20	97	70	130	106	70	130
Arsenic	EMS0049-OCT20	µg/g	0.5	<0.5	2	20	103	70	130	106	70	130
Barium	EMS0049-OCT20	ug/g	0.1	<0.1	1	20	104	70	130	95	70	130
Beryllium	EMS0049-OCT20	µg/g	0.02	<0.02	3	20	104	70	130	108	70	130
Boron	EMS0049-OCT20	µg/g	1	<1	3	20	108	70	130	105	70	130
Cadmium	EMS0049-OCT20	µg/g	0.02	<0.02	17	20	104	70	130	110	70	130
Cobalt	EMS0049-OCT20	µg/g	0.01	<0.01	2	20	105	70	130	118	70	130
Chromium	EMS0049-OCT20	µg/g	0.5	<0.5	4	20	106	70	130	116	70	130
Copper	EMS0049-OCT20	µg/g	0.1	<0.1	1	20	108	70	130	117	70	130
Molybdenum	EMS0049-OCT20	µg/g	0.1	<0.1	6	20	91	70	130	102	70	130
Nickel	EMS0049-OCT20	ug/g	0.5	<0.5	2	20	103	70	130	118	70	130
Lead	EMS0049-OCT20	ug/g	0.1	<0.1	3	20	109	70	130	113	70	130
Antimony	EMS0049-OCT20	µg/g	0.8	<0.8	ND	20	104	70	130	94	70	130
Selenium	EMS0049-OCT20	µg/g	0.7	<0.7	ND	20	104	70	130	104	70	130
Thallium	EMS0049-OCT20	µg/g	0.02	<0.02	1	20	103	70	130	106	70	130
Uranium	EMS0049-OCT20	µg/g	0.002	<0.002	4	20	97	70	130	105	70	130
Vanadium	EMS0049-OCT20	µg/g	3	<3	1	20	105	70	130	109	70	130
Zinc	EMS0049-OCT20	µg/g	0.7	<0.7	2	20	101	70	130	107	70	130



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QC SUMMARY

Petroleum Hydrocarbons (F1)
Method: CCME Tier 1 | Internal ref.: ME-CA-IENVIGC-LAK-AN-010

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
F1 (C6-C10)	GCM0116-OCT20	µg/g	10	<10	ND	30	88	80	120	89	60	140

Petroleum Hydrocarbons (F2-F4)
Method: CCME Tier 1 | Internal ref.: ME-CA-IENVIGC-LAK-AN-010

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
F2 (C10-C16)	GCM0176-OCT20	µg/g	10	<10	ND	30	108	80	120	111	60	140
F3 (C16-C34)	GCM0176-OCT20	µg/g	50	<50	ND	30	108	80	120	111	60	140
F4 (C34-C50)	GCM0176-OCT20	µg/g	50	<50	ND	30	108	80	120	111	60	140



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QC SUMMARY

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
pH	ARD0021-OCT20	pH Units	0.05		0	20	100	80	120			



FINAL REPORT

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QC SUMMARY

Semi-Volatile Organics

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1-Methylnaphthalene	GCM0173-OCT20	µg/g	0.05	< 0.05	ND	40	82	50	140	97	50	140
2-Methylnaphthalene	GCM0173-OCT20	µg/g	0.05	< 0.05	ND	40	78	50	140	93	50	140
Acenaphthene	GCM0173-OCT20	µg/g	0.05	< 0.05	ND	40	88	50	140	106	50	140
Acenaphthylene	GCM0173-OCT20	µg/g	0.05	< 0.05	ND	40	83	50	140	103	50	140
Anthracene	GCM0173-OCT20	µg/g	0.05	< 0.05	ND	40	84	50	140	103	50	140
Benzo(a)anthracene	GCM0173-OCT20	µg/g	0.05	< 0.05	ND	40	85	50	140	109	50	140
Benzo(a)pyrene	GCM0173-OCT20	µg/g	0.05	< 0.05	ND	40	83	50	140	109	50	140
Benzo(b+j)fluoranthene	GCM0173-OCT20	µg/g	0.05	< 0.05	ND	40	79	50	140	107	50	140
Benzo(ghi)perylene	GCM0173-OCT20	µg/g	0.1	< 0.1	ND	40	81	50	140	104	50	140
Benzo(k)fluoranthene	GCM0173-OCT20	µg/g	0.05	< 0.05	ND	40	80	50	140	95	50	140
Chrysene	GCM0173-OCT20	µg/g	0.05	< 0.05	ND	40	86	50	140	101	50	140
Dibenzo(a,h)anthracene	GCM0173-OCT20	µg/g	0.06	< 0.06	ND	40	79	50	140	103	50	140
Fluoranthene	GCM0173-OCT20	µg/g	0.05	< 0.05	ND	40	88	50	140	108	50	140
Fluorene	GCM0173-OCT20	µg/g	0.05	< 0.05	ND	40	85	50	140	106	50	140
Indeno(1,2,3-cd)pyrene	GCM0173-OCT20	µg/g	0.1	< 0.1	ND	40	80	50	140	102	50	140
Naphthalene	GCM0173-OCT20	µg/g	0.05	< 0.05	ND	40	86	50	140	103	50	140
Phenanthrene	GCM0173-OCT20	µg/g	0.05	< 0.05	ND	40	86	50	140	103	50	140
Pyrene	GCM0173-OCT20	µg/g	0.05	< 0.05	ND	40	91	50	140	113	50	140



FINAL REPORT

CA15940-OCT20 R1

QC SUMMARY

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1,1,1,2-Tetrachloroethane	GCM0115-OCT20	µg/g	0.05	< 0.05	ND	50	105	60	130	98	50	140
1,1,1-Trichloroethane	GCM0115-OCT20	µg/g	0.05	< 0.05	ND	50	98	60	130	96	50	140
1,1,2,2-Tetrachloroethane	GCM0115-OCT20	µg/g	0.05	< 0.05	ND	50	108	60	130	76	50	140
1,1,2-Trichloroethane	GCM0115-OCT20	µg/g	0.05	< 0.05	ND	50	100	60	130	98	50	140
1,1-Dichloroethane	GCM0115-OCT20	µg/g	0.05	< 0.05	ND	50	85	60	130	126	50	140
1,1-Dichloroethylene	GCM0115-OCT20	µg/g	0.05	< 0.05	ND	50	92	60	130	100	50	140
1,2-Dichlorobenzene	GCM0115-OCT20	µg/g	0.05	< 0.05	ND	50	105	60	130	97	50	140
1,2-Dichloroethane	GCM0115-OCT20	µg/g	0.05	< 0.05	ND	50	96	60	130	95	50	140
1,2-Dichloropropane	GCM0115-OCT20	µg/g	0.05	< 0.05	ND	50	98	60	130	96	50	140
1,3-Dichlorobenzene	GCM0115-OCT20	µg/g	0.05	< 0.05	ND	50	105	60	130	98	50	140
1,4-Dichlorobenzene	GCM0115-OCT20	µg/g	0.05	< 0.05	ND	50	106	60	130	98	50	140
Acetone	GCM0115-OCT20	µg/g	0.5	< 0.5	ND	50	85	50	140	102	50	140
Benzene	GCM0115-OCT20	µg/g	0.02	< 0.02	ND	50	96	60	130	98	50	140
Bromodichloromethane	GCM0115-OCT20	µg/g	0.05	< 0.05	ND	50	98	60	130	95	50	140
Bromoform	GCM0115-OCT20	µg/g	0.05	< 0.05	ND	50	103	60	130	94	50	140
Bromomethane	GCM0115-OCT20	µg/g	0.05	< 0.05	ND	50	90	50	140	83	50	140
Carbon tetrachloride	GCM0115-OCT20	µg/g	0.05	< 0.05	ND	50	97	60	130	96	50	140
Chlorobenzene	GCM0115-OCT20	µg/g	0.05	< 0.05	ND	50	103	60	130	96	50	140
Chloroform	GCM0115-OCT20	µg/g	0.05	< 0.05	ND	50	97	60	130	96	50	140
cis-1,2-Dichloroethylene	GCM0115-OCT20	µg/g	0.05	< 0.05	ND	50	99	60	130	95	50	140



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QC SUMMARY

Volatile Organics (continued)

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
cis-1,3-dichloropropene	GCM0115-OCT20	µg/g	0.03	< 0.03	ND	50	101	60	130	93	50	140
Dibromochloromethane	GCM0115-OCT20	µg/g	0.05	< 0.05	ND	50	99	60	130	95	50	140
Dichlorodifluoromethane	GCM0115-OCT20	µg/g	0.05	< 0.05	ND	50	85	50	140	83	50	140
Ethylbenzene	GCM0115-OCT20	µg/g	0.05	< 0.05	ND	50	104	60	130	97	50	140
Ethylenedibromide	GCM0115-OCT20	µg/g	0.05	< 0.05	ND	50	101	60	130	97	50	140
n-Hexane	GCM0115-OCT20	µg/g	0.05	< 0.05	ND	50	110	60	130	104	50	140
m/p-xylene	GCM0115-OCT20	µg/g	0.05	< 0.05	ND	50	102	60	130	95	50	140
Methyl ethyl ketone	GCM0115-OCT20	µg/g	0.5	< 0.5	ND	50	94	50	140	96	50	140
Methyl isobutyl ketone	GCM0115-OCT20	µg/g	0.5	< 0.5	ND	50	97	50	140	96	50	140
Methyl-t-butyl Ether	GCM0115-OCT20	µg/g	0.05	< 0.05	ND	50	99	60	130	100	50	140
Methylene Chloride	GCM0115-OCT20	µg/g	0.05	< 0.05	ND	50	103	60	130	100	50	140
o-xylene	GCM0115-OCT20	µg/g	0.05	< 0.05	ND	50	106	60	130	99	50	140
Styrene	GCM0115-OCT20	µg/g	0.05	< 0.05	ND	50	104	60	130	96	50	140
Tetrachloroethylene	GCM0115-OCT20	µg/g	0.05	< 0.05	ND	50	99	60	130	96	50	140
Toluene	GCM0115-OCT20	µg/g	0.05	< 0.05	ND	50	98	60	130	96	50	140
trans-1,2-Dichloroethylene	GCM0115-OCT20	µg/g	0.05	< 0.05	ND	50	101	60	130	100	50	140
trans-1,3-dichloropropene	GCM0115-OCT20	µg/g	0.03	< 0.03	ND	50	104	60	130	97	50	140
Trichloroethylene	GCM0115-OCT20	µg/g	0.05	< 0.05	ND	50	95	60	130	111	50	140
Trichlorofluoromethane	GCM0115-OCT20	µg/g	0.05	< 0.05	ND	50	94	50	140	99	50	140
Vinyl Chloride	GCM0115-OCT20	µg/g	0.02	< 0.02	ND	50	91	50	140	88	50	140



FINAL REPORT

CA15940-OCT20 R1

QC SUMMARY

Water Soluble Boron

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Water Soluble Boron	ESG0024-OCT20	µg/g	0.5	<0 5	ND	20	100	80	120	110	70	130

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

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

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

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

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

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

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

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

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



LEGEND

FOOTNOTES

NSS Insufficient sample for analysis.

