Phase Two Environmental Site Assessment

2155 Country Club Drive, Areas A & B

Burlington, Ontario

Prepared For:

Millcroft Greens Corporation

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1.0 Executive Summary

DS Consultants Ltd. (DS) was retained by Millcroft Greens Corporation (the "Client") to conduct a Phase Two Environmental Site Assessment (ESA) of the Property located at 2155 Country Club Drive, Areas A & B, Burlington, Ontario, herein referred to as the "Phase Two Property".

The Phase Two Property is a part of a larger parcel that has been used for commercial purposes (Millcroft Golf Course). In this report the Property refers only to the golf course portion of the parcel located to the south of Millcroft Park Drive, referred to as Areas A & B. DS understands that the Property is intended to be redeveloped from its current commercial use to a residential property use. The Property covers an approximate area of 9.48 hectares (approximately 28.5 acres) and comprises two holes of the Millcroft Golf Course.

Given that the proposed change in property use is to a more sensitive property use, the filing of a Record of Site Condition (RSC) with the Ontario Ministry of Environment, Conservation, and Parks (MECP) will be mandated under O.Reg. 153/04 (as amended).

The Phase Two ESA was completed to satisfy the intent of the requirements, methodology and practices for a Phase Two ESA as described in Ontario Regulation 153/04 (as amended). The objective of this Phase Two ESA is to confirm whether contaminants are present, and at what concentration are they present on the Phase Two Property, as related to the Areas of Potential Environmental Concern (APEC) identified in the Phase One ESA.

DS conducted a Phase One ESA for the Property dated November 2018 (revised July 2020, and again November 2020). According to the Phase One ESA findings, the Property was first developed for agricultural purposes and has been used as a golf course since the late 1980's. A total of three (3) Potentially Contaminating Activities (PCAs) were identified in the Phase One ESA, which were considered to be contributing to three (3) APECs on the Phase Two Property. A summary of the APECs, associated PCAs, and contaminants of potential concern (COPC) identified is presented in the table below:

Table 1-1: Summary of APECs, PCAs, and COPCs

APEC[1]	Location of APEC on Phase One Property	PCA	Location of PCA	COPCs	Media Potentially Impacted
APEC #1 Use of possible Pesticides	Entire Property	PCA# 40. Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing,	On-Site	OC pesticides	Soil, Ground water

		Processing, Bulk Storage and Large-Scale Applications			
APEC #2 Use of fill materials	Within the Property	PCA#30. Importation of Fill Material of Unknown Quality	On-Site	Metals, As, Sb, Se, B-HWS, CN-, electrical conductivity, Cr (VI), Hg, low or high pH, SAR, PHCs, VOCs	Soil, Ground water
APEC #3 Presence of CNR	Southeast of the Property	PCA#46. Rail Yards, Tracks and Spurs	Off-Site	PAHs	Soil
Note: 1. Area of potential environmental concern (APEC) means the area on, in or under the Property where one or more contaminants are potentially present.					

Based on the findings of the Phase One ESA it was concluded that a Phase Two ESA is warranted in order to assess the soil and groundwater conditions at the Property.

The Phase Two ESA involved the advancement of nine (9) boreholes, which was completed between December 18 and 20, 2018. The boreholes were advanced to a maximum depth of 6.3 metres below ground surface (mbgs) under the supervision of DS personnel. The subsurface investigation was conducted in conjunction with geotechnical and hydrogeological investigations. Groundwater monitoring wells were installed in seven (7) of the boreholes to facilitate the collection of groundwater samples and the assessment of groundwater flow direction. The borehole locations were determined based on the findings of the Phase One ESA. All APECs were investigated with boreholes and/or monitoring wells in accordance with the requirements of O.Reg. 153/04 (as amended). Soil and groundwater samples were collected and submitted for analysis of all PCOCs, including: Petroleum Hydrocarbons (PHCs), Volatile Organic Compounds (VOCs), Polycyclic Aromatic Hydrocarbons (PAHs), benzene, toluene, ethylbenzene and xylene (BTEX), Metals and Other Regulated Parameters (ORPs), and Organochlorine Pesticides (OCPs).

The analytical results were compared to the "Table 8: Generic Site Condition Standards for Use within 30 m of a Water Body in a Potable Groundwater Condition for all types of property use as contained 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 8 Standards) for all property use.

Based on the findings of the Phase Two ESA, DS presents the following findings:

- The stratigraphy beneath the investigated areas of the Property generally consisted of fill to depths of 0.8 to 1.9m below grade. The fill was comprised of clayey silt, trace rootlets, and

trace topsoil. Native soil consisting of clayey silt to sandy silt till was found in all of the boreholes below the fill material, extending to a clayey silt till/shale complex or the shale bedrock. Shale bedrock of Queenston Formation was encountered at most borehole locations, below depths ranging from 1.5 to 6.1m, corresponding to Elevations 135.6 to 138.3 metres above sea level (masl).

- A total of nineteen (19) soil samples from borehole locations, including one quality control (QC) duplicate were submitted for chemical analysis of PHCs (F1-F4), BTEX, VOCs, PAHs, OCPs and metals and ORPs.
- The result of chemical analyses for soil revealed no exceedances of the applicable site condition Standards (Table 8) for parameters analyzed. All the samples met the MECP Table 8 SCS.
- A total of twenty four (24) ground water samples including a QC from the installed 7 monitoring wells on the Property were analysed for PHCs (F1-F4), BTEX, VOCs, PAHs, OCPs and metals and ORPs.
- No exceedances of the applicable Standards for parameters analyzed were found in any of the ground water samples analyzed. All other ground water samples met the MECP Table 8 SCS.
- According to the Certificate of Analysis, the pH of the soil and ground water samples was within the acceptable values of the MECP Guideline (5 to 9).
- All monitoring wells should be decommissioned in accordance with O.Reg. 903 when no longer required.

It is the opinion of the QP_{ESA} that the applicable SCS for the soil and groundwater at the Phase Two Property have been met as of the Certification Date of January 2, 2019. No further sub-surface investigation is required regarding the environmental quality of the soil and groundwater at the Phase Two Property.

2.0 Introduction

DS Consultants Ltd. (DS) was retained by Millcroft Greens Corporation to complete a Phase Two Environmental Site Assessment (ESA) of the Property located at 2155 Country Club Drive, Areas A & B, Burlington, Ontario, herein referred to as the "Phase Two Property". It is DS's understanding that this Phase Two ESA has been requested for due diligence purposes in association with the proposed redevelopment of the Property. DS understands that this Phase Two ESA may be used to support the filing of a Record of Site Condition (RSC) as part of the proposed redevelopment of the Site for residential purposes. The Property has been used as a golf course. Given that the proposed change in property use is to a more sensitive property use, the filing of a Record of Site Condition (RSC) with the Ontario Ministry of Environment, Conservation, and Parks (MECP) will be mandated under O.Reg. 153/04 (as amended).

The Phase Two ESA was completed to satisfy the intent of the requirements, methodology and practices for a Phase One ESA as described in Ontario Regulation 153/04 (as amended). The objective of this Phase Two ESA is to confirm whether contaminants are present, and at what concentration are they present on the Phase Two Property, as related to the Areas of Potential Environmental Concern (APEC) identified in the Phase One ESA.

2.1 Site Description

The Phase Two Property is a 9.48 hectare (28.5 acres) parcel of land situated in the City of Burlington, Ontario. The Phase Two Property is located to the north of Upper Middle Road, approximately 0.5 km west of Appleby Line in a mixed residential, commercial, and open space area of City of Burlington. The Phase One Property is situated between Country Club Drive to the west, and the CNR railway line to the east. A tributary of Appleby Creek is located to the west of the Property. The Property was occupied by two holes of the Millcroft Golf Course at the time of this investigation. A man made stormwater management pond is located to the southwest portion of the Property. A Site Location Plan is provided in Figure 1.

For the purposes of this report, Upper Middle Road is assumed to be aligned in an east-west direction and Country Club Drive in a north-south direction. A Plan of Survey for the Property dated August 2018 and prepared by Randy Pentex & Edward Surveying Ltd, an Ontario Land Surveyor, has been provided under **Appendix A**.

Additional details regarding the Phase Two Property are provided in the tables below.

Table 2-1: Phase Two Property Information West Hole, Area A

Phase One Property	Information	Source
Legal Description	PT Lot 8 Con 1 SDS Pt 1, 20R9030 Block 107 Plan 20M414	Land Registry Office
Property Identification Number (PIN)	07182-0254 (LT)	Land Registry Office
Municipal Address	2155 Country Club Drive	City of Burlington, online-information
Zoning	O1 (open space)	City of Burlington, online information (Map No. 24 – Zoning Map)

Table 2-2: Phase Two Property Information East Hole, Area B

Phase One Property	Information	Source
Legal Description	Block 108 Plan 20M414	Land Registry Office
Property Identification Number (PIN)	07182-0255 (LT)	Land Registry Office
Municipal Address	2155 Country Club Drive	City of Burlington, online-information
Zoning	O1 (open space)	City of Burlington, online information (Map No. 24 – Zoning Map)

2.2 Property Ownership

The ownership details for the Phase Two Property are provided in the table below.

Table 2-3: Phase Two Property Ownership

Property Owner	Address	Contact Name	Source
2079610 Ontario Limited	2155 Country Club Drive Burlington, Ontario Canada L7M 4A8	Mr. Ed Liptay Phone: 289-242-0299	Land Registry Office

2.3 Current and Proposed Future Use

The Phase Two Property is currently comprised of two holes (Area A & B) of the Millcroft Golf Course which is considered to be Commercial Property Use under O.Reg. 153/04 (as amended). A residential development has been proposed for the Property. This proposed development represents a change to a more sensitive property use and therefore section 168.3.1 of the Environmental Protection Act would require mandatory filing of a Record of Site Condition prior to the change in use of the Property.

2.4 Applicable Site Condition Standards

The Phase Two Property is a commercial property located within the City of Burlington, and the proposed future land use is residential.

Under Section 41 of O.Reg. 153/04 (as amended), the Site is classified as "environmentally sensitive" if the pH of the surface soil (ground surface to 1.5 metres below ground surface) is less than 5 or greater than 9, if the subsurface soil (deeper than 1.5 mbgs) is less than 5 or greater than 11, or if the Site is considered to be an area of natural significance or is adjacent to or contains land within 30 metres of an area of natural significance.

Soil samples were analyzed for pH as part of this Phase Two ESA, the results of which indicated that no samples were outside of the acceptable range, The Property is not considered to be an area of natural significance, however, the Property is located within 30 m of water body as such the Phase Two Property is considered to be environmentally sensitive.

The applicable Site Condition Standards (SCS) for the Phase Two Property are considered by the Qualified Person (QP) to be the Table 8 SCS: Generic Site Condition Standards for Use within 30 m of a Water Body in a Potable Ground Water Condition for Residential/Parkland/Institutional Use as contained in the April 15, 2011 Ontario Ministry of Environment, Conservation, and Parks (MECP) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", herein referred to as the "Table 8 SCS".

The selection of the Table 8 SCS is considered appropriate based on the following rationale:

- The Site is located within 30 m of a water body;
- The pH of the soils analyzed during this Phase Two ESA are within the accepted range specified under O.Reg. 153/04 (as amended); and
- Average bedrock depth was not identified to be within 2 metres of the ground surface.

3.0 Background Information

3.1 Physical Setting

3.1.1 Water Bodies and Areas of Natural Significance

A tributary of Appleby Creek is located to the west of the west hole (Area A). A man-made pond is located on the southwestern portion of the Property. There are no lakes or lagoons on the Property.

The following databases were reviewed to determine if any Areas of Natural Significance are present in the Property or within the Study Area:

I. An area reserved or set apart as a provincial park or conservation reserve under the *Provincial Parks and Conservation Reserves Act, 2006*.
II. An area of natural and scientific interest (life science or earth science) identified by the Ministry of Natural Resources as having provincial significance.
III. A wetland identified by the Ministry of Natural Resources as having provincial significance.
IV. An area designated by a municipality in its official plan as environmentally significant, however expressed, including designations of areas as environmentally sensitive, as being of environmental concern and as being ecologically significant.
V. An area designated as an escarpment natural area or an escarpment protection area by the Niagara Escarpment Plan under the *Niagara Escarpment Planning and Development Act*.
VI. An area identified by the Ministry of Natural Resources as significant habitat of a threatened or endangered species.
VII. An area which is habitat of a species that is classified under section 7 of the *Endangered Species Act, 2007* as a threatened or endangered species.
VIII. Property within an area designated as a natural core area or natural linkage area within the area to which the Oak Ridges Moraine Conservation Plan under the *Oak Ridges Moraine Conservation Act, 2001* applies.
IX. An area set apart as a wilderness area under the *Wilderness Areas Act*.

The Phase Two Property includes no areas of Natural Significance.

3.1.2 Topography and Surface Water Draining Features

The Phase Two Property is located in an urban setting, at an elevation of approximately 140 metres above sea level (masl). The topography of the Phase Two Property is generally flat. According to the Conservation Halton, the Property is located in the Appleby Creek Watershed. A tributary of Appleby Creek is located to the west of the Property. The shallow groundwater flow on the Property is expected to be towards southwest-south towards the tributary of Appleby Creek and eventually towards Lake Ontario.

3.2 Past Investigations

DS prepared the following reports for the Property:

- Phase One ESA, titled "Phase One Environmental Site Assessment, 2155 Country Club Drive, Areas A & B, Burlington, Ontario, dated November 2018, revised September 16, 2021.

- Geotechnical Investigation Proposed Residential Subdivision 2155 Country Club Drive, Burlington, Ontario, dated, November 12, 2020

Both reports were prepared for ARGO Development Corporation.

3.2.1 Previous Report Summary

Phase One ESA-DS, November 2018

According to the Phase One ESA report the potential contaminating activities (PCAs) within Phase One Property included the historical and current use of pesticides and importation of fill materials as follows:

- PCA# 40. Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications.
- PCA#30. Importation of Fill Material of Unknown Quality

The CN railways line is located adjacent to the southeast property boundary. The PCAs within the Phase One Study Area included the presence of railways as follows:

- PCA#46. Rail Yards, Tracks and Spurs

Based on the findings of the Phase One ESA a Phase Two ESA was recommended.

Geotechnical Investigation-DS January 2019

- Nine (9) boreholes were advanced on the Property, to a maximum depth of 6.3 metres below existing grade.
- Fill material was found in all boreholes extending to depths of 0.8 to 1.9m below existing grade. The fill consisted of clayey silt, trace rootlets, trace topsoil.
- Native soil consisting of clayey silt to sandy silt till was found in all of the boreholes below the fill material.
- Shale bedrock of Queenston Formation was encountered at seven of nine borehole locations, except BH18-8 and BH18-9 which terminated in clayey silt till or clayey silt till/shale complex upon auger refusal.

4.0 Scope of the Investigation

The scope of the Phase Two ESA was designed to investigate the portions of the Site determined in the Phase One ESA to be Areas of Potential Environmental Concern. This Phase Two ESA was

conducted in general accordance with O.Reg. 153/04 (as amended). The scope of the investigation including the subsurface investigation, sampling, and laboratory analysis was based on the findings of the Phase One ESA and was limited to the portions of the site which were accessible.

4.1 Overview of Site Investigation

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

- Preparation of a Health and Safety Plan to ensure that all work was executed safely;
- Clearance of public private underground utility services prior to commencement of subsurface investigative operations;
- Preparation of a Sampling and Analysis Plan (SAP);
- Retained a MECP licenced driller to advance a total of nine (9) boreholes on the Phase Two Property, to depths ranging between 2.5 to 6.3 mbgs. Seven (7) 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 a RKI Eagle 2 MultiGas Detector, and examined for visual and olfactory indications of soil impacts;
- 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 One 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 One ESA;
- Compared all soil and groundwater analytical data to the applicable MECP SCS; and
- Prepared a Phase Two ESA Report in general accordance with O.Reg. 153/04 (as amended).

Media Investigated

4.1.1 Rationale for Inclusion or Exclusion of Media

Table 4-1: Rationale of Sampling Media

Media	Included or Excluded	Rationale
Soil	Included	Soil at the Phase Two Property was identified as being a potentially contaminated medium due to the use of pesticides to maintain the grass of the golf course, use of unknown quality fill materials and potential historical use of cinders for the construction of the adjoining rail line.
Groundwater	Included	Ground water at the Phase Two Property was identified as being a potentially contaminated medium as a result of above noted PCAs.
Sediment	Excluded	Sediment is not present on the Phase Two Property.
Surface Water	Excluded	A manmade pond for the storm management is located to the southwest of the Property. Surface water investigation was excluded from the scope of Phase Two ESA. However, the pond was not considered to be a media of concerns.

4.1.2 Overview of Field Investigation of Media

Table 4-2: Field Investigation of Media

Media	Methodology of Investigation
Soil	A total of nine (9) boreholes were advanced on the Phase Two Property, to a maximum depth of 6.3 mbgs. Soil samples were collected and submitted for analysis of all relevant PCOCs.
Groundwater	A total of seven (7) monitoring wells were present on the Phase Two Property at the time of the investigation. Representative groundwater samples were collected from each monitoring well and submitted for analysis of all relevant PCOCs.

4.2 Phase One Conceptual Site Model

The conceptual site model has been based on the information presented in the Phase One ESA.

The following Table provides Area of Potential Environmental Concern:

Table 4-3: Summary of APECs, PCAs, and COPCs

APEC[1]	Location of APEC on Phase One Property	PCA	Location of PCA	Contaminants of Potential Concern (COPCs)	Media Potentially Impacted
APEC #1 Historical use of Pesticides/Herbicides	Entire Property	PCA# 40. Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications	On-Site	OC pesticides	Soil, Groundwater
APEC #2 Use of fill materials	Within the Property	PCA#30. Importation of Fill Material of Unknown Quality	On-Site	Metals, As, Sb, Se, B-HWS, CN-, electrical conductivity, Cr (VI), Hg, low or high pH, SAR, PHCs, VOCs	Soil
APEC #3 Presence of CNR	Southeast of the Property	PCA#46. Presence of railway lines along the southeastern property boundary	Off-Site	PAHs	Soil
Note: • area of potential environmental concern (APEC) means the area on, in or under the Phase One Property where one or more contaminants are potentially present.					

Source: (Refer to clause 16(2)a, Table 2, Schedule D, O. Reg. 153/04)

Underground Utilities: Utilities servicing the Phase One Property are underground and the Property includes no structures. Based on the locations of the services with respect to the issues of potential environmental concern that have been identified on the Phase One Property, the potential for underground utility trenches to affect contaminant distribution and transport is considered to be low.

Regional and Hydrogeological Information: The near surface soil at and in the vicinity of the Phase One Property generally consists of clay to silty till. These are underlain by the Upper Ordovician,

Queenston Formation. The Queenston Formation consists of shale, limestone, dolostone and siltstone.

The near surface/shallow ground water flow direction below the Property is interpreted to be to the southwest-south, towards Appleby Creek and finally towards Lake Ontario.

Phase One Property information obtained through historical records and databases reviewed as part of this investigation are subject to the nature and accuracy of the records provided to DS. As a result of changes or additional details within these records or databases the conclusions of this Phase One ESA may be affected.

Information used in this report was evaluated based on proximity to the Phase One Property, anticipated direction of local groundwater flow, and the potential environmental impact on the Phase One Property as a result of potentially contaminating activities.

Freedom of Information records request was forwarded to the Ministry of Environment. The response from the Ministry revealed a permit to take water in 2005.

It should be noted that general environmental management and housekeeping practices were reviewed as part of this assessment with respect to their impact on the environmental condition of the Property; however, a detailed review of regulatory compliance issues was beyond the scope of our investigation. This Phase One ESA does not constitute an audit of environmental management practices, indicate geotechnical conditions or identify geologic hazards.

The QP has determined that the uncertainty does not affect the validity of the Phase One ESA Conceptual Site Model or the conclusions of this report. The Phase One Conceptual Site Model has been presented in Figure 5.

4.3 Deviations from Sampling and Analysis Plan

The Phase Two ESA was completed in accordance with DS sampling analysis plan (SAP).

4.4 Impediments

There were no physical impediments or denial of access with respect to the sampling and analysis plan developed for this Phase Two ESA.

5.0 Investigation Method

5.1 General

The Phase Two 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 “Guide for Completing Phase Two Environmental Site Assessments under Ontario regulation 153/04” (June 2011);

- 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 Two ESA investigation did not differ from the associated standard operating procedures.

5.2 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 One ESA. The selected borehole locations are presented on Figure 2. The borehole locations were cleared of underground public and private utility services prior to commencement of drilling. A summary of the drilling activities is provided in the table below.

Table 5-1: Summary of Drilling Activities

Parameter	Details
Drilling Contractor	Terra Firma Environmental Services Ltd (Terrafirma) 84 Martin Ross Ave., Toronto, ON M3J 2L4
Drilling Dates	December 18, 2018, December 19, 2018, December 20, 2018
Drilling Equipment Used	Geoprobe 7822DT
Measures taken to minimize the potential for cross contamination	Soil sampling was conducted using a 50 mm stainless steel split spoon sampler. 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; Soil samples were extracted from the interior of the sampler rather than from areas in contact with the sampler sidewalls; Use of dedicated and disposable acrylonitrile gloves for the handling of soil samples. A new set of gloves was used for each sample.
Sample collection frequency	Samples were collected at a frequency of every 0.6 m per 0.8 m from the ground surface to 3.1 mbgs, followed by one sample per 1.5 m to borehole termination depth.

5.3 Soil Sampling

Soil samples were collected using laboratory supply sampling containers, nitrile gloves, coolers with loose ice, and headspace readings were performed using a RKI Eagle 2, Model 5101-P2. Discrete soil samples were collected from the split-spoon samplers by DS personnel using dedicated acrylonitrile 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 and depicted visually in Figures 8A and 8B.

5.4 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 5-2: Field Screening Equipment

Parameter	Details
Make and Model of Field Screening Instrument	RKI Eagle 2, Model 5101-P2 Serial Number: E2G721
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: ± 10% display reading + one digit

Parameter	Details
	Hydrocarbons: ± 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 he calibration had drifted by more than +/- 10%.

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

5.5 Groundwater Monitoring Well Installation

Monitoring wells were installed upon completion of the boreholes advanced on the Phase Two Property. The monitoring wells were constructed of 51-millimetre (2-inch) inner diameter (ID) flush-threaded schedule 40 polyvinyl chloride (PVC) risers, equipped with a 3.1 m or 1.5 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 flush mount casings.

Details regarding the monitoring well construction can be found in Table 1, and on the borehole logs provided in **Appendix B**.

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

The monitoring wells were developed on January 4, 2019. 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.

5.6 Groundwater Field Measurement of Water Quality Parameters

The monitoring wells were developed by purging the wells by using Waterra. The monitoring wells were then purged by removing approximately three (3) casing volumes or until the well was dry.

Ground water had a slow recovery. The details of the individual monitoring wells are shown on the borehole logs in **Appendix A**.

5.7 Groundwater Sampling

Groundwater samples were collected a minimum of 24 hours after the development of the monitoring wells. The Groundwater samples were collected using dedicated inertial pumps comprised of Waterra tubing equipped with dedicated foot valves.

Groundwater samples for metals analysis were field filtered using dedicated 0.45 micron 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.

5.8 Sediment Sampling

Sampling the Mill Pond was excluded from the Phase Two ESA. The Phase Two ESA included the west and east holes (Areas A and B respectfully). No sediment as defined under O.Reg. 153/04 (as amended) was present on the Phase Two Property at the time of this investigation. Sediment sampling was not conducted as a result.

5.9 Analytical Testing

The soil and groundwater samples collected were submitted to ALS Environmental under chain of custody protocols. ALS Environmental is an independent laboratory accredited by the Canadian Association for Laboratory Accreditation. ALS Environmental 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).

5.10 Residue Management Procedures

5.10.1 Soil Cuttings From Drilling and Excavations

The soil cuttings generated by the borehole left at the site upon receipt of analytical result. No impacted soil was observed at the Property.

5.10.2 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 8 SCS. Based on this the purged groundwater was allowed to re-infiltrate adjacent to the monitoring wells.