RL Reporting Limit.

↑ Reporting limit raised.

↓ Reporting limit lowered.

NA The sample was not analysed for this analyte

ND Non Detect

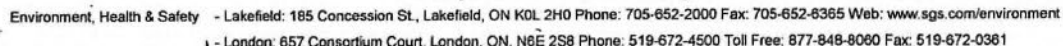
Samples analysed as received. Solid samples expressed on a dry weight basis. "Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.

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

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated. This document is issued, on the Client's behalf, by the Company under its General Conditions of Service available on request and accessible at http://www.sgs.com/terms_and_conditions.htm. The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any other holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents.

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-- End of Analytical Report --



Page 1 of 1

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

Received By (signature): 

Custody Seal Present: Yes ☒ No ☐

Custody Seal Intact: Yes ☒ No ☐

Cooling Agent Present: Yes ☒ No ☐ Type: ice
Temperature Upon Receipt (°C) 7.7.7

LAB LIMS#: CA-159410-00120

REPORT INFORMATION		INVOICE INFORMATION	
Company: DS Consultants	☐ (same as Report Information)	Quotation #: _____	P.O. #: _____
Contact: Drew Doak	Company: DS Consultants	Project #: 20-265-400	Site Location/ID: Thornbury
Address: 6221 Hwy 7, Unit 16, Vaughan	Contact: Accounting	TURNAROUND TIME (TAT) REQUIRED	
	Address: _____	☒ Regular TAT (5-7days) TAT's are quoted in business days (exclude statutory holidays & weekends). Samples received after 6pm or on weekends: TAT begins next business day	
Phone: 905-264-9393		RUSH TAT (Additional Charges May Apply): ☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 4 Days	
Fax: _____	Phone: _____	PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION	
Email: drew.doak@dsconsultants.ca	Email: _____	Specify Due Date: _____	NOTE: DRINKING (POTABLE) WATER SAMPLES FOR HUMAN CONSUMPTION MUST BE SUBMITTED WITH SGS DRINKING WATER CHAIN OF CUSTODY

ANALYSIS REQUESTED

[illegible]

Observations/Comments/Special Instructions
--

Sampled By (NAME):	Matt Z	Signature:		Date: ____/____/____ (mm/dd/yy)	Pink Copy - Client
Relinquished by (NAME):	Drew Doak	Signature: Drew Doak	Digitally signed by Drew Doak Date: 2025.10.06 14:36:35 +0300	Date: 10/06/20 (mm/dd/yy)	Yellow & White Copy - SGS

Revision # 1.2
Date of Issue: 09 Sept, 2010

Note: Submission of samples to SGS is acknowledgement that you have been provided direction on sample collection/handling and transportation of samples. (2) Submission of samples to SGS is considered authorization for completion of work. Signatures may appear on this form or be retained on file in the contract, or in an alternative format (e.g. shipping documents). (3) Results may be sent by email to an unlimited number of addresses for no additional cost. Fax is available upon request. This document is issued by the Company under its General Conditions of Service accessible at http://www.sgs.com/terms_and_conditions.htm. (Printed copies are available upon request.) Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.



FINAL REPORT

CA14932-OCT20 R

20-265-400, Thornbury

Prepared for

DS Consultants

First Page

CLIENT DETAILS

Client DS Consultants

Address 6221 Highway 7
Vaughan, Ontario
L4H 0K8, Canada

Contact Drew Doak

Telephone 905-264-9393

Facsimile 905-264-2685

Email drew.doak@dsconsultants.ca

Project 20-265-400, Thornbury

Order Number

Samples Soil (11)

LABORATORY DETAILS

Project Specialist Brad Moore Hon. B.Sc

Laboratory SGS Canada Inc.

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

Telephone 705-652-2143

Facsimile 705-652-6365

Email brad.moore@sgs.com

SGS Reference CA14932-OCT20

Received 10/30/2020

Approved 11/09/2020

Report Number CA14932-OCT20 R

Date Reported 11/09/2020

COMMENTS

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

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

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

nC10, nC16 and nC34 response factors within 10% of the average response for the

three compounds: YES

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

Linearity is within 15%: YES

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

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

Hydrocarbon results are expressed on a dry weight basis.

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

Temperature of Sample upon Receipt: 4 degrees C

Cooling Agent Present: Yes

Custody Seal Present: Yes

Chain of Custody Number: 010840

QC Batch GCM78-NOV20: Benzo(a)anthracene, Chrysene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-c,d)pyrene, Dibenzo(a,h)anthracene, 2-Methylnaphthalene and 1-Methylnaphthalene: Duplicate; RPD falls outside of the method criteria due to sample heterogeneity.

SIGNATORIES

Brad Moore Hon. B.Sc

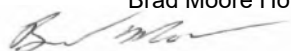




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FINAL REPORT

CA14932-OCT20 R

Client: DS Consultants

Project: 20-265-400, Thornbury

Project Manager: Drew Doak

Samplers: Matt Zammit

PACKAGE: REG153 - BTEX (SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 2 - Residential/Parkland - UNDEFINED

				Sample Number	14	15	16	18	19
				Sample Name	TP3-2	TP5	TP6	TP7	TP8
				Sample Matrix	Soil	Soil	Soil	Soil	Soil
				Sample Date	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020
Parameter	Units	RL	L1	Result	Result	Result	Result	Result	Result
BTEX									
Benzene	µg/g	0.02	0.21	< 0.02	< 0.02	0.07	< 0.02	< 0.02	< 0.02
Ethylbenzene	µg/g	0.05	1.1	< 0.05	< 0.05	0.17	< 0.05	< 0.05	< 0.05
Toluene	µg/g	0.05	2.3	< 0.05	< 0.05	0.51	0.06	< 0.05	< 0.05
Xylene (total)	µg/g	0.05	3.1	< 0.05	< 0.05	1.25	< 0.05	< 0.05	< 0.05
m/p-xylene	µg/g	0.05		< 0.05	< 0.05	0.59	0.05	< 0.05	< 0.05
o-xylene	µg/g	0.05		< 0.05	< 0.05	0.66	< 0.05	< 0.05	< 0.05

PACKAGE: REG153 - Hydrides (SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 2 - Residential/Parkland - UNDEFINED

				Sample Number	14	15	16	17	18	19
				Sample Name	TP3-2	TP5	TP6	TP6 Dup2	TP7	TP8
				Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil
				Sample Date	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020
Parameter	Units	RL	L1	Result	Result	Result	Result	Result	Result	Result
Hydrides										
Antimony	µg/g	0.8	7.5	< 0.8	< 0.8	0.9	0.9	< 0.8	< 0.8	< 0.8
Arsenic	µg/g	0.5	18	4.4	2.9	9.5	9.2	16	4.0	4.0
Selenium	µg/g	0.7	2.4	< 0.7	< 0.7	0.9	0.9	< 0.7	< 0.7	< 0.7



FINAL REPORT

CA14932-OCT20 R

Client: DS Consultants

Project: 20-265-400, Thornbury

Project Manager: Drew Doak

Samplers: Matt Zammit

PACKAGE: REG153 - Metals and Inorganics

(SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 2 - Residential/Parkland - UNDEFINED

Sample Number	9	10	11	12	13	14	15	16
Sample Name	TP1A	TP1B	TP3A	TP3B	TP3A Dup1	TP3-2	TP5	TP6
Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Sample Date	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020

Parameter	Units	RL	L1	Result	Result	Result	Result	Result	Result	Result	Result
Metals and Inorganics											
Moisture Content	%	-		5.7	5.9	9.3	12.4	10.2	12.9	10.2	10.3
Barium	µg/g	0.1	390						35	26	61
Beryllium	µg/g	0.02	4						0.30	0.30	0.40
Boron	µg/g	1	120						8	9	9
Cadmium	µg/g	0.02	1.2						0.14	0.04	0.51
Chromium	µg/g	0.5	160						11	11	12
Cobalt	µg/g	0.01	22						5.5	5.1	5.6
Copper	µg/g	0.1	140						24	17	60
Lead	µg/g	0.1	120						23	6.6	170
Molybdenum	µg/g	0.1	6.9						0.4	0.2	1.2
Nickel	µg/g	0.5	100						13	11	16
Silver	µg/g	0.05	20						0.07	< 0.05	0.13
Thallium	µg/g	0.02	1						0.09	0.08	0.22
Uranium	µg/g	0.002	23						0.50	0.45	0.56
Vanadium	µg/g	3	86						14	14	17
Zinc	µg/g	0.7	340						64	40	190
Water Soluble Boron	µg/g	0.5	1.5						< 0.5	< 0.5	< 0.5



FINAL REPORT

CA14932-OCT20 R

Client: DS Consultants

Project: 20-265-400, Thornbury

Project Manager: Drew Doak

Samplers: Matt Zammit

PACKAGE: REG153 - Metals and Inorganics

(SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 2 - Residential/Parkland - UNDEFINED

Sample Number	17	18	19
Sample Name	TP6 Dup2	TP7	TP8
Sample Matrix	Soil	Soil	Soil
Sample Date	29/10/2020	29/10/2020	29/10/2020