5.10.3 Fluids from Equipment Cleaning

Excess equipment cleaning fluids were removed from the Property by driller.

5.11 Elevation Surveying

The ground surface elevations of the boreholes/monitoring wells were surveyed using a Sokkia GCX-2 GNSS RTK receiver as part of DS geotechnical investigation.

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

5.12 Quality Assurance and Quality Control Measures

5.12.1 Sample containers, preservation, labelling, handling and custody for samples submitted for laboratory analysis, including any deviations from the SAP

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

Table 5-3: 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.
Ground water	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)

Media	Parameter	Sample Container
	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.

5.12.2 Description of equipment cleaning procedures followed during all sampling

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

2-inch split spoon soil sampling device was use for each sampling event.
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.

5.12.3 Description of how the field quality control measures referred to in subsection 3 (3) were carried out

Field duplicate samples were collected at the time of sampling. In accordance with O.Reg. 153/04, one duplicate sample was analyzed per ten samples submitted for analysis. A laboratory prepared trip blank accompanied the groundwater samples during each sampling event and was submitted for laboratory analysis of VOCs.

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

5.12.4 Description of, and rational for, any deviations from the procedures set out in the quality assurance and quality control program set out in the SAP

There were no deviations from the QA/QC program described in the SAP.

6.0 Review and Evaluation

6.1 Geology

The boundaries of soil indicated on the log sheets are intended to reflect transition zones for the purpose of environmental assessment and should not be interpreted as exact planes of geological change. The general stratigraphy at the Property, as observed in the boreholes, consists of clayey silt to silty clay till, silt to sandy silt and sand. No aesthetic impacts (e.g. cinders, slag, hydrocarbon odours) were encountered during this investigation. A brief description of the soil stratigraphy at the Property, in order of depth, is summarized in the following sections. Detailed information for site stratigraphy is provided in our geotechnical report (January 2019). The investigation included advancing the nine (9) boreholes and installing seven (7) monitoring wells in the selected boreholes.

The detailed soil profiles encountered in each borehole are provided on the attached borehole logs (**Appendix B**).

Surficial Materials

In the boreholes, a 130 to 350 mm thick layer of surficial topsoil was found. The thickness of the topsoil in each borehole was shown in the borehole log. It should be noted that the thickness of the topsoil explored at the borehole locations may not be representative for the site and should not be relied on to calculate the amount of topsoil at the site.

Underneath the topsoil, loose to compact fill material was found in all boreholes extending to depths of 0.8 to 1.9m below grade. The fill consisted of clayey silt, trace rootlets, and trace topsoil.

Native Soil

Native soil consisting of clayey silt to sandy silt till was found in all of the boreholes below the fill material, extending to a clayey silt till/shale complex or the shale bedrock. The clayey silt till was present in a very stiff to hard, generally hard consistency.

Bedrock

Shale bedrock of Queenston Formation was encountered at most borehole locations, except BH18-8 and BH18-9 which were terminated in clayey silt till or clayey silt till/shale complex upon auger refusal. The highly weathered shale was encountered below depths ranging from 1.5 to 6.1m, corresponding to Elevations 135.6 to 138.3 m as shown on the following Table.

Table 6-1: Approximate Depth and Elevation of Shale Bedrock Surface

Borehole No.	Depth to Shale Bedrock Surface below Existing Ground (m)	Approximate Elevation of Shale Bedrock Surface (m)
BH18-1	6.1	136.7
BH18-2	4.7	137.5
BH18-3	3.4	138.3
BH18-4	4.6	136.0
BH18-5	4.6	135.6
BH18-6	1.5	136.6
BH18-7	2.3	136.3
BH18-8	Auger refusal at 4.6 m	Auger refusal at 135.8
BH18-9	Auger refusal at 3.9 m	Auger refusal at 136.9

6.2 Ground Water Elevations and Flow Direction

6.2.1 Rationale for Monitoring Well Location and Well Screen Intervals

A total of seven monitoring wells were installed on the Phase Two Property in order to assess the groundwater quality in relation to APEC-1, APEC-2, and APEC-3. The COPCs associated with these APECs were PHCs, VOCs, PAHs, OCPs, and Metals and ORPs. 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 well BH18-1 was screened within the till shale complex unit encountered at an approximate depth of 3.1 mbgs. The monitoring wells BH18-2, BH18-4 and 18-9 were screened within the sandy silt till unit encountered at an approximate depth of 1.5 to 2.3 mbgs. The monitoring well BH18-5 was screened within fill encountered at an approximate depth of 0.1 mbgs. The monitoring wells BH18-6 and BH18-7 were screened within the clayey silt/clayey silt till unit encountered at an approximate depth of 0.8 to 1.5 mbgs. This unit is inferred to be an unconfined aquifer.

6.2.2 Results of Interface Probe Measurements

A summary of the groundwater level measurements is provided in in Table 6-2, Section 6.2.4. The groundwater level measurements were collected using a Solinst interface probe. The depth to

groundwater was found to range between 1.83 to 4.55 mbgs on January 8, 2020. There was no indication of DNAPL or LNAPL in the monitoring wells at this time.

6.2.3 Product Thickness and Free Flowing Product

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

6.2.4 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 the following Table.

No groundwater was found in the boreholes during drilling or upon completion of drilling, except in BH18-7 where groundwater level was measured at 2.1 m below grade upon completion of the borehole. The complete list of stabilized groundwater levels observed in the monitoring wells installed in the boreholes can be found in Table 1 attached. The three (3) most recent readings can be found below in Table 6-2.

Table 6-2: Groundwater Levels Observed in Monitoring Wells

BH ID	Date of installation	Date of Observation	Depth of GW (m)	Elevation of GW (m)
BH18-1	December 18, 2018	April 20, 2020	4.32	138.46
		May 22, 2020	4.28	138.50
		June 8, 2020	4.55	138.23
BH18-2	December 18, 2018	April 20, 2020	1.46	140.71
		May 22, 2020	1.86	140.31
		June 8, 2020	2.71	139.46
BH18-4	December 19, 2018	April 20, 2020	2.40	138.18
		May 22, 2020	2.71	137.86
		June 8, 2020	2.93	137.65
BH18-5	December 19, 2018	April 20, 2020	2.36	137.80
		May 22, 2020	2.89	137.27
		June 8, 2020	2.85	137.31
BH18-6	December 19, 2018	April 20, 2020	1.57	136.53
		May 22, 2020	1.66	136.44
		June 8, 2020	1.83	136.27
BH18-7	December 20, 2018	April 20, 2020	2.27	136.30
		May 22, 2020	2.26	136.31
		June 8, 2020	2.43	136.14
BH18-9	December 20, 2018	April 20, 2020	2.02	138.78
		May 22, 2020	2.67	138.13

		June 8, 2020	2.97	137.83

Ground water elevations in the monitoring wells were established using a water level probe with depth measurements referenced to geodetic top-of-casing elevations.

6.2.5 Groundwater Flow Direction

The groundwater flow direction was interpreted using the groundwater elevations calculated for the monitoring wells installed on the Phase Two Property. Based on the ground water levels measured in the onsite monitoring wells, shallow ground water condition is present at the Property and it is subject to vary depending on seasonal weather condition.

Based on the groundwater elevations calculated, the shallow groundwater flow on the Property is expected to follow the topography of the site and to be towards the tributary of Appleby Creek and Mill Pond located to the southwest-south of the Property and eventually to southeast towards Lake Ontario. The groundwater elevation contours and flow direction are presented on Figure 5.

6.2.6 Assessment of Potential for Temporal Variability in Groundwater Flow Direction

The shallow aquifer investigated is inferred to be an unconfined aquifer, based on the soil stratigraphy observed in the boreholes advanced on the Phase Two Property. It is possible that temporal variations in groundwater elevations may occur on the Phase Two Property in response to seasonal weather patterns.

Temporal variability in groundwater level has the ability to influence the groundwater flow direction. The degree of variation in groundwater levels on the Phase Two Property can only be confirmed with long-term monitoring.

6.2.7 Evaluation of Potential Interaction Between Buried Utilities and the Water Table

The groundwater table was encountered at depths ranging from 1.0 to 4.3 mbgs on the Phase Two Property. Ground water was not impacted and the buried utility services are not a potential to act as preferential pathways.

6.2.8 Horizontal Hydraulic Gradient

Concurrently with this Phase Two ESA, a hydrogeological investigation has been prepared for the Property by R.J. Burnside & Associates Limited (Burnside) in a separate cover. Detailed information for the hydrogeological condition of the Property will be provided in that report.

6.2.9 Vertical Hydraulic Gradient

A hydraulic gradient based on the limited number of ground water level readings and lack of installation of the nested wells may be unreliable. Information for hydraulic conductivity of the soil has been provided in the hydrogeological report. The hydraulic conductivity of values based on Hazen estimation is between $3.2x10^{-6}$ cm/sec and $2.8 x10^{-5}$ cm/sec. Based on the grain size analysis, soil has a low permeabilities and transmit ground water poorly.

6.3 Fine-Medium Soil Texture

Grain size analyses of seven (7) till samples (BH18-1/SS4, BH18-2/SS5, BH18-4/SS4, BH18-5/SS4, BH18-6/SS2, BH18-7/SS3, and BH18-9/SS4) were conducted and the results are presented in **Appendix D**, with the following fractions:

Clay: 5 to 18%

Silt: 29 to 61%

Sand: 22 to 40%

Gravel: 3 to 12%

The soils encountered on the Phase Two Property are considered to be medium-fine textured. It should be noted that there is no differentiation between the Site Condition Standards for medium-fine and coarse textured soils in Table 8 of the "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act"

6.3.1 Results of Grain Size Analysis

A summary of the soil samples analyzed and the corresponding grain size results is presented in the table below:

Table 6-1: Summary of Grain Size Analyses

Sample	% Gravel	% Sand	% Silt	% Clay	Classification
BH18-1 SS4	14%	23%	54%	9%	Medium-fine textured
BH18-2 SS5	5%	26%	61%	8%	Medium-fine textured
BH18-4 SS4	18%	40%	39%	3%	Coarse
BH18-5 SS4	17%	28%	29%	26%	Medium-fine textured
BH18-6 SS2	5%	34%	57%	4%	Medium-fine textured
BH18-7 SS3	16%	22%	46%	16%	Medium-fine textured
BH18-9 SS4	15%	28%	47%	10%	Medium-fine textured

6.3.2 Rational for the Number of Samples Collected and Analyzed

The grain size analyses were conducted for the purposes of this Phase Two 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.

6.4 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 PID and CGD in methane elimination mode. The PID readings were all 0 ppm (non-detectable). The CGD readings ranged between 0 and 75 ppm. The soil samples were also screened for visual and olfactory indicators of impacts (e.g. staining, odours). No significant olfactory indicators were present.

6.5 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 on Figure 6. The laboratory certificates of analysis have been provided under **Appendix C**.

6.5.1 Metals and ORPs

A total of 6 soil samples, including 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 6. The results of the analyses indicated that there were no exceedances of the Table 8 SCS.

Soil pH

The following Table presents the pH values for the soil found across the Property.

Table 6-5: pH of Soil Samples

CaCl2 Extraction	BH18-1 SS2	BH18-2 SS3	BH18-3 SS2	BH18-5 SS1	BH18-6 SS2	DUP1 (BH18-1 SS2)
pH Unit N/A	18-Dec-2018	18-Dec-2018	18-Dec-2018	19-Dec-2018	19-Dec-2018	18-Dec-2018
5 to 9 for surface soil (depth less than 1.5 m)	0.8-1.4 mbgs	1.5-2.1 mbgs	0.8-1.4 mbgs	0-0.6 mbgs	0.8-1.4 mbgs	0.8-1.4 mbgs
	L2213807-1	L2213807-2	L2213807-3	L2213807-4	L2213807-5	L2213807-11
	Soil	Soil	Soil	Soil	Soil	Soil
5 to 11 for sub-surface soil (depth more than 1.5 m)	7.81	7.81	7.76	7.40	7.90	7.80

Based on the above noted Table, the pH for the soil is within 7.40 to 7. 90 at the Property and within the MECP guideline.

6.5.2 Petroleum Hydrocarbons

A total of 3 samples were submitted for analysis of PHCs (incl. BTEX). The results of the analyses are tabulated in Table 6 and presented on Figure 6. The results of the analyses indicated that there were no exceedances of the Table 8 SCS.

6.5.3 Polycyclic Aromatic Hydrocarbons

A total of 4 soil samples, including 1 field duplicate for QA/QC purposes were submitted for analysis of PAHs. The results of the analyses are tabulated in Table 7 and presented on Figure 6. The results of the analyses indicated that there were no exceedances of the Table 8 SCS.

6.5.4 Organochlorine Pesticides

A total of 6 soil samples, including 1 field duplicate for QA/QC purposes were submitted for analysis of OCPs. The results of the analyses are tabulated in Table 8 and presented on Figure 6. The results of the analyses indicated that there were no exceedances of the Table 8 SCS.

6.5.5 Commentary on Soil Quality

No evidence of chemical or biological transformations of the parameters analyzed was observed.

No groundwater impacts were identified on the Phase Two Property; therefore, it is unlikely that the soil is acting as a contaminant source for groundwater.

No evidence of NAPL was observed in the samples recovered during the field investigation. All samples analyzed were well below the corresponding free-product threshold values.

Complete laboratory results are provided in **Appendix C**.

6.6 Ground Water Quality

The results of the chemical analyses conducted are presented in Tables 9 through 13. A visual summary of the location of the sample locations is provided on Figure 7. The laboratory certificates of analysis have been provided under **Appendix C**.

6.6.1 Metals and ORPs

A total of 7 ground water samples, including 1 field duplicate for QA/QC purposes were submitted for analysis of metals and ORPs. The results of the analyses are tabulated in Table 9 and presented

on Figure 7. 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 that there were no exceedances of the Table 8 SCS.

6.6.2 Petroleum Hydrocarbons

A total of 4 ground water samples, including 1 field duplicates for QA/QC purposes were submitted for analysis of PHCs (incl. BTEX). The results of the analyses are tabulated in Table 10 and presented on Figure 7. The results of the analyses indicated that there were no exceedances of the Table 8 SCS.

6.6.3 Volatile Organic Compounds

A total of 5 samples, including 1 field duplicate for QA/QC purposes, and one Trip Blank were submitted for analysis of VOCs. The results of the analyses are tabulated in Table 11 and presented on Figure 7. The results of the analyses indicated that there were no exceedances of the Table 8 SCS.

6.6.4 Polycyclic Aromatic Hydrocarbons

A total of 4 ground water samples, including 1 field duplicate for QA/QC purposes were submitted for analysis of PAHs. The results of the analyses are tabulated in Table 12 and presented on Figure 7. The results of the analyses indicated that there were no exceedances of the Table 8 SCS.

6.6.5 Organochlorine Pesticides

A total of 4 ground water samples, including 1 field duplicates for QA/QC purposes were submitted for analysis of OC Pesticides. The results of the analyses are tabulated in Table 13 and presented on Figure 7. The results of the analyses indicated that there were no exceedances of the Table 8 SCS.

6.6.6 Commentary on Groundwater Quality

No evidence of chemical or biological transformations of the parameters analyzed was observed.

No soil impacts were identified on the Phase Two Property; therefore it is unlikely that the groundwater is acting as a contaminant source for soil.

No evidence of NAPL was observed in the samples recovered during the field investigation. All samples analyzed were well below the corresponding free-product threshold values.

According to the Certificate of Analysis, the pH of the ground water sample was within the acceptable values of the MECP Standards of 5 to 9 (7.4-7.9).

6.7 Sediment Quality

Sediment sampling from the pond was not included in the scope of work.

6.8 Quality Assurance and Quality Control Results

Collection of soil and groundwater samples was conducted in general accordance with the MECP *Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario*. As described in Section 5.12, dedicated equipment was used where possible, and all non-dedicated equipment was decontaminated before and between sampling events. All soil and groundwater samples were transferred directly into laboratory-supplied containers. The laboratory containers were prepared by the laboratory with suitable preservative, as required. All samples were stored and transported under refrigerated conditions. Chain of custody protocols were maintained from the time of sampling to delivery to the analytical laboratory.

The field QA/QC program involved the collection of field duplicate soil and groundwater samples, and the use of a trip blank for each groundwater sampling event (when suitable). In addition to the controls listed above, the analytical laboratory employed method blanks, internal laboratory duplicates, surrogate spike samples, matrix spike samples, and standard reference materials.

A summary of the field duplicate samples analyzed and an interpretation of the efficacy of the QA/QC program is provided in the table below.

Table 6-6: Summary of QA/QC Results

Sample ID	QA/QC duplicate	Medium	Parameter Analyzed	QA/QC Result
BH18-1 SS2	DUP1	Soil	Metals and ORPs	All results were within the analytical protocol criteria for RPD
BH18-8 SS2	DUP2	Soil	OCPs	All results were within the analytical protocol criteria for RPD
BH18-6 SS1	DUP3	Soil	PAHs	All results were within the analytical protocol criteria for RPD
BH18-2	DUP1	Water	OCPs	All results were within the analytical protocol criteria for RPD
BH18-4	DUP2	Water	PAHs	All results were within the analytical protocol criteria for RPD
BH18-7	DUP3	Water	Metals and ORPs	All results were within the analytical protocol criteria for RPD
BH18-9	DUP4	Water	PHCs and VOCs	All results were within the analytical protocol criteria for RPD

Based on the interpretation of the laboratory results and the QA/QC program, it is the opinion of the QP that the laboratory analytical data can be relied upon.

All samples were handled in accordance with the MECP Analytical Protocol regarding sample holding time, preservation methods, storage requirements, and type of container, with the exception of the following:

- Sample BH18-2, BH18-4, BH18-6, BH18-7, BH18-9 was collected on January 7, 2018, and submitted to ALS on January 8, 2019 for hexavalent chromium analysis. The time elapsed between the sample collection date and submittal to the laboratory for filtering (1 day) was greater than the required holding time for filtering of hexavalent chromium (same-day). While the hold time for the remaining metals was met, the sample was not field filter as mandated in the MECP Analytical Protocol. Although this sample was not handled in accordance with the Analytical protocol, the reported results are considered to be reliable due to the inherent physical and chemical properties of the analyte.
- d14-T surrogate results exceeded ALS DQO.

ALS routinely conducts internal QA/QC analyses in order to satisfy regulatory QA/QC requirements. The results of the ALSQA/QC analyses for the submitted soil samples are summarized in the laboratory Certificates of Analyses provided in **Appendix C**.

The following comments were provided by ALS on the laboratory Certificates of Analysis. Commentary on the comments has been provided below:

- Laboratory Certificate L2217334 – BH18-6 exceeded ALS DQO for d14-T surrogate results. Although the results exceeded ALS DQO it meets the Table 8 SCS requirements. Therefore, DS does not consider this result to be an issue of significant concern and it has no impact on the overall interpretation of the analytical data;

With respect to subsection 47(3) of O.Reg 153/04 (as amended), all certificates of analysis or analytical reports pursuant to clause 47(2) (b) of the regulation comply with subsection 47(3). A certificate of analysis has been received for each sample submitted for analysis and have been provided (in full) in **Appendix C**.

A review of the QA/QC sample results indicated that no issues were identified with respect to both the field collection methodology and the laboratory reporting. It is the opinion of the QP that the analytical data obtained are representative of the soil and groundwater conditions at the Phase Two Property for the purpose of assessing whether the soil and groundwater at the Phase Property meet the applicable MECP SCS.

6.9 Phase Two Conceptual Site Model

This Phase Two Conceptual Site Model was developed through a synthesis of the information obtained through the completion of the Phase One ESA, and the data collected as part of the Phase Two ESA.

Description and Assessment of:

A. Areas where potentially contaminating activity has occurred

A total of three PCAs were identified in the Phase One ESA. A summary of the PCAs considered to be contributing to APECs on the Phase Two Property is provided below:

Within Phase One Property

1. ***PCA# 40.*** *Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications*;
2. ***PCA#30.*** *Importation of Fill Material of Unknown Quality;*

Within Phase One Study Area

3. ***Other*** *Presence of railway lines along the southeastern property boundary.*

B. Areas of potential environmental concern

A total of three (3) APECs were identified to be present on the Phase Two Property through the completion of the Phase One ESA. A summary of the APECs identified, and the associated PCOCs is provided in the table below.

Table 6-7: Summary of APECs, PCAs, and COPCs

APEC[1]	Location of APEC on Phase One Property	PCA	Location of PCA	PCOCs	Media Potentially Impacted
APEC #1 Historical use of Pesticides/Herbicides	Entire Property	PCA# 40. Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications	On-Site	OC pesticides	Soil, Groundwater
APEC #2 Use of fill materials	Within the Property	PCA#30. Importation of Fill	On-Site	Metals, As, Sb, Se, B-HWS, CN-, electrical	Soil

		Material of Unknown Quality		conductivity, Cr (VI), Hg, low or high pH, SAR PHCs, VOCs	
APEC #3 Presence of CNR	Southeast of the Property	Other presence of railway lines along the southeastern property boundary	Off-Site	PAHs	Soil
Note: 1. area of potential environmental concern (APEC) means the area on, in or under the Phase One Property where one or more contaminants are potentially present.					

C. <u>Any subsurface structures and utilities on, in or under the Phase Two Property that may affect contaminant distribution and transport</u>

The groundwater table was encountered at depths ranging from 1.0 to 4.3 mbgs on the Phase Two Property. No groundwater impacts were identified, therefore the potential for preferential migration of contaminants is not of concern at this time.

- **Description of, and as appropriate, figures illustrating, the physical setting of the Phase Two Property and any areas under it including:**

A. <u>Stratigraphy from ground surface to the deepest aquifer or aquitard investigated</u>

In the boreholes, a 130 to 350 mm thick layer of surficial topsoil was found. The thickness of the topsoil in each borehole was shown in the borehole log. It should be noted that the thickness of the topsoil explored at the borehole locations may not be representative for the site and should not be relied on to calculate the amount of topsoil at the site.

Underneath the topsoil, loose to compact fill material was found in all boreholes extending to depths of 0.8 to 1.9m below grade. The fill consisted of clayey silt, trace rootlets, and trace topsoil.

Native soil consisting of clayey silt to sandy silt till was found in all of the boreholes below the fill material, extending to a clayey silt till/shale complex or the shale bedrock. The clayey silt till was present in a very stiff to hard, generally hard consistency.

Underlying the clayey silt till and/or overlying the shale bedrock, a deposit termed clayey silt till /shale complex was encountered in some boreholes (BH18-1 and BH18-9). The deposit consisted of clayey silt till mixed with highly weathered shale. The till/shale complex was in a hard state.

Shale bedrock of Queenston Formation was encountered at most borehole locations, except BH18-8 and BH18-9 which were terminated in clayey silt till or clayey silt till/shale complex upon auger refusal. The highly weathered shale was encountered below depths ranging from 1.5 to 6.3m, corresponding to Elevations 135.6 to 138.3 m. The shale bedrock was not proven by core drilling.

The borehole locations are depicted on Figure 2. A visual representation of the stratigraphy investigated is presented on the cross-sections provided in Figures 8A through 8B.

B. Hydrogeological Characteristics, including aquifers, aquitards and, in each hydrostratigraphic unit where one or more contaminants is present at concentrations above the applicable site condition standards, lateral and vertical gradients

The groundwater table was encountered in the weathered shale. Based on the groundwater elevations, the groundwater flow direction is interpreted to be southwest towards Appleby Creek.

C. Depth to bedrock

The highly weathered shale was encountered below depths ranging from 1.5 to 6.1m, corresponding to elevations 135.6 to 138.3 masl.

D. Approximate depth to water table

The depth to groundwater was found to range between 1.83 to 4.55 mbgs on June 8, 2020.

E. Any respect in which section 41 or 43.1 of the regulation applies to the property

The pH values measured were within the acceptable limits for non-sensitive sites. There are no areas of natural significance on the Phase Two Property. However, the property located within 30 m of a water body. As such, section 43.1 of the regulation applies to the Phase Two Property. The results of the chemical analyses have been assessed against the Table 8 Standards accordingly.

F. Areas where soil has been brought from another property and placed on, in or under the Phase Two Property

A layer of fill material was observed from 0.8 to 1.9mbgs. Fill material is inferred to have been brought to the site for grading purposes when the golf course was constructed in the late 1980s.