Parameter	Units	RL	L1	Result	Result	Result
Metals and Inorganics						
Moisture Content	%	-		9.9	15.4	13.4
Barium	µg/g	0.1	390	58	50	36
Beryllium	µg/g	0.02	4	0.37	0.26	0.27
Boron	µg/g	1	120	9	7	8
Cadmium	µg/g	0.02	1.2	0.50	0.34	0.15
Chromium	µg/g	0.5	160	11	12	12
Cobalt	µg/g	0.01	22	5.2	4.6	5.6
Copper	µg/g	0.1	140	59	31	30
Lead	µg/g	0.1	120	160	170	25
Molybdenum	µg/g	0.1	6.9	1.2	0.5	0.4
Nickel	µg/g	0.5	100	17	11	13
Silver	µg/g	0.05	20	0.12	0.12	0.07
Thallium	µg/g	0.02	1	0.21	0.10	0.09
Uranium	µg/g	0.002	23	0.58	0.49	0.39
Vanadium	µg/g	3	86	17	15	17
Zinc	µg/g	0.7	340	180	200	88
Water Soluble Boron	µg/g	0.5	1.5	< 0.5	< 0.5	< 0.5



FINAL REPORT

CA14932-OCT20 R

Client: DS Consultants

Project: 20-265-400, Thornbury

Project Manager: Drew Doak

Samplers: Matt Zammit

PACKAGE: REG153 - Other (ORP) (SOIL)

Sample Number	14	15	16	17	18	19
Sample Name	TP3-2	TP5	TP6	TP6 Dup2	TP7	TP8
Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Sample Date	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020

L1 = REG153 / SOIL / COARSE - TABLE 2 - Residential/Parkland - UNDEFINED

Parameter	Units	RL	L1	Result	Result	Result	Result	Result	Result
Other (ORP)									
Mercury	ug/g	0.05	0.27	< 0.05	< 0.05	0.35	0.36	0.15	< 0.05
Sodium Adsorption Ratio	No unit	0.2	5	< 0.2	< 0.2	< 0.2	< 0.2	0.2	< 0.2
SAR Calcium	mg/L	0.09		26.3	25.3	27.3	35.2	39.1	32.9
SAR Magnesium	mg/L	0.02		2.8	3.2	2.7	3.7	4.7	3.9
SAR Sodium	mg/L	0.15		1.1	0.99	0.95	1.0	5.2	1.9
Conductivity	mS/cm	0.002	0.7	0.14	0.14	0.20	0.19	0.27	0.21
pH	pH Units	0.05		7.08	7.52	7.64	7.61	7.66	7.58
Chromium VI	µg/g	0.2	8	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Free Cyanide	µg/g	0.05	0.051	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05



FINAL REPORT

CA14932-OCT20 R

Client: DS Consultants

Project: 20-265-400, Thornbury

Project Manager: Drew Doak

Samplers: Matt Zammit

PACKAGE: REG153 - PAHs (SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 2 - Residential/Parkland - UNDEFINED

Sample Number	9	10	11	12	13	14	15	16
Sample Name	TP1A	TP1B	TP3A	TP3B	TP3A Dup1	TP3-2	TP5	TP6
Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Sample Date	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020

Parameter	Units	RL	L1	Result	Result	Result	Result	Result	Result	Result	Result
PAHs											
Acenaphthene	µg/g	0.05	7.9	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.05	< 0.05	0.08
Acenaphthylene	µg/g	0.05	0.15	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.11
Anthracene	µg/g	0.05	0.67	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.10	< 0.05	0.20
Benzo(a)anthracene	µg/g	0.05	0.5	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.30	< 0.05	0.80
Benzo(a)pyrene	µg/g	0.05	0.3	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.30	< 0.05	0.94
Benzo(b+j)fluoranthene	µg/g	0.05	0.78	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.43	< 0.05	1.49
Benzo(ghi)perylene	µg/g	0.1	6.6	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.22	< 0.1	0.55
Benzo(k)fluoranthene	µg/g	0.05	0.78	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.16	< 0.05	0.43
Chrysene	µg/g	0.05	7	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.31	< 0.05	0.91
Dibenzo(a,h)anthracene	µg/g	0.06	0.1	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.12
Fluoranthene	µg/g	0.05	0.69	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.73	< 0.05	1.57
Fluorene	µg/g	0.05	62	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.07	< 0.05	0.07
Indeno(1,2,3-cd)pyrene	µg/g	0.1	0.38	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.18	< 0.1	0.43
1-Methylnaphthalene	µg/g	0.05		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	1.97
2-Methylnaphthalene	µg/g	0.05		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.06	< 0.05	2.53
Methylnaphthalene, 2-(1-)	µg/g	0.05	0.99	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.10	< 0.05	4.51
Naphthalene	µg/g	0.05	0.6	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.08	< 0.05	1.64
Phenanthrene	µg/g	0.05	6.2	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.68	< 0.05	1.45
Pyrene	µg/g	0.05	78	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.57	< 0.05	1.31



FINAL REPORT

CA14932-OCT20 R

Client: DS Consultants

Project: 20-265-400, Thornbury

Project Manager: Drew Doak

Samplers: Matt Zammit

PACKAGE: REG153 - PAHs (SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 2 - Residential/Parkland - UNDEFINED

Sample Number	18	19
Sample Name	TP7	TP8
Sample Matrix	Soil	Soil
Sample Date	29/10/2020	29/10/2020

Parameter	Units	RL	L1	Result	Result
PAHs					
Acenaphthene	µg/g	0.05	7.9	0.20	0.28
Acenaphthylene	µg/g	0.05	0.15	0.11	< 0.05
Anthracene	µg/g	0.05	0.67	0.44	0.66
Benzo(a)anthracene	µg/g	0.05	0.5	1.19	1.86
Benzo(a)pyrene	µg/g	0.05	0.3	1.15	1.73
Benzo(b+j)fluoranthene	µg/g	0.05	0.78	1.75	2.27
Benzo(ghi)perylene	µg/g	0.1	6.6	0.48	0.71
Benzo(k)fluoranthene	µg/g	0.05	0.78	0.49	0.98
Chrysene	µg/g	0.05	7	1.10	1.66
Dibenzo(a,h)anthracene	µg/g	0.06	0.1	0.12	0.19
Fluoranthene	µg/g	0.05	0.69	2.52	3.42
Fluorene	µg/g	0.05	62	0.24	0.30
Indeno(1,2,3-cd)pyrene	µg/g	0.1	0.38	0.42	0.67
1-Methylnaphthalene	µg/g	0.05		0.40	0.10
2-Methylnaphthalene	µg/g	0.05		0.45	0.11
Methylnaphthalene, 2-(1-)	µg/g	0.05	0.99	0.85	0.21
Naphthalene	µg/g	0.05	0.6	0.39	0.15
Phenanthrene	µg/g	0.05	6.2	2.24	3.46
Pyrene	µg/g	0.05	78	2.12	3.06



FINAL REPORT

CA14932-OCT20 R

Client: DS Consultants

Project: 20-265-400, Thornbury

Project Manager: Drew Doak

Samplers: Matt Zammit

PACKAGE: REG153 - PHCs (SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 2 - Residential/Parkland - UNDEFINED

Sample Number	14	15	16	18	19
Sample Name	TP3-2	TP5	TP6	TP7	TP8
Sample Matrix	Soil	Soil	Soil	Soil	Soil
Sample Date	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020

Parameter	Units	RL	L1	Result	Result	Result	Result	Result
PHCs								
F1 (C6-C10)	µg/g	10	55	< 10	< 10	21	< 10	< 10
F1-BTEX (C6-C10)	µg/g	10		< 10	< 10	19	< 10	< 10
F2 (C10-C16)	µg/g	10	98	< 10	< 10	20	< 10	< 10
F3 (C16-C34)	µg/g	50	300	51	< 50	157	194	81
F4 (C34-C50)	µg/g	50	2800	< 50	< 50	125	251	55
F4G-sg (GHH)	µg/g	200	2800				940	
Chromatogram returned to baseline at nC50	Yes / No	-		YES	YES	YES	NO	YES

PACKAGE: REG153 - SVOC Surrogates (SOIL)

L1 = REG153 / SOIL / COARSE - TABLE 2 - Residential/Parkland - UNDEFINED

Sample Number	9	10	11	12	13	14	15	16
Sample Name	TP1A	TP1B	TP3A	TP3B	TP3A Dup1	TP3-2	TP5	TP6
Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Sample Date	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020

Parameter	Units	RL	L1	Result	Result	Result	Result	Result	Result	Result
SVOC Surrogates										
Surr Nitrobenzene-d5	Surr Rec %	-		67	67	63	65	66	74	67
Surr 2-Fluorobiphenyl	Surr Rec %	-		113	106	102	106	100	73	107
Surr 4-Terphenyl-d14	Surr Rec %	-		105	101	99	101	94	82	100
Surr 2-Fluorophenol	Surr Rec %	-		92	88	81	90	78	73	75
Surr Phenol-d6	Surr Rec %	-		97	92	88	94	84	78	82
Surr 2,4,6-Tribromophenol	Surr Rec %	-		76	73	71	76	68	72	78



FINAL REPORT

CA14932-OCT20 R

Client: DS Consultants

Project: 20-265-400, Thornbury

Project Manager: Drew Doak

Samplers: Matt Zammit

PACKAGE: REG153 - SVOC Surrogates (SOIL)

Sample Number	18	19
Sample Name	TP7	TP8
Sample Matrix	Soil	Soil
Sample Date	29/10/2020	29/10/2020

L1 = REG153 / SOIL / COARSE - TABLE 2 - Residential/Parkland - UNDEFINED

Parameter	Units	RL	L1	Result	Result
SVOC Surrogates					
Surr Nitrobenzene-d5	Surr Rec %	-		69	75
Surr 2-Fluorobiphenyl	Surr Rec %	-		102	99
Surr 4-Terphenyl-d14	Surr Rec %	-		102	87
Surr 2-Fluorophenol	Surr Rec %	-		90	93
Surr Phenol-d6	Surr Rec %	-		84	88
Surr 2,4,6-Tribromophenol	Surr Rec %	-		81	78



EXCEEDANCE SUMMARY

REG153 / SOIL /
COARSE - TABLE
2 -
Residential/Parklan
d - UNDEFINED
L1

TP3-2

Fluoranthene	EPA 3541/8270D	µg/g	0.73	0.69
--------------	----------------	------	------	------