G. Approximate locations, if known, of any proposed buildings and other structures

It is our understanding that redevelopment of the Site for residential purposes has been proposed, and that the development will feature thirty-one (31) residential lots on Area A and forty (40)

residential lots on Area B. It is further understood that the proposed development will also include green space and a drainage pond.

- **Where a contaminant is present on, in or under the Phase Two Property at a concentration greater than the applicable site condition standard, identification of**

A. Each area where a contaminant is present on, in or under the Phase Two Property at a concentration greater than the applicable SCS

No contaminants were found to exceed Table 8 SCS.

B. The contaminants associated with each of the areas

A visual representation of the location of the APECs identified can be found on Figure 3B.

C. Medium that contaminants were identified in

Contaminants were not identified at concentrations greater than the applicable SCS.

D. Description and assessment of what is know about each of the areas

All tests for potential contaminants of concern met the Table 8 SCS.

E. Distribution in which the areas of each contaminant is present in the area at a concentration greater than the applicable SCS, for each medium in which the contaminant is present, together with figures showing the distribution

No impacts were identified on the Phase Two Property.

F. Anything known about the reason for the discharge of the contaminants present on, in or under the Phase Two Property at a concentration greater than the applicable SCS

No contaminants were found to exceed the Table 8 SCS.

G. Anything known about migration of the contaminants present on, in or under the phase two property at a concentration greater than the applicable SCS away from any area of potential environmental concern, including the identification of any preferential pathways

No contaminants were found to exceed the Table 8 SCS.

H. Climatic or meteorological conditions that may have influenced distribution and migration of the contaminants, such as temporal fluctuations in groundwater levels

Two groundwater level measurements were recorded throughout the course of this investigation. The ground water level is high in spring and low in summer. The ground water levels were found to fluctuate by a maximum of 80 cm between January 3, 2019 and January 7, 2019. Shallow ground water levels typically exhibit seasonal fluctuations. Ground water monitoring is ongoing by hydrogeological investigation. The soil and ground water at the Property meets the SCS and includes no migration of the contamination.

I. Information concerning soil vapour intrusion of the contaminants into buildings

No volatile parameters were identified at concentrations greater than the applicable SCS, therefore vapour intrusion is not considered to be an exposure pathway at this time.

- **Where contaminants on, in or under the Phase Two Property are present at concentrations greater than the applicable SCS, one or more cross-sections showing**
  - **A. The lateral and vertical distribution of a contaminant in each area where the contaminants are present at concentrations greater than the applicable SCS in soil, groundwater and sediment**
  - **B. Approximate depth to water table**
  - **C. Stratigraphy from ground surface to the deepest aquifer or aquitard investigated**
  - **D. Any subsurface structures and utilities that may affect contaminants distribution and transport**

Cross-sections depicting this content have been prepared, refer to Figures 8A through 8B.

- **For each area where a contaminant is present on, in or under the property at a concentration greater than the applicable SCS for the contaminant, a diagram identifying, with narrative explanatory notes**
  - **A. The release mechanisms**
  - **B. Contaminant transport pathway**
  - **C. The human and ecological receptors located on, in or under the phase two property**
  - **D. Receptor exposure points**
  - **E. Routes of exposure**

7.0 Conclusions

This Phase Two ESA involved that advancement of nine (9) boreholes, the installation of seven (7) monitoring wells on the Phase One Property, and the collection of soil and groundwater samples for analysis of the potential contaminants of concern, including: Petroleum Hydrocarbons (PHCs), Volatile Organic Compounds (VOCs), Polycyclic Aromatic Hydrocarbons (PAHs), Metals and Other Registered Parameters (ORPs), and Organochlorine Pesticides (OCPs).

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

- The stratigraphy beneath the investigated areas of the Property generally consisted of fill to depths of 0.8 to 1.9m below grade. The fill was comprised of clayey silt, trace rootlets, and trace topsoil. Native soil consisting of clayey silt to sandy silt till was found in all of the boreholes below the fill material, extending to a clayey silt till/shale complex or the shale bedrock. Shale bedrock of Queenston Formation was encountered at most borehole locations, below depths ranging from 1.5 to 6.1m, corresponding to Elevations 135.6 to 138.3 metres above sea level (masl).
- A total of nineteen (19) soil samples from borehole locations, including one quality control (QC) duplicate were submitted for chemical analysis of PHCs (F1-F4), BTEX, VOCs, PAHs), OCPs and metals and ORPs.
- The result of chemical analyses for soil revealed no exceedances of the applicable site condition Standards (Table 8) for parameters analyzed. All the samples met the MECP Table 8 SCS.
- A total of thirteen (13) ground water samples including a QC from the installed 7 monitoring wells on the Property were analysed for PHCs (F1-F4), BTEX, VOCs, PAHs), OCPs and metals and ORPs.
- No exceedances of the applicable Standards for parameters analyzed were found in any of the ground water samples analyzed. All other ground water samples met the MECP Table 8 SCS.
- According to the Certificate of Analysis, the pH of the soil and ground water samples was within the acceptable values of the MECP Guideline (5 to 9).
- All monitoring wells should be decommissioned in accordance with O.Reg. 903 when no longer required.

It is the opinion of the QP_{ESA} that the applicable SCS for the soil and groundwater at the Phase Two Property have been met as of the Certification Date of January 2, 2019. No further sub-surface investigation is required regarding the environmental quality of the soil and groundwater at the Phase Two Property.

7.1 Qualifications of the Assessors

Shafi Andseta, Ph.D., P.Geo., QP_{ESA-RA}

Dr. Andseta is Senior Project Manager in the Environmental Services Department of DS Consultants Inc.'s Head Office located in Vaughan, Ontario. Dr. Andseta has over 25 years of experience in the academic, private and government sectors. Her areas of expertise include environmental site assessments, geology, remediation, brownfields redevelopment and hydrogeology. She also specializes in remediation and designated substances and hazardous material and asbestos management projects. Dr. Andseta has managed numerous environmental projects within Ontario and, in addition, has coordinated Environmental Projects of the Post-Graduate Diploma students at Sheridan College, Brampton, Ontario. Dr. Andseta is a Qualified Person under O.Reg. 153/04 for submitting Records of Site Condition and submitting of Risk Assessment.

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

Mr. Fioravanti an Environmental Project Manager with DS Consultants Limited. Patrick holds an 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 seven 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. He has conducted work across southern and eastern Ontario, and Quebec in his professional experience. Patrick is considered a Qualified Person to conduct Environmental Site Assessments as defined by Ontario Regulation 153/04 (as amended).

Aphrodite Koseos, B.Sc., EPt.

Ms. Koseos is an Environmental Technician with DS Consultants Ltd. Aphrodite holds a Bachelor of Science Degree from Simon Fraser University with a major in Environmental Science and a specialization in Earth Systems. Aphrodite is also registered as an environmental professional in training with ECO Canada. Aphrodite has had several years of experience in the environmental sector conducting Phase One and Phase Two Environmental Site Assessments.

7.2 Signatures

This Phase Two ESA was conducted under the supervision of Patrick Fioravanti, B.Sc., P.Geo., QP_{ESA} in accordance with the requirements of O.Reg. 153/04 (as amended). 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.



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



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



7.3 Limitations

This report was prepared for the sole use of Millcroft Greens Corporation and is intended to provide an assessment of the environmental condition on the property located at 2155 Country Club Drive, Areas A & B, Burlington, Ontario. The information presented in this report is based on information collected during the completion of the Phase Two 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 Two 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 Two 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.

8.0 References

- Armstrong, D.K. and Dodge, J.E.P. *Paleozoic Geology Map of Southern Ontario*. Ontario Geological Survey, Miscellaneous Release--Data 219.
- Chapman, L.J. and Putnam, D.F. 2007. *The Physiography of Southern Ontario*. Ontario Geological Survey, Miscellaneous Release--Data 228.
- Freeze, R. Allen and Cherry, John A., 1979. *Ground water*. Page 29.
- Ontario Ministry of the Environment, December 1996. *Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario.*
- Ontario Ministry of Environment, 15 April 2011. *Soil, Ground Water and Sediment Standards for use under part XV.1of the Environmental Protection Act.*
- Ontario Ministry of the Environment, June 2011. *Guide for Completing Phase Two Environmental Site Assessments under Ontario regulation 153/04.*
- Ontario Ministry of the Environment, July 2011. *Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act.*
- The Ontario Geological Survey. 2003. *Surficial Geology of Southern Ontario*.
- Phase One Environmental Site Assessment, 2155 Country Club Drive, Burlington, Ontario, dated November 1, 2018, prepared for Argo Development Corporation.
- Geotechnical Investigation, Proposed Residential Subdivision, 2155 Country Club Drive, Burlington, Ontario, dated January 21, 2019, prepared for Argo Development Corporation

Tables

Table 1: Summary of Monitoring Well Installation and Groundwater Data

Well ID			BH18-1	BH18-2	BH18-4	BH18-5	BH18-6	BH18-7	BH18-9
Installed By:			DS	DS	DS	DS	DS	DS	DS
Installation Date:			December 18, 2018	December 18, 2018	December 19, 2018	December 19, 2018	December 19, 2018	December 20, 2018	December 20, 2018
Well Status:			Active	Active	Active	Active	Active	Active	Active
Inner Diameter		(mm)	50	50	50	50	50	50	50
Surface Elevation		(masl)	142.78	142.17	140.58	140.16	138.10	138.57	140.80
Bottom of Concrete Seal/Top of Bentonite Seal		mbgs	0.30	0.30	0.30	0.30	0.30	0.30	0.30
		masl	142.48	141.87	140.28	139.86	137.80	138.27	140.50
Bottom of Bentonite Seal/Top of Sand Pack		mbgs	2.40	2.40	2.10	0.90	0.50	1.20	1.70
		masl	140.38	139.77	138.48	139.26	137.60	137.37	139.10
Top of Well Screen		mbgs	3.10	3.10	2.70	1.50	0.80	1.50	2.30
		masl	139.68	139.07	137.88	138.66	137.30	137.07	138.50
Well Screen Length		m	3.10	1.50	1.60	3.10	1.50	3.10	1.50
Bottom of Well Screen		mbgs	6.10	4.60	4.30	4.60	2.30	4.60	3.80
		masl	136.68	137.57	135.98	135.26	135.50	133.67	136.70
GW Monitoring									
03-Jan-19	Depth to GW	mbgs	4.16	1.04	1.76	2.62	1.49	2.06	1.74
	GW Elevation	masl	138.62	141.13	138.82	137.54	136.61	136.51	139.06
07-Jan-19	Depth to GW	mbgs	4.27	1.36	2.07	3.44	1.60	2.40	1.95
	GW Elevation	masl	138.51	140.81	138.51	136.72	136.50	136.17	138.85
22-Jan-19	Depth to GW	mbgs	4.70	2.08	2.72	2.98	1.71	2.34	2.49
	GW Elevation	masl	138.08	140.09	137.86	137.18	136.39	136.23	138.31
22-Feb-19	Depth to GW	mbgs	4.17	2.22	1.93	2.67	1.47	2.27	1.36
	GW Elevation	masl	138.61	139.95	138.65	137.49	136.63	136.30	139.44
18-Mar-19	Depth to GW	mbgs	4.17	2.39	2.31	2.35	1.35	2.15	1.58
	GW Elevation	masl	138.61	139.78	138.27	137.81	136.75	136.42	139.22
11-Apr-19	Depth to GW	mbgs	4.22	2.14	2.03	1.85	1.42	2.14	1.54
	GW Elevation	masl	138.56	140.03	138.55	138.31	136.68	136.43	139.26
17-May-19	Depth to GW	mbgs	4.09	0.69	1.67	1.45	1.23	2.02	1.12
	GW Elevation	masl	138.69	141.48	138.91	138.71	136.87	136.55	139.68
20-Jun-19	Depth to GW	mbgs	4.06	0.83	2.24	2.09	1.60	2.07	2.19
	GW Elevation	masl	138.72	141.34	138.34	138.07	136.50	136.50	138.61
09-Jul-19	Depth to GW	mbgs	4.33	1.00	2.77	2.87	1.73	2.35	2.66
	GW Elevation	masl	138.45	141.17	137.81	137.29	136.37	136.22	138.14
02-Aug-19	Depth to GW	mbgs	4.46	3.36	2.99	3.09	1.80	2.37	3.14
	GW Elevation	masl	138.32	138.81	137.59	137.07	136.30	136.20	137.66
06-Sep-19	Depth to GW	mbgs	4.68	dry	3.40	3.66	1.85	2.40	3.62
	GW Elevation	masl	138.10	dry	137.18	136.50	136.25	136.17	137.18
11-Oct-19	Depth to GW	mbgs	4.69	dry	3.20	3.62	1.80	2.33	3.74
	GW Elevation	masl	138.09	dry	137.38	136.54	136.30	136.24	137.06
06-Nov-19	Depth to GW	mbgs	4.36	dry	2.20	2.80	1.64	2.22	3.22
	GW Elevation	masl	138.42	dry	138.38	137.36	136.46	136.35	137.58
09-Dec-19	Depth to GW	mbgs	4.28	2.34	1.98	2.35	1.21	1.99	2.00
	GW Elevation	masl	138.50	139.83	138.60	137.81	136.89	136.58	138.80
15-Jan-20	Depth to GW	mbgs	4.13	0.93	1.48	1.54	0.92	1.90	1.21
	GW Elevation	masl	138.65	141.24	139.10	138.62	137.18	136.67	139.59
11-Feb-20	Depth to GW	mbgs	4.31	1.38	2.17	2.07	1.42	2.15	1.74
	GW Elevation	masl	138.47	140.79	138.41	138.09	136.68	136.42	139.06
17-Mar-20	Depth to GW	mbgs	4.19	1.39	2.13	2.04	1.36	2.19	1.67
	GW Elevation	masl	138.59	140.78	138.45	138.12	136.74	136.38	139.13
20-Apr-20	Depth to GW	mbgs	4.32	1.46	2.40	2.36	1.57	2.27	2.02
	GW Elevation	masl	138.46	140.71	138.18	137.80	136.53	136.30	138.78
22-May-20	Depth to GW	mbgs	4.28	1.86	2.72	2.89	1.66	2.26	2.67
	GW Elevation	masl	138.50	140.31	137.86	137.27	136.44	136.31	138.13
08-Jun-20	Depth to GW	mbgs	4.55	2.71	2.93	2.85	1.83	2.43	2.97
	GW Elevation	masl	138.23	139.46	137.65	137.31	136.27	136.14	137.83