TP6

Lead	EPA 3050/EPA 200.8	µg/g	170	120
2-and 1-methyl Naphthalene	EPA 3541/8270D	µg/g	4.51	0.99
Benz(a)anthracene	EPA 3541/8270D	µg/g	0.80	0.5
Benzo(a)pyrene	EPA 3541/8270D	µg/g	0.94	0.3
Benzo(b+j)fluoranthene	EPA 3541/ 270D	µg/g	1 49	0.78
Dibenz(a,h)anthracene	EPA 3541/8270D	µg/g	0.12	0.1
Fluoranthene	EPA 3541/8270D	µg/g	1.57	0.69
Indeno(1,2,3-cd)pyrene	EPA 3541/8270D	µg/g	0.43	0.38
Naphthalene	EPA 3541/8270D	µg/g	1.64	0.6
Mercury	EPA 7471A/EPA 245	µg/g	0.35	0.27

TP6 Dup2

Lead	EPA 3050/EPA 00	µg/g	160	120
Mercury	EPA 7471A/EPA 245	µg/g	0.36	0.27

TP7

Lead	EPA 3050/EPA 200.8	µg/g	170	120
Benz(a)anthracene	EPA 3541/8270D	µg/g	1.19	0.5
Benzo(a)pyrene	EPA 3541/8270D	µg/g	1.15	0.3
Benzo(b+j)fluoranthene	EPA 3541/8270D	µg/g	1.75	0.78
Dibenz(a,h)anthracene	EPA 3541/ 270D	µg/g	0 1	0.1
Fluoranthene	EPA 3541/8270D	µg/g	2.52	0.69
Indeno(1,2,3-cd)pyrene	EPA 3541/8270D	µg/g	0.42	0.38

TP8

Benz(a)anthracene	EPA 3541/8270D	µg/g	1.86	0.5
Benzo(a)pyrene	EPA 3541/8270D	µg/g	1.73	0.3
Benzo(b+j)fluoranthene	EPA 3541/8270D	µg/g	2.27	0.78
Benzo(k)fluoranthene	EPA 3541/ 270D	µg/g	0 9	0.78
Dibenz(a,h)anthracene	EPA 3541/8270D	µg/g	0.19	0.1
Fluoranthene	EPA 3541/8270D	µg/g	3.42	0.69
Indeno(1,2,3-cd)pyrene	EPA 3541/8270D	µg/g	0.67	0.38



FINAL REPORT

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QC SUMMARY

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Conductivity	EWL0091-NOV20	mS/cm	0.002	<0.002	0	10	99	90	110	NA		

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Free Cyanide	SKA5004-NOV20	µg/g	0.05	<0.05	ND	20	99	80	120	83	75	125
Free Cyanide	SKA5011-NOV20	µg/g	0.05	<0.05	ND	20	92	80	120	89	75	125

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chromium VI	SKA5014-NOV20	ug/g	0.2	<0 2	ND	20	88	80	120	93	75	125



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QC SUMMARY

Mercury by CVAAS

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury	EMS0010-NOV20	ug/g	0.05	<0.05	ND	20	104	80	120	89	70	130
Mercury	EMS0035-NOV20	ug/g	0.05	<0.05	ND	20	109	80	120	94	70	130

Metals in aqueous samples - ICP-OES

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
SAR Calcium	ESG0019-NOV20	mg/L	0.09	<0.09	16	20	96	80	120	106	70	130
SAR Magnesium	ESG0019-NOV20	mg/L	0.02	<0.02	3	20	94	80	120	106	70	130
SAR Sodium	ESG0019-NOV20	mg/L	0.15	<0.15	9	20	92	80	120	106	70	130



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QC SUMMARY

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver	EMS0010-NOV20	ug/g	0.05	<0.05	ND	20	106	70	130	91	70	130
Arsenic	EMS0010-NOV20	µg/g	0.5	<0 5	0	20	102	70	130	98	70	130
Barium	EMS0010-NOV20	ug/g	0.1	<0.1	1	20	106	70	130	91	70	130
Beryllium	EMS0010-NOV20	µg/g	0.02	<0.02	2	20	102	70	130	107	70	130
Boron	EMS0010-NOV20	µg/g	1	<1	3	20	99	70	130	100	70	130
Cadmium	EMS0010-NOV20	µg/g	0.02	<0.02	6	20	101	70	130	92	70	130
Cobalt	EMS0010-NOV20	µg/g	0.01	<0.01	1	20	104	70	130	100	70	130
Chromium	EMS0010-NOV20	µg/g	0.5	<0 5	2	20	108	70	130	104	70	130
Copper	EMS0010-NOV20	µg/g	0.1	<0.1	3	20	106	70	130	95	70	130
Molybdenum	EMS0010-NOV20	µg/g	0.1	<0.1	7	20	95	70	130	93	70	130
Nickel	EMS0010-NOV20	ug/g	0.5	<0 5	1	20	102	70	130	97	70	130
Lead	EMS0010-NOV20	ug/g	0.1	<0.1	3	20	108	70	130	96	70	130
Antimony	EMS0010-NOV20	µg/g	0.8	<0.8	ND	20	93	70	130	92	70	130
Selenium	EMS0010-NOV20	µg/g	0.7	<0.7	ND	20	101	70	130	94	70	130
Thallium	EMS0010-NOV20	µg/g	0.02	<0.02	8	20	108	70	130	101	70	130
Uranium	EMS0010-NOV20	µg/g	0.002	<0.002	4	20	100	70	130	102	70	130
Vanadium	EMS0010-NOV20	µg/g	3	<3	2	20	105	70	130	99	70	130
Zinc	EMS0010-NOV20	µg/g	0.7	<0.7	1	20	106	70	130	93	70	130
Silver	EMS0035-NOV20	ug/g	0.05	<0.05	4	20	97	70	130	91	70	130
Arsenic	EMS0035-NOV20	µg/g	0.5	<0 5	1	20	105	70	130	93	70	130



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QC SUMMARY

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Barium	EMS0035-NOV20	ug/g	0.1	<0.1	1	20	104	70	130	110	70	130
Beryllium	EMS0035-NOV20	µg/g	0.02	<0.02	3	20	99	70	130	103	70	130
Boron	EMS0035-NOV20	µg/g	1	<1	2	20	109	70	130	106	70	130
Cadmium	EMS0035-NOV20	µg/g	0.02	<0.02	6	20	99	70	130	103	70	130
Cobalt	EMS0035-NOV20	µg/g	0.01	<0.01	1	20	102	70	130	100	70	130
Chromium	EMS0035-NOV20	µg/g	0.5	<0 5	0	20	104	70	130	101	70	130
Copper	EMS0035-NOV20	µg/g	0.1	<0.1	4	20	103	70	130	96	70	130
Molybdenum	EMS0035-NOV20	µg/g	0.1	<0.1	5	20	99	70	130	100	70	130
Nickel	EMS0035-NOV20	ug/g	0.5	<0 5	0	20	101	70	130	98	70	130
Lead	EMS0035-NOV20	ug/g	0.1	<0.1	1	20	103	70	130	97	70	130
Antimony	EMS0035-NOV20	µg/g	0.8	<0.8	ND	20	100	70	130	106	70	130
Selenium	EMS0035-NOV20	µg/g	0.7	<0.7	ND	20	100	70	130	97	70	130
Thallium	EMS0035-NOV20	µg/g	0.02	<0.02	3	20	107	70	130	109	70	130
Uranium	EMS0035-NOV20	µg/g	0.002	<0.002	4	20	97	70	130	100	70	130
Vanadium	EMS0035-NOV20	µg/g	3	<3	0	20	102	70	130	100	70	130
Zinc	EMS0035-NOV20	µg/g	0.7	<0.7	1	20	98	70	130	94	70	130



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QC SUMMARY

Petroleum Hydrocarbons (F1)

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
F1 (C6-C10)	GCM0005-NOV20	µg/g	10	<10	ND	30	108	80	120	109	60	140
F1 (C6-C10)	GCM0067-NOV20	µg/g	10	<10	ND	30	118	80	120	100	60	140

Petroleum Hydrocarbons (F2-F4)

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
F2 (C10-C16)	GCM0039-NOV20	µg/g	10	<10	ND	30	111	80	120	119	60	140
F3 (C16-C34)	GCM0039-NOV20	µg/g	50	<50	ND	30	111	80	120	119	60	140
F4 (C34-C50)	GCM0039-NOV20	µg/g	50	<50	ND	30	111	80	120	119	60	140
F2 (C10-C16)	GCM0104-NOV20	µg/g	10	<10	ND	30	97	80	120	101	60	140
F3 (C16-C34)	GCM0104-NOV20	µg/g	50	<50	ND	30	97	80	120	101	60	140
F4 (C34-C50)	GCM0104-NOV20	µg/g	50	<50	ND	30	97	80	120	101	60	140



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QC SUMMARY

Petroleum Hydrocarbons (F4G)

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
F4G-sg (GHH)	GCM0118-NOV20	µg/g	200	<200	NA	30	91	80	120	NA	60	140

pH

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
pH	ARD0011-NOV20	pH Units	0.05		0	20	100	80	120			
pH	ARD0024-NOV20	pH Units	0.05		0	20	100	80	120			