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

Table 2: Summary of Soil Samples Submitted for Chemical Analysis

Borehole ID	Sample No.	Sample Depth (mbgs)	Soil Description	Parameter Analyzed	APEC Investigated
BH18-1	SS2	0.76-1.37	Fill: clayey silt, trace rootlets	Metals and ORPs	APEC1, APEC-2
	SS3	1.52-2.13	Fill: clayey silt, trace rootlets Clayey silt till: sandy, trace gravel/cobble	OC Pesticides	APEC1, APEC-2
	SS6	4.57-5.18	Till shale complex	PHCs	APEC1, APEC-2
BH18-2	SS2	0.76-1.52	Fill: clayey silt, trace topsoil	OC Pesticides	APEC1, APEC-2
	SS3	1.52-2.13	Clayey silt till: sandy, trace gravel/cobble	Metals, ORPs	APEC1, APEC-2
BH18-3	SS1	0.00-0.60	Topsoil Fill: clayey silt, trace topsoil	OC Pesticides	APEC1, APEC-2
	SS2	0.76-1.37	Fill: clayey silt, trace topsoil	Metals and ORPs	APEC1, APEC-2
BH18-4	SS2	0.76-1.37	Fill: clayey silt, trace rootlets	PAHs	APEC1, APEC-2, APEC-3
BH18-5	SS1	0.00-0.60	Topsoil Fill: clayey silt, trace topsoil	Metals and ORPs, PAHs	APEC1, APEC-2, APEC-3
BH18-6	SS1	0.00-0.60	Topsoil Fill: clayey silt	PAHs	APEC1, APEC-2
	SS2	0.76-1.37	Clayey silt till:trace sand, trace gravel/cobble, trace shale fragments	Metals and ORPs	APEC1, APEC-2
	SS3	1.52-2.13	Shale bedrock: Highly weathered shale	OC Pesticides	APEC1, APEC-2
BH18-7	SS4	2.29-2.90	Shale bedrock: Highly weathered shale	PHCs	APEC1, APEC-2
BH18-8	SS2	0.76-1.37	Fill: clayey silt, trace rootlet/topsoil, trace organics	OC Pesticides	APEC1, APEC-2
BH18-9	SS3	1.52-2.13	Fill: clayey silt, trace rootlet/topsoil, trace organics Sandy Silt Till: trace clay, trace gravel/cobble	PHCs	APEC1, APEC-2

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
BH18-1	136.7	-	139.7	January 7, 2019	Metals, ORPs, PHCs, VOCs	APEC-1, APEC-2
BH18-2	137.6	-	139.1	January 7, 2019	Metals, ORPs, OCPs	APEC-1, APEC-2
BH18-4	136.0	-	137.9	January 7, 2019	Metals, ORPs, PAHs	APEC-1, APEC-2, APEC-3
BH18-5	135.3	-	138.7	January 7, 2019	PAHs, OCPs	APEC-1, APEC-2, APEC-3
BH18-6	135.5	-	137.3	January 7, 2019	Metals, ORPs, PAHs, OCPs	APEC-1, APEC-2
BH18-7	133.7	-	137.1	January 7, 2019	Metals, ORPs, PHCs, VOCs	APEC-2
BH18-9	136.7	-	138.5	January 7, 2019	Metals, ORPs, PHCs, VOCs	APEC-2

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	PCA 40: Pesticides (including Herbicides, Fungicides, and Ant-Fouling Agents) Manufacturing, Processing, Bulk Storage, and Large-Scale Applications	OC Pesticides	Soil	BH18-1	SS3	OC Pesticides
				BH18-2	SS2	OC Pesticides
				BH18-3	SS1	OC Pesticides
				BH18-6	SS3	OC Pesticides
				BH18-8	SS2	OC Pesticides
			Groundwater	BH18-2	BH18-2	OC Pesticides
				BH18-5	BH18-5	OC Pesticides
				BH18-6	BH18-6	OC Pesticides
APEC-2	PCA 30: Importation of Fill Materail of Unknown Quality	Metals, ORPs, PAHs, PHCs, VOCs	Soil	BH18-1	SS2	Metals, ORPs
					SS6	PHCs
				BH18-2	SS3	Metals, ORPs
				BH18-3	SS2	Metals, ORPs
				BH18-4	SS2	PAHs
				BH18-5	SS1	Metals, ORPs, PAHs
				BH18-6	SS1	PHCs
					SS2	Metals, ORPs
				BH18-7	SS4	PHCs
				BH18-9	SS3	PHCs
			Groundwater	BH18-1	BH18-1	Metals, ORPs, PHCs, VOCs
				BH18-2	BH18-2	Metals, ORPs
				BH18-4	BH18-4	Metals, ORPs, PAHs
				BH18-5	BH18-5	PAHs
				BH18-6	BH18-6	Metals, ORPs, PAHs
				BH18-7	BH18-7	Metals, ORPs, PHCs, VOCs
				BH18-9	BH18-9	Metals, ORPs, PHCs, VOCs
APEC-3	PCA 46: Rail Yards, Tracks and Spurs	Metals, ORPs, PAHs	Soil	BH18-4	SS2	PAHs
				BH18-5	SS1	Metals, ORPs, PAHs
			Water	BH18-4	BH18-4	Metals, ORPs, PAHs
				BH18-5	BH18-5	Metals, ORPs

Table 5: Summary of Metals and ORPs in Soil

Parameter	MECP Table 8 SCS	BH18-1 SS2	BH18-2 SS3	BH18-3 SS2	BH18-5 SS1	BH18-6 SS2	DUP1 (BH18-1 SS2)
Date of Collection		December 18, 2018	December 18, 2018	December 18, 2018	December 19, 2018	December 19, 2018	December 18, 2018
Date Reported		January 3, 2019	January 3, 2019	January 3, 2019	January 3, 2019	January 3, 2019	January 3, 2019
Sampling Depth (mbgs)		0.76-1.37	1.52-2.13	0.76-1.37	0.00-0.60	0.76-1.37	0.76-1.37
Analytical Report Reference No.		L2213807-1	L2213807-2	L2213807-3	L2213807-4	L2213807-5	L2213807-11
Antimony (Sb)	1.3	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Arsenic (As)	18	7.1	5.2	5.9	4.9	4.2	5
Barium (Ba)	220	78.9	132	140	101	66.3	86.8
Beryllium (Be)	2.5	0.63	0.69	0.66	0.71	0.52	0.63
Boron (B), Hot Water Ext.	1.5	<0.10	0.15	<0.10	0.32	0.19	<0.10
Boron (B)	36	11.3	10.8	10.8	5	14.9	11.1
Cadmium (Cd)	1.2	<0.50	<0.50	<0.50	0.95	<0.50	<0.50
Chromium (Cr)	70	20.9	22.5	22.1	24.8	16.1	20
Cobalt (Co)	22	11.5	11.6	12.2	10.4	10	11.1
Copper (Cu)	92	24.8	28.9	27.6	27.7	15.1	24.3
Lead (Pb)	120	11.9	12.2	12.4	21.6	10	12.2
Mercury (Hg)	0.27	0.0165	0.0189	0.0177	0.0633	0.007	0.0148
Molybdenum (Mo)	2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Nickel (Ni)	82	24.8	25.4	26.3	19.9	20.1	24.6
Selenium (Se)	1.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Silver (Ag)	0.5	<0.20	<0.20	<0.20	0.24	<0.20	<0.20
Thallium (Tl)	1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Uranium (U)	2.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Vanadium (V)	86	29.6	30.7	32.2	33	21.9	28.7
Zinc (Zn)	290	54.8	60.2	59.3	95.3	43.9	54.8
Chromium, Hexavalent	0.66	<0.20	<0.20	0.25	<0.20	<0.20	<0.20
SAR	5	0.3	0.52	0.15	0.12	0.22	0.26
Cyanide, Weak Acid Diss	0.051	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Conductivity	0.7	0.164	0.267	0.148	0.216	0.113	0.168
pH	-	7.81	7.81	7.76	7.4	7.9	7.8

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

Table 6: Summary of PHCs in Soil

Parameter	MECP Table 8 SCS	BH18-1 SS6	BH18-7 SS4	BH18-9 SS3
Date of Collection		December 18, 2018	December 20, 2018	December 20, 2018
Date Reported		January 3, 2019	January 3, 2019	January 3, 2019
Sampling Depth (mbgs)		4.57-5.18	2.29-2.90	1.52-2.13
Analytical Report Reference No.		L2213801-1	L2213801-2	L2213801-3
Benzene	0.02	<0.0068	<0.0068	<0.0068
Ethylbenzene	0.05	<0.018	<0.018	<0.018
Toluene	0.2	<0.080	<0.080	<0.080
Xylenes (Total)	0.05	<0.050	<0.050	<0.050
F1 (C6-C10)	25	<5.0	<5.0	<5.0
F1-BTEX	25	<5.0	<5.0	<5.0
F2 (C10-C16)	10	<10	<10	<10
F3 (C16-C34)	240	<50	<50	<50
F4 (C34-C50)	120	<50	<50	<50