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QC SUMMARY

Semi-Volatile Organics

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1-Methylnaphthalene	GCM0078-NOV20	µg/g	0.05	< 0.05	48	40	90	50	140	105	50	140
2-Methylnaphthalene	GCM0078-NOV20	µg/g	0.05	< 0.05	55	40	86	50	140	101	50	140
Acenaphthene	GCM0078-NOV20	µg/g	0.05	< 0.05	21	40	94	50	140	103	50	140
Acenaphthylene	GCM0078-NOV20	µg/g	0.05	< 0.05	ND	40	86	50	140	111	50	140
Anthracene	GCM0078-NOV20	µg/g	0.05	< 0.05	32	40	91	50	140	109	50	140
Benzo(a)anthracene	GCM0078-NOV20	µg/g	0.05	< 0.05	45	40	93	50	140	NV	50	140
Benzo(a)pyrene	GCM0078-NOV20	µg/g	0.05	< 0.05	45	40	102	50	140	NV	50	140
Benzo(b+j)fluoranthene	GCM0078-NOV20	µg/g	0.05	< 0.05	40	40	96	50	140	NV	50	140
Benzo(ghi)perylene	GCM0078-NOV20	µg/g	0.1	< 0.1	38	40	96	50	140	72	50	140
Benzo(k)fluoranthene	GCM0078-NOV20	µg/g	0.05	< 0.05	50	40	97	50	140	NV	50	140
Chrysene	GCM0078-NOV20	µg/g	0.05	< 0.05	45	40	94	50	140	NV	50	140
Dibenzo(a,h)anthracene	GCM0078-NOV20	µg/g	0.06	< 0.06	43	40	93	50	140	72	50	140
Fluoranthene	GCM0078-NOV20	µg/g	0.05	< 0.05	21	40	96	50	140	NV	50	140
Fluorene	GCM0078-NOV20	µg/g	0.05	< 0.05	9	40	91	50	140	100	50	140
Indeno(1,2,3-cd)pyrene	GCM0078-NOV20	µg/g	0.1	< 0.1	42	40	94	50	140	76	50	140
Naphthalene	GCM0078-NOV20	µg/g	0.05	< 0.05	21	40	93	50	140	99	50	140
Phenanthrene	GCM0078-NOV20	µg/g	0.05	< 0.05	31	40	93	50	140	NV	50	140
Pyrene	GCM0078-NOV20	µg/g	0.05	< 0.05	33	40	105	50	140	NV	50	140
1-Methylnaphthalene	GCM0135-NOV20	µg/g	0.05	< 0.05	ND	40	85	50	140	81	50	140
2-Methylnaphthalene	GCM0135-NOV20	µg/g	0.05	< 0.05	ND	40	85	50	140	82	50	140



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QC SUMMARY

Semi-Volatile Organics (continued)
Method: EPA 3541/8270D | Internal ref.: ME-CA-IENVIGC-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Acenaphthene	GCM0135-NOV20	µg/g	0.05	< 0.05	ND	40	85	50	140	81	50	140
Acenaphthylene	GCM0135-NOV20	µg/g	0.05	< 0.05	ND	40	84	50	140	80	50	140
Anthracene	GCM0135-NOV20	µg/g	0.05	< 0.05	ND	40	87	50	140	81	50	140
Benzo(a)anthracene	GCM0135-NOV20	µg/g	0.05	< 0.05	ND	40	85	50	140	80	50	140
Benzo(a)pyrene	GCM0135-NOV20	µg/g	0.05	< 0.05	ND	40	86	50	140	81	50	140
Benzo(b+j)fluoranthene	GCM0135-NOV20	µg/g	0.05	< 0.05	ND	40	86	50	140	82	50	140
Benzo(ghi)perylene	GCM0135-NOV20	µg/g	0.1	< 0.1	ND	40	84	50	140	80	50	140
Benzo(k)fluoranthene	GCM0135-NOV20	µg/g	0.05	< 0.05	ND	40	86	50	140	80	50	140
Chrysene	GCM0135-NOV20	µg/g	0.05	< 0.05	ND	40	88	50	140	84	50	140
Dibenzo(a,h)anthracene	GCM0135-NOV20	µg/g	0.06	< 0.06	ND	40	82	50	140	77	50	140
Fluoranthene	GCM0135-NOV20	µg/g	0.05	< 0.05	ND	40	87	50	140	82	50	140
Fluorene	GCM0135-NOV20	µg/g	0.05	< 0.05	ND	40	85	50	140	80	50	140
Indeno(1,2,3-cd)pyrene	GCM0135-NOV20	µg/g	0.1	< 0.1	ND	40	83	50	140	78	50	140
Naphthalene	GCM0135-NOV20	µg/g	0.05	< 0.05	ND	40	85	50	140	81	50	140
Phenanthrene	GCM0135-NOV20	µg/g	0.05	< 0.05	ND	40	87	50	140	81	50	140
Pyrene	GCM0135-NOV20	µg/g	0.05	< 0.05	ND	40	88	50	140	83	50	140



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QC SUMMARY

Volatile Organics

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Benzene	GCM0005-NOV20	µg/g	0.02	<0.02	ND	50	96	60	130	100	50	140
Ethylbenzene	GCM0005-NOV20	µg/g	0.05	<0.05	ND	50	85	60	130	93	50	140
m/p-xylene	GCM0005-NOV20	µg/g	0.05	<0.05	ND	50	88	60	130	97	50	140
o-xylene	GCM0005-NOV20	µg/g	0.05	<0.05	ND	50	88	60	130	96	50	140
Toluene	GCM0005-NOV20	µg/g	0.05	<0.05	ND	50	89	60	130	96	50	140
Benzene	GCM0067-NOV20	µg/g	0.02	<0.02	ND	50	115	60	130	97	50	140
Ethylbenzene	GCM0067-NOV20	µg/g	0.05	<0.05	ND	50	103	60	130	91	50	140
m/p-xylene	GCM0067-NOV20	µg/g	0.05	<0.05	ND	50	107	60	130	95	50	140
o-xylene	GCM0067-NOV20	µg/g	0.05	<0.05	ND	50	106	60	130	94	50	140
Toluene	GCM0067-NOV20	µg/g	0.05	<0.05	ND	50	107	60	130	94	50	140

Water Soluble Boron

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Water Soluble Boron	ESG0008-NOV20	µg/g	0.5	<0 5	ND	20	98	80	120	110	70	130
Water Soluble Boron	ESG0021-NOV20	µg/g	0.5	<0 5	ND	20	93	80	120	108	70	130



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QC SUMMARY

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

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

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

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

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

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

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

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

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



LEGEND

FOOTNOTES

NSS Insufficient sample for analysis.

RL Reporting Limit.

↑ Reporting limit raised.

↓ Reporting limit lowered.

NA The sample was not analysed for this analyte

ND Non Detect

Samples analysed as received. Solid samples expressed on a dry weight basis. "Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.

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

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated. This document is issued, on the Client's behalf, by the Company under its General Conditions of Service available on request and accessible at http://www.sgs.com/terms_and_conditions.htm. The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any other holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents.

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-- End of Analytical Report --



Request for Laboratory Services and CHAIN OF CUSTODY

No: 010840

Page 1 of 1

Laboratory Information Section - Lab use only

Received By: J. Bunn Received By (signature): [Signature]
 Received Date: 10/30/20 (mm/dd/yy) Custody Seal Present: Yes ☒ No ☐ Cooling Agent Present: Yes ☒ No ☐ Type: Ice
 Received Time: 14:45 (hr:min) Custody Seal Intact: Yes ☒ No ☐ Temperature Upon Receipt (°C): 4.6
 LAB LIMS #: CA14932 - OCT20

REPORT INFORMATION	INVOICE INFORMATION	QUOTATION & PROJECT	TURNAROUND TIME (TAT) REQUIRED
Company: <u>DS Consultants</u>	☐ (same as Report Information)	Quotation #: <u>Standard</u>	P.O. #:
Contact: <u>Drew Doak</u>	Company: <u>DS Consultants</u>	Project #: <u>20-265-400</u>	Site Location/ID: <u>Thornbury</u>
Address: <u>6221 Hwy 7 Unit 16</u>	Contact: <u>Pavola</u>	TURNAROUND TIME (TAT) REQUIRED	
<u>Vaughan, ON L4H 0K8</u>	Address:	☒ Regular TAT (5-7 days) TAT's are quoted in business days (exclude statutory holidays & weekends). Samples received after 6pm or on weekends: TAT begins next business day	
Phone: <u>905-715-4182</u>	Phone: <u>647-781-7483</u>	RUSH TAT (Additional Charges May Apply): ☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 4 Days	
Fax:		PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION	
Email: <u>drew.doak@dsconsultants.ca</u>	Email: <u>Pavola.derveni@dsconsultants.ca</u>	Specify Due Date:	NOTE: DRINKING (POTABLE) WATER SAMPLES FOR HUMAN CONSUMPTION MUST BE SUBMITTED WITH SGS DRINKING WATER CHAIN OF CUSTODY

REGULATIONS					ANALYSIS REQUESTED															COMMENTS:			
Regulation 153/04:			Other Regulations:			Sewer By-Law:			M & I		SVOC	PCB	PHC	VOC	Pest	Other (please specify)					TCLP		
☐ Table 1	☒ Res/Park	Soil Texture:	☐ Reg 347/558 (3 Day min TAT)	☐ PWQO	☐ MMR	☐ Sanitary															Specify TCLP tests		
☒ Table 2	☐ Ind/Com	☒ Coarse	☐ CCME	☐ Other:	☐ Storm																☐ M&I		
☐ Table 3	☐ Agri/Other	☐ Medium	☐ MISA			Municipality:														☐ VOC			
☐ Table		☐ Fine																		☐ PCB			
RECORD OF SITE CONDITION (RSC) ☐ YES ☐ NO																							
SAMPLE IDENTIFICATION					DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX	Field Filtered (Y/N)	Metals & Inorganics (Ind Cr, VI, CN, Hg, Pb, Bi, BWS, EC, SAR, soil) (Cl, Na-water)	Full Metals Suite (ICP metals plus BWS-soil only; Hg, Cr, VI, Sb, As, Ba, Be, B, Cd, Cr, Cu, Fe, Pb, Mo, Ni, Se, Ag, Ti, U, V, Zn)	ICP Metals only	PAHs only	SVOCs (all ind PAHs, ABNs, CPAs)	PCBs Total ☐ Aroclor ☐	F1-F4 + BTEX	F1-F4 only no BTEX	VOCs (all ind BTEX)	BTEX only	Pesticides (Organochlorine or specify other)	Sewer Use: Specify pkg:	Water Characterization Pkg General ☐ Extended ☐	TCLP
1	TP1 A	Oct. 29/20	pm	1	SOM																		
2	TP1 B	"	"	1	"																		
3	TP3 A	"	"	1	"																		
4	TP3 B	"	"	1	"																		
5	TP3 A DUP 1	"	"	1	"																		
6	TP3 -2	"	"	5	"		✓																
7	TP5	"	"	5	"		✓																
8	TP6	"	"	5	"		✓																
9	TP6 DUP 2	"	"	1	"		✓																
10	TP7	"	"	5	"		✓																
11	TP8	"	"	5	"		✓																
12																							

Observations/Comments/Special Instructions:

Sampled By (NAME): Matt Zumbach Signature: [Signature] Date: 10/30/2020 (mm/dd/yy) Pink Copy - Client

Relinquished by (NAME): Signature: Date: (mm/dd/yy) Yellow & White Copy - SGS

Revision #: 1.2
Date of Issue: 09 Sept, 2019
Note: Submission of samples to SGS is acknowledgement that you have been provided direction on sample collection/handling and transportation of samples. (2) Submission of samples to SGS is considered authorization for completion of work. Signatures may appear on this form or be retained on file in the contract, or in an alternative format (e.g. shipping documents). (3) Results may be sent by email to an unlimited number of addresses for no additional cost. Fax is available upon request. This document is issued by the Company under its General Conditions of Service accessible at http://www.sgs.com/terms_and_conditions.htm. (Printed copies are available upon request.) Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.