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

Table 7: Summary of PAHs in Soil

Parameter	MECP Table 8 SCS	BH18-6 SS1	BH18-5 SS1	BH18-4 SS2	DUP3 (BH18-6 SS1)
Date of Collection		December 19, 2018	December 19, 2018	December 19, 2018	December 18, 2018
Date Reported		January 3, 2019	January 3, 2019	January 3, 2019	January 3, 2019
Screen Interval (mbgs)		0.00-0.60	0.00-0.60	0.76-1.37	0.00-0.60
Analytical Report Reference No.		L2213801-4	L2213801-5	L2213801-6	L2213801-7
Acenaphthene	0.072	<0.050	<0.050	<0.050	<0.050
Acenaphthylene	0.093	<0.050	<0.050	<0.050	<0.050
Anthracene	0.22	<0.050	<0.050	<0.050	<0.050
Benzo(a)anthracene	0.36	<0.050	<0.050	<0.050	<0.050
Benzo(a)pyrene	0.3	<0.050	<0.050	<0.050	<0.050
Benzo(b)fluoranthene	0.47	<0.050	<0.050	<0.050	<0.050
Benzo(g,h,i)perylene	0.68	<0.050	<0.050	<0.050	<0.050
Benzo(k)fluoranthene	0.48	<0.050	<0.050	<0.050	<0.050
Chrysene	2.8	<0.050	<0.050	<0.050	<0.050
Dibenzo(ah)anthracene	0.1	<0.050	<0.050	<0.050	<0.050
Fluoranthene	0.69	<0.050	<0.050	<0.050	<0.050
Fluorene	0.19	<0.050	<0.050	<0.050	<0.050
Indeno(1,2,3-cd)pyrene	0.23	<0.050	<0.050	<0.050	<0.050
1+2-Methylnaphthalenes	0.59	<0.042	<0.042	<0.042	<0.042
1-Methylnaphthalene	0.59	<0.030	<0.030	<0.030	<0.030
2-Methylnaphthalene	0.59	<0.030	<0.030	<0.030	<0.030
Naphthalene	0.09	<0.013	<0.013	<0.013	<0.013
Phenanthrene	0.69	<0.046	<0.046	<0.046	<0.046
Pyrene	1	<0.050	<0.050	<0.050	<0.050

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

Table 8: Summary of Organochlorine Pesticides (OCPs) in Soil

Parameter	MECP Table 8 SCS	BH18-1 SS3	BH18-2 SS2	BH18-3 SS1	BH18-6 SS3	BH18-8 SS2	DUP2 (BH18-8 SS2)
Date of Collection		December 18, 2018	December 18, 2018	December 18, 2018	December 19, 2018	December 20, 2018	December 18, 2018
Date Reported		January 3, 2019	January 4, 2019	January 5, 2019	January 6, 2019	January 7, 2019	January 8, 2019
Screen Interval (mbgs)		1.52-2.13	0.76-1.37	0.00-0.60	1.52-2.13	0.76-1.37	0.76-1.37
Analytical Report Reference No.		L2213807-6	L2213807-7	L2213807-8	L2213807-9	L2213807-10	L2213807-12
Aldrin	0.05	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
gamma-hexachlorocyclohexane	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chlordane (Total)	0.05	<0.028	<0.028	<0.028	<0.028	<0.028	<0.028
Total DDD	0.05	<0.028	<0.028	<0.028	<0.028	<0.028	<0.028
Total DDE	0.05	<0.028	<0.028	<0.028	<0.028	<0.028	<0.028
Total DDT	1.4	<0.028	<0.028	<0.028	<0.028	<0.028	<0.028
Dieldrin	0.05	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Endosulfan (Total)	0.04	<0.028	<0.028	<0.028	<0.028	<0.028	<0.028
Endrin	0.04	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Heptachlor	0.05	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Heptachlor Epoxide	0.05	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Hexachlorobenzene	0.02	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Hexachlorobutadiene	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Hexachloroethane	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Methoxychlor	0.05	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020

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 8 SCS	Units	BH18-1	BH18-2	BH18-4	BH18-6
Date of Collection			January 7, 2019	January 7, 2019	January 7, 2019	January 7, 2019
Date Reported			January 15, 2019	January 15, 2019	January 15, 2019	January 15, 2019
Screen Interval (mbgs)			3.1-6.1	3.1-4.6	2.7-4.3	0.8-2.3
Analytical Report Reference No.			L2217334-1	L2217334-2	L2217334-3	L2217334-5
Antimony (Sb)-Dissolved	6	ug/L	0.33	0.13	0.17	0.16
Arsenic (As)-Dissolved	25	ug/L	3.6	0.61	0.55	0.79
Barium (Ba)-Dissolved	1000	ug/L	76	67.3	108	74.1
Beryllium (Be)-Dissolved	4	ug/L	<0.10	<0.10	<0.10	<0.10
Boron (B)-Dissolved	5000	ug/L	265	115	134	135
Cadmium (Cd)-Dissolved	2.1	ug/L	0.011	<0.010	<0.010	<0.010
Chromium (Cr)-Dissolved	50	ug/L	<0.50	<0.50	<0.50	<0.50
Cobalt (Co)-Dissolved	3.8	ug/L	0.24	0.12	0.19	<0.10
Copper (Cu)-Dissolved	69	ug/L	1.14	0.41	0.45	0.76
Lead (Pb)-Dissolved	10	ug/L	0.139	<0.050	<0.050	<0.050
Mercury (Hg)-Dissolved	0.29	ug/L	<0.010	<0.010	<0.010	<0.010
Molybdenum (Mo)-Dissolved	70	ug/L	22.7	6.03	6.72	4.7
Nickel (Ni)-Dissolved	100	ug/L	1.56	0.85	0.86	0.54
Selenium (Se)-Dissolved	10	ug/L	0.285	0.693	0.088	0.111
Silver (Ag)-Dissolved	1.2	ug/L	<0.050	<0.050	<0.050	<0.050
Sodium (Na)-Dissolved	490000	ug/L	29000	17600	44900	14100
Thallium (Tl)-Dissolved	2	ug/L	0.027	0.016	0.025	0.013
Uranium (U)-Dissolved	20	ug/L	7.77	4.86	2.14	2.51
Vanadium (V)-Dissolved	6.2	ug/L	2.12	0.63	0.81	1.02
Zinc (Zn)-Dissolved	890	ug/L	6.6	<1.0	<1.0	<1.0
Chromium, Hexavalent	25	ug/L	<0.50	<0.50	<0.50	<0.50
Cyanide, Weak Acid Diss	52	ug/L	<2.0	<2.0	<2.0	<2.0
Chloride (Cl)	790	mg/L	37.8	7.79	132	28.6

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 8 SCS	Units	BH18-7	BH18-9	DUP3 (BH18-7)
Date of Collection			January 7, 2019	January 7, 2019	January 7, 2019
Date Reported			January 15, 2019	January 15, 2019	January 15, 2019
Screen Interval (mbgs)			1.5-4.6	2.3-3.8	1.5-4.6
Analytical Report Reference No.			L2217334-6	L2217334-7	L2217334-10
Antimony (Sb)-Dissolved	6	ug/L	0.22	0.21	0.2
Arsenic (As)-Dissolved	25	ug/L	1.38	1.07	1.48
Barium (Ba)-Dissolved	1000	ug/L	93.3	91.1	93.6
Beryllium (Be)-Dissolved	4	ug/L	<0.10	<0.10	<0.10
Boron (B)-Dissolved	5000	ug/L	500	175	494
Cadmium (Cd)-Dissolved	2.1	ug/L	<0.010	<0.010	<0.010
Chromium (Cr)-Dissolved	50	ug/L	<0.50	<0.50	<0.50
Cobalt (Co)-Dissolved	3.8	ug/L	0.43	0.23	0.45
Copper (Cu)-Dissolved	69	ug/L	0.96	1.11	1
Lead (Pb)-Dissolved	10	ug/L	<0.050	<0.050	<0.050
Mercury (Hg)-Dissolved	0.29	ug/L	<0.010	<0.010	<0.010
Molybdenum (Mo)-Dissolved	70	ug/L	7.84	9.51	7.73
Nickel (Ni)-Dissolved	100	ug/L	1.41	1.22	1.5
Selenium (Se)-Dissolved	10	ug/L	0.241	0.163	0.229
Silver (Ag)-Dissolved	1.2	ug/L	<0.050	<0.050	<0.050
Sodium (Na)-Dissolved	490000	ug/L	41800	38300	41300
Thallium (Tl)-Dissolved	2	ug/L	0.016	0.028	0.016
Uranium (U)-Dissolved	20	ug/L	11.3	3.26	11.3
Vanadium (V)-Dissolved	6.2	ug/L	1.19	1.13	1.24
Zinc (Zn)-Dissolved	890	ug/L	<1.0	<1.0	<1.0
Chromium, Hexavalent	25	ug/L	<0.50	<0.50	<0.50
Cyanide, Weak Acid Diss	52	ug/L	<2.0	<2.0	<2.0
Chloride (Cl)	790	mg/L	129	87.1	130

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 8 SCS	Units	BH18-1	BH18-7	BH18-9	DUP4 (BH18-9)
Date of Collection			January 7, 2019	January 7, 2019	January 7, 2019	January 7, 2019
Date Reported			January 15, 2019	January 15, 2019	January 15, 2019	January 15, 2019
Screen Interval (mbgs)			3.1-6.1	1.5-4.6	2.3-3.8	2.3-3.8
Analytical Report Reference No.			L2217334-1	L2217334-6	L2217334-7	L2217334-11
F1 (C6-C10)	420	ug/L	<25	<25	<25	<25
F1-BTEX	420	ug/L	<25	<25	<25	<25
F2 (C10-C16)	150	ug/L	<100	<100	<100	<100
F3 (C16-C34)	500	ug/L	<250	<250	<250	<250
F4 (C34-C50)	500	ug/L	<250	<250	<250	<250

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 8 SCS	Units	BH18-1	BH18-7	BH18-9	DUP4 (BH18-9)	TRIP BLANK
Date of Collection			January 7, 2019	January 7, 2019	January 7, 2019	January 7, 2019	January 7, 2019
Date Reported			January 15, 2019	January 15, 2019	January 15, 2019	January 15, 2019	January 15, 2019
Screen Interval (mbgs)			3.1-6.1	1.5-4.6	2.3-3.8	2.3-3.8	N/A
Analytical Report Reference No.			L2217334-1	L2217334-6	L2217334-7	L2217334-11	L2217334-12
Acetone	2700	ug/L	<30	<30	<30	<30	<30
Benzene	5	ug/L	<0.50	0.6	<0.50	<0.50	<0.50
Bromodichloromethane	16	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0
Bromoform	25	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0
Bromomethane	0.89	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon tetrachloride	0.79	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	30	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50
Dibromochloromethane	25	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0
Chloroform	2.4	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dibromoethane	0.2	ug/L	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichlorobenzene	3	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	59	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	1	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	590	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0
1,1-Dichloroethane	5	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloroethane	1.6	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethylene	1.6	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,2-Dichloroethylene	1.6	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,2-Dichloroethylene	1.6	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene Chloride	50	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dichloropropane	5	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichloropropene (cis & trans)	0.5	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50
Ethylbenzene	2.4	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50
n-Hexane	51	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl Ethyl Ketone	1800	ug/L	<20	<20	<20	<20	<20
Methyl Isobutyl Ketone	640	ug/L	<20	<20	<20	<20	<20
MTBE	15	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0
Styrene	5.4	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	1.1	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	1	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethylene	1.6	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	22	ug/L	<0.50	0.52	<0.50	<0.50	<0.50
1,1,1-Trichloroethane	200	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	4.7	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	1.6	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50
Trichlorofluoromethane	150	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0
Vinyl chloride	0.5	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50
Xylenes (Total)	300	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50

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

Table 12: Summary of PAHs in Groundwater

Parameter	MECP Table 8 SCS	Units	BH18-5	BH18-6
Date of Collection			January 7, 2019	January 7, 2019
Date Reported			January 15, 2019	January 15, 2019
Screen Interval (mbgs)			1.5-4.6	0.8-2.3
Analytical Report Reference No.			L2217334-4	L2217334-5
Acenaphthene	4.1	ug/L	<0.020	<0.020
Acenaphthylene	1	ug/L	<0.020	<0.020
Anthracene	1	ug/L	<0.020	<0.020
Benzo(a)anthracene	1	ug/L	<0.020	<0.020
Benzo(a)pyrene	0.01	ug/L	<0.010	<0.010
Benzo(b)fluoranthene	0.1	ug/L	<0.020	<0.020
Benzo(g,h,i)perylene	0.2	ug/L	<0.020	<0.020
Benzo(k)fluoranthene	0.1	ug/L	<0.020	<0.020
Chrysene	0.1	ug/L	<0.020	<0.020
Dibenzo(ah)anthracene	0.2	ug/L	<0.020	<0.020
Fluoranthene	0.41	ug/L	<0.020	<0.020
Fluorene	120	ug/L	<0.020	<0.020
Indeno(1,2,3-cd)pyrene	0.2	ug/L	<0.020	<0.020
1+2-Methylnaphthalenes	3.2	ug/L	<0.028	<0.028
1-Methylnaphthalene	3.2	ug/L	<0.020	<0.020
2-Methylnaphthalene	3.2	ug/L	<0.020	<0.020
Naphthalene	11	ug/L	<0.050	<0.050
Phenanthrene	1	ug/L	<0.020	0.029
Pyrene	4.1	ug/L	<0.020	<0.020