FINAL REPORT

CA14445-OCT20 R

20-265-400, Thornbury ON.

Prepared for

DS Consultants



FINAL REPORT

CA14445-OCT20 R

First Page

CLIENT DETAILS

Client DS Consultants

Address 6221 Highway 7
Vaughan, Ontario
L4H 0K8, Canada

Contact Drew Doak

Telephone 905-264-9393

Facsimile 905-264-2685

Email drew.doak@dsconsultants.ca

Project 20-265-400, Thornbury ON.

Order Number

Samples Ground Water (3)

LABORATORY DETAILS

Project Specialist Brad Moore Hon. B.Sc

Laboratory SGS Canada Inc.

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

Telephone 705-652-2143

Facsimile 705-652-6365

Email brad.moore@sgs.com

SGS Reference CA14445-OCT20

Received 10/16/2020

Approved 10/22/2020

Report Number CA14445-OCT20 R

Date Reported 10/22/2020

COMMENTS

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

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

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

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

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

Linearity is within 15%: YES

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

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

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

Temperature of Sample upon Receipt: 7 degrees C

Cooling Agent Present: Yes

Custody Seal Present: Yes

Chain of Custody Number: 017483

SIGNATORIES

Brad Moore Hon. B.Sc



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FINAL REPORT

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Client: DS Consultants

Project: 20-265-400, Thornbury ON.

Project Manager: Drew Doak

Samplers: Matt Zammit

PACKAGE: REG153 - BTEX (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 2 - All Types of Property Uses - UNDEFINED

Sample Number				7	8	9
Sample Name				BH 20-1	BH 20-2	BH 20-3
Sample Matrix				Ground Water	Ground Water	Ground Water
Sample Date				15/10/2020	15/10/2020	15/10/2020
Parameter	Units	RL	L1	Result	Result	Result
BTEX						
Benzene	µg/L	0.5	5	< 0.5	< 0.5	< 0.5
Ethylbenzene	µg/L	0.5	2.4	< 0.5	< 0.5	< 0.5
Toluene	µg/L	0.5	24	< 0.5	< 0.5	0.5
Xylene (total)	µg/L	0.5	300	< 0.5	< 0.5	< 0.5
m/p-xylene	µg/L	0.5		< 0.5	< 0.5	< 0.5
o-xylene	µg/L	0.5		< 0.5	< 0.5	< 0.5

PACKAGE: REG153 - Hydrides (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 2 - All Types of Property Uses - UNDEFINED

Sample Number				7	8	9
Sample Name				BH 20-1	BH 20-2	BH 20-3
Sample Matrix				Ground Water	Ground Water	Ground Water
Sample Date				15/10/2020	15/10/2020	15/10/2020
Parameter	Units	RL	L1	Result	Result	Result
Hydrides						
Antimony	µg/L	0.09	6	0.15	< 0.09	0.30
Arsenic	µg/L	0.2	25	< 0.2	< 0.2	0.7
Selenium	µg/L	0.04	10	0.04	< 0.04	0.14



FINAL REPORT

CA14445-OCT20 R

Client: DS Consultants

Project: 20-265-400, Thornbury ON.

Project Manager: Drew Doak

Samplers: Matt Zammit

PACKAGE: REG153 - Metals and Inorganics
(WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 2 - All Types of Property Uses - UNDEFINED

Sample Number				7	8	9
Sample Name				BH 20-1	BH 20-2	BH 20-3
Sample Matrix				Ground Water	Ground Water	Ground Water
Sample Date				15/10/2020	15/10/2020	15/10/2020
Parameter	Units	RL	L1	Result	Result	Result
Metals and Inorganics						
Barium	µg/L	0.02	1000	43.7	31.2	58.2
Beryllium	µg/L	0.007	4	< 0.007	< 0.007	< 0.007
Boron	µg/L	2	5000	15	17	85
Cadmium	µg/L	0.003	2.7	< 0.003	0.005	< 0.003
Chromium	µg/L	0.08	50	0.14	3.94	0.11
Cobalt	µg/L	0.004	3.8	0.120	0.672	0.802
Copper	µg/L	0.2	87	1.9	3.4	2.4
Lead	µg/L	0.01	10	0.10	0.60	0.09
Molybdenum	µg/L	0.04	70	0.32	0.88	4.80
Nickel	µg/L	0.1	100	0.3	1.7	2.2
Silver	µg/L	0.05	1.5	< 0.05	< 0.05	< 0.05
Thallium	µg/L	0.005	2	< 0.005	0.011	0.029
Uranium	µg/L	0.002	20	0.008	0.596	1.37
Vanadium	µg/L	0.01	6.2	0.07	0.53	0.25
Zinc	µg/L	2	1100	< 2	5	< 2



FINAL REPORT

CA14445-OCT20 R

Client: DS Consultants

Project: 20-265-400, Thornbury ON.

Project Manager: Drew Doak

Samplers: Matt Zammit

PACKAGE: REG153 - Na (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 2 - All Types of Property Uses - UNDEFINED

Sample Number				7	8	9
Sample Name				BH 0 1	BH 0	BH 20 3
Sample Matrix				Ground Water	Ground Water	Ground Water
Sample Date				15/10/2020	15/10/2020	15/10/2020
Parameter	Units	RL	L1	Result	Result	Result
Na						
Sodium	µg/L	10	490000	19600	19100	16 00

PACKAGE: REG153 - Other (ORP) (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 2 - All Types of Property Uses - UNDEFINED

Sample Number				7	8	9
Sample Name				BH 20-1	BH 20-2	BH 20-3
Sample Matrix				Ground Water	Ground Water	Ground Water
Sample Date				15/10/ 020	15/10/ 0 0	15/10/20 0
Parameter	Units	RL	L1	Result	Result	Result
Other (ORP)						
Mercury (total)	µg/L	0.01	0.29	< 0.01	< 0.01	< 0.01
pH	No unit	0.05		7.35	7.64	7.63
Chloride	µg/L	00	790000	41000	58000	110000
Chromium VI	µg/L	0.2	25	< 0.2	< 0 2	< 0.2
Cyanide (free)	µg/L	2	66	< 2	< 2	< 2

PACKAGE: REG153 - PAHs (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 2 - All Types of Property Uses - UNDEFINED

Sample Number				7	8	9
Sample Name				BH 20-1	BH 20-2	BH 20-3
Sample Matrix				Ground Water	Ground Water	Ground Water
Sample Date				15/10/2020	15/10/2020	15/10/2020
Parameter	Units	RL	L1	Result	Result	Result
PAHs						
Acenaphthene	µg/L	0.1	4.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	µg/L	0.1	1	< 0.1	< 0.1	< 0.1
Anthracene	µg/L	0.1	2.4	< 0.1	< 0.1	< 0.1
Benzo(a)anthracene	µg/L	0 1	1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	µg/L	0.01	0.01	< 0.01	< 0.01	< 0.01



FINAL REPORT

CA14445-OCT20 R

Client: DS Consultants

Project: 20-265-400, Thornbury ON.

Project Manager: Drew Doak

Samplers: Matt Zammit

PACKAGE: **REG153 - PAHs (WATER)**

Sample Number	7	8	9
Sample Name	BH 20-1	BH 20-2	BH 20-3
Sample Matrix	Ground Water	Ground Water	Ground Water
Sample Date	15/10/2020	15/10/2020	15/10/2020

L1 = REG153 / GROUND WATER / COARSE - TABLE 2 - All Types of Property Uses - UNDEFINED

Parameter	Units	RL	L1	Result	Result	Result
PAHs (continued)						
Benzo(b+j)fluoranthene	µg/L	0.1	0.1	< 0.1	< 0.1	< 0.1
Benzo(ghi)perylene	µg/L	0.2	0.2	< 0.2	< 0.2	< 0.2
Benzo(k)fluoranthene	µg/L	0.1	0.1	< 0.1	< 0.1	< 0.1
Chrysene	µg/L	0.1	0.1	< 0.1	< 0.1	< 0.1
Dibenzo(a,h)anthracene	µg/L	0.1	0.2	< 0.1	< 0.1	< 0.1
Fluoranthene	µg/L	0.1	0.41	< 0.1	< 0.1	< 0.1
Fluorene	µg/L	0.1	120	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-cd)pyrene	µg/L	0.2	0.2	< 0.2	< 0.2	< 0.2
1-Methylnaphthalene	µg/L	0.5		< 0.5	< 0.5	< 0.5
2-Methylnaphthalene	µg/L	0.5		< 0.5	< 0.5	< 0.5
Methylnaphthalene, 2-(1-)	µg/L	0.5	3.2	< 0.5	< 0.5	< 0.5
Naphthalene	µg/L	0.5	11	< 0.5	< 0.5	< 0.5
Phenanthrene	µg/L	0.1	1	< 0.1	< 0.1	< 0.1
Pyrene	µg/L	0.1	4.1	< 0.1	< 0.1	< 0.1



FINAL REPORT

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Client: DS Consultants

Project: 20-265-400, Thornbury ON.

Project Manager: Drew Doak

Samplers: Matt Zammit

PACKAGE: REG153 - PHCs (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 2 - All Types of Property Uses - UNDEFINED

Sample Number				7	8	9
Sample Name				BH 20-1	BH 20-2	BH 20-3
Sample Matrix				Ground Water	Ground Water	Ground Water
Sample Date				15/10/2020	15/10/2020	15/10/2020
Parameter	Units	RL	L1	Result	Result	Result
PHCs						
F1 (C6-C10)	µg/L	25	750	< 25	< 25	< 25
F1-BTEX (C6-C10)	µg/L	25		< 25	< 25	< 25
F2 (C10-C16)	µg/L	100	150	< 100	< 100	< 100
F3 (C16-C34)	µg/L	200	500	< 200	< 200	< 200
F4 (C34-C50)	µg/L	200	500	< 200	< 200	< 200
Chromatogram returned to baseline at nC50	Yes / No	-		YES	YES	YES

PACKAGE: REG153 - SVOC Surrogates (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 2 - All Types of Property Uses - UNDEFINED

Sample Number				7	8	9
Sample Name				BH 20-1	BH 20-2	BH 20-3
Sample Matrix				Ground Water	Ground Water	Ground Water
Sample Date				15/10/2020	15/10/2020	15/10/2020
Parameter	Units	RL	L1	Result	Result	Result
SVOC Surrogates						
Surr 2-Methylnaphthalene-D10	Surr Rec %	-		82	83	75
Surr Fluoranthene-D10	Surr Rec %	-		77	90	80
Surr 2-Fluorobiphenyl	Surr Rec %	-		82	82	73
Surr 4-Terphenyl-d14	Surr Rec %	-		80	99	79



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Client: DS Consultants

Project: 20-265-400, Thornbury ON.

Project Manager: Drew Doak

Samplers: Matt Zammit

PACKAGE: REG153 - THMs (VOC) (WATER)

Sample Number	7	8	9
Sample Name	BH 0 1	BH 0	BH 20 3
Sample Matrix	Ground Water	Ground Water	Ground Water
Sample Date	15/10/2020	15/10/2020	15/10/2020

L1 = REG153 / GROUND WATER / COARSE - TABLE 2 - All Types of Property Uses - UNDEFINED

Parameter	Units	RL	L1	Result	Result	Result
THMs (VOC)						
Bromodichloromethane	µg/L	0.5	16	0 5	0 5	0 5
Bromoform	µg/L	0.5	25	< 0.5	< 0 5	< 0.5
Dibromochloromethane	µg/L	0.5	25	< 0.5	< 0 5	< 0.5

PACKAGE: REG153 - VOC Surrogates (WATER)

Sample Number	7	8	9
Sample Name	BH 20-1	BH 20-2	BH 20-3
Sample Matrix	Ground Water	Ground Water	Ground Water
Sample Date	15/10/2020	15/10/2020	15/10/2020

L1 = REG153 / GROUND WATER / COARSE - TABLE 2 - All Types of Property Uses - UNDEFINED

Parameter	Units	RL	L1	Result	Result	Result
VOC Surrogates						
Surr 1,2-Dichloroethane-d4	Surr Rec %			108	110	108
Surr 2-Bromo-1-Chloropropane	Surr Rec %	-		94	97	95
Surr 4-Bromofluorobenzene	Surr Rec %	-		88	89	89

PACKAGE: REG153 - VOCs (WATER)

Sample Number	7	8	9
Sample Name	BH 20-1	BH 20-2	BH 20-3
Sample Matrix	Ground Water	Ground Water	Ground Water
Sample Date	15/10/2020	15/10/2020	15/10/2020

L1 = REG153 / GROUND WATER / COARSE - TABLE 2 - All Types of Property Uses - UNDEFINED

Parameter	Units	RL	L1	Result	Result	Result
VOCs						
Acetone	µg/L	30	2700	< 30	< 30	< 30
Bromomethane	µg/L	0.5	0.89	< 0.5	< 0 5	< 0.5
Carbon tetrachloride	µg/L	0.2	0.79	< 0.2	< 0 2	< 0.2
Chlorobenzene	µg/L	0 5	30	< 0.5	< 0 5	< 0.5
Chloroform	µg/L	0.5	2.4	< 0.5	< 0 5	< 0.5



FINAL REPORT

CA14445-OCT20 R

Client: DS Consultants

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Project Manager: Drew Doak

Samplers: Matt Zammit

PACKAGE: **REG153 - VOCs (WATER)**

Sample Number	7	8	9
Sample Name	BH 20-1	BH 20-2	BH 20-3
Sample Matrix	Ground Water	Ground Water	Ground Water
Sample Date	15/10/2020	15/10/2020	15/10/2020

L1 = REG153 / GROUND WATER / COARSE - TABLE 2 - All Types of Property Uses - UNDEFINED

Parameter	Units	RL	L1	Result	Result	Result
VOCs (continued)						
1,2-Dichlorobenzene	µg/L	0.5	3	< 0.5	< 0.5	< 0.5
1,3-Dichlorobenzene	µg/L	0.5	59	< 0.5	< 0.5	< 0.5
1,4-Dichlorobenzene	µg/L	0.5	1	< 0.5	< 0.5	< 0.5
Dichlorodifluoromethane	µg/L	2.0	590	< 2	< 2	< 2
1,1-Dichloroethane	µg/L	0.5	5	< 0.5	< 0.5	< 0.5
1,2-Dichloroethane	µg/L	0.5	1.6	< 0.5	< 0.5	< 0.5
1,1-Dichloroethylene	µg/L	0.5	1.6	< 0.5	< 0.5	< 0.5
trans-1,2-Dichloroethene	µg/L	0.5	1.6	< 0.5	< 0.5	< 0.5
cis-1,2-Dichloroethene	µg/L	0.5	1.6	< 0.5	< 0.5	< 0.5
1,2-Dichloropropane	µg/L	0.5	5	< 0.5	< 0.5	< 0.5
cis-1,3-Dichloropropene	µg/L	0.5		< 0.5	< 0.5	< 0.5
trans-1,3-Dichloropropene	µg/L	0.5		< 0.5	< 0.5	< 0.5
1,3-dichloropropene (total)	µg/L	0.5	0.5	< 0.5	< 0.5	< 0.5
Ethylenedibromide	µg/L	0.2	0.2	< 0.2	< 0.2	< 0.2
n-Hexane	µg/L	1.0	51	< 1	< 1	< 1
Methyl ethyl ketone	µg/L	20	1800	< 20	< 20	< 20
Methyl Isobutyl Ketone	µg/L	20	640	< 20	< 20	< 20
Methyl-t-butyl Ether	µg/L	2.0	15	< 2	< 2	< 2
Methylene Chloride	µg/L	0.5	50	< 0.5	< 0.5	< 0.5
Styrene	µg/L	0.5	5.4	< 0.5	< 0.5	< 0.5
Tetrachloroethylene (perchloroethylene)	µg/L	0.5	1.6	< 0.5	< 0.5	< 0.5
1,1,1,2-Tetrachloroethane	µg/L	0.5	1.1	< 0.5	< 0.5	< 0.5
1,1,2,2-Tetrachloroethane	µg/L	0.5	1	< 0.5	< 0.5	< 0.5
1,1,1-Trichloroethane	µg/L	0.5	200	< 0.5	< 0.5	< 0.5
1,1,2-Trichloroethane	µg/L	0.5	4.7	< 0.5	< 0.5	< 0.5



FINAL REPORT

CA14445-OCT20 R

Client: DS Consultants

Project: 20-265-400, Thornbury ON.

Project Manager: Drew Doak

Samplers: Matt Zammit

PACKAGE: REG153 - VOCs (WATER)

L1 = REG153 / GROUND WATER / COARSE - TABLE 2 - All Types of Property Uses - UNDEFINED

Sample Number				7	8	9
Sample Name				BH 0 1	BH 0	BH 20 3
Sample Matrix				Ground Water	Ground Water	Ground Water
Sample Date				15/10/2020	15/10/2020	15/10/2020
Parameter	Units	RL	L1	Result	Result	Result
VOCs (continued)						
Trichloroethylene	µg/L	0.5	1.6	< 0.5	< 0 5	< 0.5
Trichlorofluoromethane	µg/L	5.0	150	< 5	< 5	< 5
Vinyl Chloride	µg/L	0.2	0.5	< 0.2	< 0 2	< 0.2



FINAL REPORT

CA14445-OCT20 R

EXCEEDANCE SUMMARY

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



FINAL REPORT

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QC SUMMARY

Anions by IC
Method: EPA300/MA300-Ions1.3 | Internal ref.: ME-CA-IENVIIC-LAK-AN-001

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chloride	DIO0382-OCT20	µg/L	200	<200	2	20	95	80	120	101	75	125

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Cyanide (free)	SKA0180-OCT20	µg/L	2	<2	ND	10	97	90	110	90	75	125

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chromium VI	SKA0175-OCT20	ug/L	0.2	<0 2	0	20	97	80	120	86	75	125



FINAL REPORT

CA14445-OCT20 R

QC SUMMARY

Mercury by CVAAS
Method: SM 3112/SM 3112B | Internal ref.: ME-CA-IENVISPE-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury (total)	EHG0017-OCT20	ug/L	0.01	0.00	ND	20	97	80	120	105	70	130



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QC SUMMARY

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver	EMS0088-OCT20	ug/L	0.05	<0.05	ND	20	106	90	110	90	70	130
Arsenic	EMS0088-OCT20	µg/L	0.2	<0.2	6	20	106	90	110	101	70	130
Barium	EMS0088-OCT20	µg/L	0.02	<0.02	0	20	103	90	110	107	70	130
Beryllium	EMS0088-OCT20	µg/L	0.007	<0.007	ND	20	96	90	110	95	70	130
Boron	EMS0088-OCT20	µg/L	2	<2	0	20	98	90	110	NV	70	130
Cadmium	EMS0088-OCT20	µg/L	0.003	<0.003	ND	20	106	90	110	104	70	130
Cobalt	EMS0088-OCT20	µg/L	0.004	<0.004	13	20	105	90	110	102	70	130
Chromium	EMS0088-OCT20	ug/L	0.08	<0.08	ND	20	104	90	110	103	70	130
Copper	EMS0088-OCT20	ug/L	0.2	<0.2	1	20	104	90	110	106	70	130
Molybdenum	EMS0088-OCT20	ug/L	0.04	<0.04	1	20	100	90	110	100	70	130
Sodium	EMS0088-OCT20	ug/L	10	< 10	1	20	97	90	110	92	70	130
Nickel	EMS0088-OCT20	µg/L	0.1	<0.1	2	20	103	90	110	101	70	130
Lead	EMS0088-OCT20	µg/L	0.01	<0.01	1	20	104	90	110	105	70	130
Antimony	EMS0088-OCT20	ug/L	0.09	<0.09	2	20	104	90	110	84	70	130
Selenium	EMS0088-OCT20	µg/L	0.04	<0.04	0	20	103	90	110	100	70	130
Thallium	EMS0088-OCT20	µg/L	0.005	<0.005	ND	20	105	90	110	105	70	130
Uranium	EMS0088-OCT20	µg/L	0.002	<0.002	14	20	95	90	110	96	70	130
Vanadium	EMS0088-OCT20	µg/L	0.01	<0.01	4	20	105	90	110	100	70	130
Zinc	EMS0088-OCT20	µg/L	2	<2	ND	20	104	90	110	130	70	130



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QC SUMMARY

Petroleum Hydrocarbons (F1)

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
F1 (C6-C10)	GCM0373-OCT20	µg/L	25	<25	ND	30	111	60	140	91	60	140

Petroleum Hydrocarbons (F2-F4)

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
F2 (C10-C16)	GCM0363-OCT20	µg/L	100	<100	ND	30	95	60	140	79	60	140
F3 (C16-C34)	GCM0363-OCT20	µg/L	200	<200	ND	30	95	60	140	79	60	140
F4 (C34-C50)	GCM0363-OCT20	µg/L	200	<200	ND	30	95	60	140	79	60	140



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QC SUMMARY

pH
Method: SM 4500 | Internal ref.: ME-CA-ENVIEWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
pH	EWL0340-OCT20	No unit	0.05	NA	0		101			NA		



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QC SUMMARY

Semi-Volatile Organics
Method: EPA 3510C/8270D | Internal ref.: ME-CA-IENVIGC-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1-Methylnaphthalene	GCM0364-OCT20	µg/L	0.5	< 0.5	ND	30	94	50	140	69	50	140
2-Methylnaphthalene	GCM0364-OCT20	µg/L	0.5	< 0.5	ND	30	93	50	140	68	50	140
Acenaphthene	GCM0364-OCT20	µg/L	0.1	< 0.1	ND	30	97	50	140	72	50	140
Acenaphthylene	GCM0364-OCT20	µg/L	0.1	< 0.1	ND	30	95	50	140	71	50	140
Anthracene	GCM0364-OCT20	µg/L	0.1	< 0.1	ND	30	88	50	140	72	50	140
Benzo(a)anthracene	GCM0364-OCT20	µg/L	0.1	< 0.1	ND	30	96	50	140	76	50	140
Benzo(a)pyrene	GCM0364-OCT20	ug/L	0.01	< 0.01	ND	30	102	50	140	83	50	140
Benzo(b+j)fluoranthene	GCM0364-OCT20	ug/L	0.1	< 0.1	ND	30	100	50	140	78	50	140
Benzo(ghi)perylene	GCM0364-OCT20	µg/L	0.2	< 0.2	ND	30	95	50	140	74	50	140
Benzo(k)fluoranthene	GCM0364-OCT20	µg/L	0.1	< 0.1	ND	30	99	50	140	77	50	140
Chrysene	GCM0364-OCT20	µg/L	0.1	< 0.1	ND	30	95	50	140	75	50	140
Dibenzo(a,h)anthracene	GCM0364-OCT20	µg/L	0.1	< 0.1	ND	30	90	50	140	74	50	140
Fluoranthene	GCM0364-OCT20	ug/L	0.1	< 0.1	ND	30	90	50	140	78	50	140
Fluorene	GCM0364-OCT20	µg/L	0.1	< 0.1	ND	30	96	50	140	73	50	140
Indeno(1,2,3-cd)pyrene	GCM0364-OCT20	µg/L	0.2	< 0.2	ND	30	91	50	140	77	50	140
Naphthalene	GCM0364-OCT20	µg/L	0.5	< 0.5	ND	30	98	50	140	70	50	140
Phenanthrene	GCM0364-OCT20	µg/L	0.1	< 0.1	ND	30	94	50	140	74	50	140
Pyrene	GCM0364-OCT20	µg/L	0.1	< 0.1	ND	30	93	50	140	79	50	140



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QC SUMMARY

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1,1,1,2-Tetrachloroethane	GCM0372-OCT20	µg/L	0.5	<0 5	ND	30	98	60	130	99	50	140
1,1,1-Trichloroethane	GCM0372-OCT20	µg/L	0.5	<0 5	ND	30	99	60	130	99	50	140
1,1,2,2-Tetrachloroethane	GCM0372-OCT20	µg/L	0.5	<0 5	ND	30	97	60	130	99	50	140
1,1,2-Trichloroethane	GCM0372-OCT20	µg/L	0.5	<0 5	ND	30	100	60	130	99	50	140
1,1-Dichloroethane	GCM0372-OCT20	µg/L	0.5	<0 5	ND	30	98	60	130	98	50	140
1,1-Dichloroethylene	GCM0372-OCT20	µg/L	0.5	<0 5	ND	30	99	60	130	104	50	140
1,2-Dichlorobenzene	GCM0372-OCT20	µg/L	0.5	<0 5	ND	30	98	60	130	99	50	140
1,2-Dichloroethane	GCM0372-OCT20	µg/L	0.5	<0 5	ND	30	98	60	130	100	50	140
1,2-Dichloropropane	GCM0372-OCT20	µg/L	0.5	<0 5	ND	30	98	60	130	98	50	140
1,3-Dichlorobenzene	GCM0372-OCT20	µg/L	0.5	<0 5	ND	30	98	60	130	99	50	140
1,4-Dichlorobenzene	GCM0372-OCT20	µg/L	0.5	<0 5	ND	30	97	60	130	99	50	140
Acetone	GCM0372-OCT20	µg/L	30	<30	ND	30	100	60	130	91	50	140
Benzene	GCM0372-OCT20	µg/L	0.5	<0 5	ND	30	100	60	130	100	50	140
Bromodichloromethane	GCM0372-OCT20	µg/L	0.5	<0 5	ND	30	97	60	130	96	50	140
Bromoform	GCM0372-OCT20	µg/L	0.5	<0 5	ND	30	95	60	130	97	50	140
Bromomethane	GCM0372-OCT20	µg/L	0.5	<0 5	ND	30	94	50	140	101	50	140
Carbon tetrachloride	GCM0372-OCT20	µg/L	0.2	<0 2	ND	30	97	60	130	99	50	140
Chlorobenzene	GCM0372-OCT20	µg/L	0.5	<0 5	ND	30	99	60	130	99	50	140
Chloroform	GCM0372-OCT20	µg/L	0.5	<0 5	ND	30	97	60	130	98	50	140
cis-1,2-Dichloroethene	GCM0372-OCT20	µg/L	0.5	<0 5	ND	30	97	60	130	99	50	140



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QC SUMMARY

Volatile Organics (continued)

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
cis-1,3-Dichloropropene	GCM0372-OCT20	µg/L	0.5	<0 5	ND	30	98	60	130	98	50	140
Dibromochloromethane	GCM0372-OCT20	µg/L	0.5	<0 5	ND	30	96	60	130	97	50	140
Dichlorodifluoromethane	GCM0372-OCT20	µg/L	2.0	<2	ND	30	84	50	140	95	50	140
Ethylbenzene	GCM0372-OCT20	µg/L	0.5	<0 5	ND	30	102	60	130	102	50	140
Ethylenedibromide	GCM0372-OCT20	µg/L	0.2	<0 2	ND	30	99	60	130	100	50	140
n-Hexane	GCM0372-OCT20	µg/L	1.0	<1	ND	30	96	60	130	103	50	140
m/p-xylene	GCM0372-OCT20	µg/L	0.5	<0 5	ND	30	102	60	130	102	50	140
Methyl ethyl ketone	GCM0372-OCT20	ug/L	20	<20	ND	30	101	60	130	98	50	140
Methyl Isobutyl Ketone	GCM0372-OCT20	µg/L	20	<20	ND	30	99	50	140	100	50	140
Methyl-t-butyl Ether	GCM0372-OCT20	µg/L	2.0	<2	ND	30	93	60	130	97	50	140
Methylene Chloride	GCM0372-OCT20	µg/L	0.5	<0 5	ND	30	95	60	130	100	50	140
o-xylene	GCM0372-OCT20	µg/L	0.5	<0 5	ND	30	102	60	130	103	50	140
Styrene	GCM0372-OCT20	µg/L	0.5	<0 5	ND	30	101	60	130	101	50	140
Tetrachloroethylene (perchloroethylene)	GCM0372-OCT20	µg/L	0.5	<0 5	ND	30	98	60	130	100	50	140
Toluene	GCM0372-OCT20	µg/L	0.5	<0 5	ND	30	101	60	130	100	50	140
trans-1,2-Dichloroethene	GCM0372-OCT20	µg/L	0.5	<0 5	ND	30	96	60	130	102	50	140
trans-1,3-Dichloropropene	GCM0372-OCT20	µg/L	0.5	<0 5	ND	30	101	60	130	100	50	140
Trichloroethylene	GCM0372-OCT20	µg/L	0.5	<0 5	ND	30	98	60	130	97	50	140
Trichlorofluoromethane	GCM0372-OCT20	µg/L	5.0	<5	ND	30	94	50	140	103	50	140
Vinyl Chloride	GCM0372-OCT20	µg/L	0.2	<0 2	ND	30	93	60	130	98	50	140



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QC SUMMARY

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

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

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

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

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

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

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

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

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



LEGEND

FOOTNOTES

NSS Insufficient sample for analysis.

RL Reporting Limit.

↑ Reporting limit raised.

↓ Reporting limit lowered.

NA The sample was not analysed for this analyte

ND Non Detect

Samples analysed as received. Solid samples expressed on a dry weight basis. "Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.

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

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-- End of Analytical Report --