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

Table 13: Summary of OCPs in Groundwater

Parameter	MECP Table 8 SCS	Units	BH18-5	BH18-6
Date of Collection			January 7, 2019	January 7, 2019
Date Reported			January 15, 2019	January 15, 2019
Screen Interval (mbgs)			1.5-4.6	0.8-2.3
Analytical Report Reference No.			L2217334-4	L2217334-5
Aldrin	0.35	ug/L	<0.010	<0.010
gamma-hexachlorocyclohexane	0.95	ug/L	<0.010	<0.010
Chlordane (Total)	0.06	ug/L	<0.057	<0.057
Total DDD	1.8	ug/L	<0.042	<0.042
Total DDE	10	ug/L	<0.011	<0.011
Total DDT	0.05	ug/L	<0.042	<0.042
Dieldrin	0.35	ug/L	<0.050	<0.050
Endosulfan (Total)	0.56	ug/L	<0.042	<0.042
Endrin	0.36	ug/L	<0.040	<0.040
Heptachlor	0.038	ug/L	<0.010	<0.010
Heptachlor Epoxide	0.038	ug/L	<0.010	<0.010
Hexachlorobenzene	1	ug/L	<0.010	<0.010
Hexachlorobutadiene	0.44	ug/L	<0.010	<0.010
Hexachloroethane	2.1	ug/L	<0.010	<0.010
Methoxychlor	0.3	ug/L	<0.050	<0.050

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

Table 14: Summary of Maximum Concentrations in Soil

Parameter		Standard	Maximum Concentration	Location
Metals and ORPs	Antimony (Sb)	1.3	1	0
	Arsenic (As)	18	7.1	BH18-1 SS2
	Barium (Ba)	220	140	BH18-3 SS2
	Beryllium (Be)	2.5	0.71	BH18-5 SS1
	Boron (B), Hot Water Ext.	1.5	0.32	BH18-5 SS1
	Boron (B)	36	14.9	BH18-6 SS2
	Cadmium (Cd)	1.2	0.95	BH18-5 SS1
	Chromium (Cr)	70	24.8	BH18-5 SS1
	Cobalt (Co)	22	12.2	BH18-3 SS2
	Copper (Cu)	92	28.9	BH18-2 SS3
	Lead (Pb)	120	21.6	BH18-5 SS1
	Mercury (Hg)	0.27	0.0633	BH18-5 SS1
	Molybdenum (Mo)	2	<1.0	All Samples
	Nickel (Ni)	82	26.3	BH18-3 SS2
	Selenium (Se)	1.5	<1.0	All Samples
	Silver (Ag)	0.5	0.24	BH18-5 SS1
	Thallium (Tl)	1	<0.50	All Samples
	Uranium (U)	2.5	<1.0	All Samples
	Vanadium (V)	86	33	BH18-5 SS1
	Zinc (Zn)	290	95.3	BH18-5 SS1
	Chromium, Hexavalent	0.66	0.25	BH18-3 SS2
	SAR	5	0.52	BH18-2 SS3
	Cyanide, Weak Acid Diss	0.051	<0.050	All Samples
	Conductivity	0.7	0.267	BH18-2 SS3
PHCs	Benzene	-	7.9	BH18-6 SS2
	Ethylbenzene	0.02	0.0068	0
	Toluene	0.05	0.018	0
	Xylenes (Total)	#REF!	#REF!	#REF!
	F1 (C6-C10)	#REF!	#REF!	#REF!
	F1-BTEX	25	<5.0	All Samples
	F2 (C10-C16)	25	<5.0	All Samples
	F3 (C16-C34)	10	<10	All Samples
	F4 (C34-C50)	240	<50	All Samples
PAHs	Acenaphthene	0.072	<0.050	All Samples
	Acenaphthylene	0.093	<0.050	All Samples
	Anthracene	0.22	<0.050	All Samples
	Benzo(a)anthracene	0.36	<0.050	All Samples
	Benzo(a)pyrene	0.3	<0.050	All Samples
	Benzo(b)fluoranthene	0.47	<0.050	All Samples
	Benzo(g,h,i)perylene	0.68	<0.050	All Samples
	Benzo(k)fluoranthene	0.48	<0.050	All Samples
	Chrysene	2.8	<0.050	All Samples
	Dibenzo(ah)anthracene	0.1	<0.050	All Samples
	Fluoranthene	0.69	<0.050	All Samples

Table 14: Summary of Maximum Concentrations in Soil

Parameter		Standard	Maximum Concentration	Location
PAHs	Fluorene	0.19	<0.050	All Samples
	Indeno(1,2,3-cd)pyrene	0.23	<0.050	All Samples
	1+2-Methylnaphthalenes	0.59	<0.042	All Samples
	1-Methylnaphthalene	0.59	<0.030	All Samples
	2-Methylnaphthalene	0.59	<0.030	All Samples
	Naphthalene	0.09	<0.013	All Samples
	Phenanthrene	0.69	<0.046	All Samples
	Pyrene	1	<0.050	All Samples
OCPs	Aldrin	0.05	<0.020	All Samples
	gamma-hexachlorocyclohexane	0.01	<0.010	All Samples
	Chlordane (Total)	0.05	<0.028	All Samples
	Total DDD	0.05	<0.028	All Samples
	Total DDE	0.05	<0.028	All Samples
	Total DDT	1.4	<0.028	All Samples
	Dieldrin	0.05	<0.020	All Samples
	Endosulfan (Total)	0.04	<0.028	All Samples
	Endrin	0.04	<0.020	All Samples
	Heptachlor	0.05	<0.020	All Samples
	Heptachlor Epoxide	0.05	<0.020	All Samples
	Hexachlorobenzene	0.02	<0.010	All Samples
	Hexachlorobutadiene	0.01	<0.010	All Samples
	Hexachloroethane	0.01	<0.010	All Samples
	Methoxychlor	0.05	<0.020	All Samples

Table 15: Summary of Maximum Concentrations in Groundwater

Parameter		Standard	Maximum Concentration	Location
Metals and ORPs	Antimony (Sb)-Dissolved	6	0.33	BH18-1
	Arsenic (As)-Dissolved	25	3.6	BH18-1
	Barium (Ba)-Dissolved	1000	108	BH18-4
	Beryllium (Be)-Dissolved	4	<0.10	All Samples
	Boron (B)-Dissolved	5000	500	BH18-7
	Cadmium (Cd)-Dissolved	2.1	0.011	BH18-1
	Chromium (Cr)-Dissolved	50	<0.50	All Samples
	Cobalt (Co)-Dissolved	3.8	0.45	DUP3 (BH18-7)
	Copper (Cu)-Dissolved	69	1.14	BH18-1
	Lead (Pb)-Dissolved	10	0.139	BH18-1
	Mercury (Hg)-Dissolved	0.29	<0.010	All Samples
	Molybdenum (Mo)-Dissolved	70	22.7	BH18-1
	Nickel (Ni)-Dissolved	100	1.56	BH18-1
	Selenium (Se)-Dissolved	10	0.693	BH18-2
	Silver (Ag)-Dissolved	1.2	<0.050	All Samples
	Sodium (Na)-Dissolved	490000	44900	BH18-4
	Thallium (Tl)-Dissolved	2	0.028	BH18-9
	Uranium (U)-Dissolved	20	11.3	BH18-7
	Vanadium (V)-Dissolved	6.2	2.12	BH18-1
	Zinc (Zn)-Dissolved	890	6.6	BH18-1
	Chromium, Hexavalent	25	<0.50	All Samples
	Cyanide, Weak Acid Diss	52	<2.0	All Samples
	Chloride (Cl)	790	132	BH18-4
PHCs	F1 (C6-C10)	420	25	0
	F1-BTEX	420	25	0
	F2 (C10-C16)	150	100	0
	F3 (C16-C34)	500	250	0
	F4 (C34-C50)	500	250	0
VOCs	Acetone	2700	30	0
	Benzene	5	0.6	BH18-7
	Bromodichloromethane	16	<2.0	All Samples
	Bromoform	25	<5.0	All Samples
	Bromomethane	0.89	<0.50	All Samples
	Carbon tetrachloride	0.79	<0.20	All Samples
	Chlorobenzene	30	<0.50	All Samples
	Dibromochloromethane	25	<2.0	All Samples
	Chloroform	2.4	<1.0	All Samples
	1,2-Dibromoethane	0.2	<0.20	All Samples
	1,2-Dichlorobenzene	3	<0.50	All Samples
	1,3-Dichlorobenzene	59	<0.50	All Samples
	1,4-Dichlorobenzene	1	<0.50	All Samples
	Dichlorodifluoromethane	590	<2.0	All Samples
	1,1-Dichloroethane	5	<0.50	All Samples
	1,2-Dichloroethane	1.6	<0.50	All Samples

Table 15: Summary of Maximum Concentrations in Groundwater

Parameter		Standard	Maximum Concentration	Location
VOCs	1,1-Dichloroethylene	1.6	<0.50	All Samples
	cis-1,2-Dichloroethylene	1.6	<0.50	All Samples
	trans-1,2-Dichloroethylene	1.6	<0.50	All Samples
	Methylene Chloride	50	<5.0	All Samples
	1,2-Dichloropropane	5	<0.50	All Samples
	1,3-Dichloropropene (cis & trans	0.5	<0.50	All Samples
	Ethylbenzene	2.4	<0.50	All Samples
	n-Hexane	51	<0.50	All Samples
	Methyl Ethyl Ketone	1800	<20	All Samples
	Methyl Isobutyl Ketone	640	<20	All Samples
	MTBE	15	<2.0	All Samples
	Styrene	5.4	<0.50	All Samples
	1,1,1,2-Tetrachloroethane	1.1	<0.50	All Samples
	1,1,2,2-Tetrachloroethane	1	<0.50	All Samples
	Tetrachloroethylene	1.6	<0.50	All Samples
	Toluene	22	0.52	BH18-7
	1,1,1-Trichloroethane	200	<0.50	All Samples
	1,1,2-Trichloroethane	4.7	<0.50	All Samples
	Trichloroethylene	1.6	<0.50	All Samples
	Trichlorofluoromethane	150	<5.0	All Samples
	Vinyl chloride	0.5	<0.50	All Samples
	Xylenes (Total)	300	<0.50	All Samples
PAHs	Acenaphthene	4.1	#REF!	All Samples
	Acenaphthylene	1	#REF!	All Samples
	Anthracene	1	#REF!	All Samples
	Benzo(a)anthracene	1	#REF!	All Samples
	Benzo(a)pyrene	0.01	#REF!	All Samples
	Benzo(b)fluoranthene	0.1	#REF!	All Samples
	Benzo(g,h,i)perylene	0.2	#REF!	All Samples
	Chrysene	0.1	#REF!	All Samples
	Dibenzo(ah)anthracene	0.2	#REF!	All Samples
	Fluoranthene	0.41	#REF!	All Samples
	Fluorene	120	#REF!	All Samples
	Indeno(1,2,3-cd)pyrene	0.2	#REF!	All Samples
	1+2-Methylnaphthalenes	3.2	#REF!	All Samples
	1-Methylnaphthalene	3.2	#REF!	All Samples
	2-Methylnaphthalene	3.2	#REF!	All Samples
	Naphthalene	11	#REF!	All Samples
	Phenanthrene	1	0.029	BH18-6
	Pyrene	4.1	#REF!	All Samples
OCPs	Aldrin	0.35	#REF!	All Samples
	gamma-hexachlorocyclohexane	0.95	#REF!	All Samples
	Chlordane (Total)	0.06	#REF!	All Samples
	Total DDD	1.8	#REF!	All Samples

Table 15: Summary of Maximum Concentrations in Groundwater

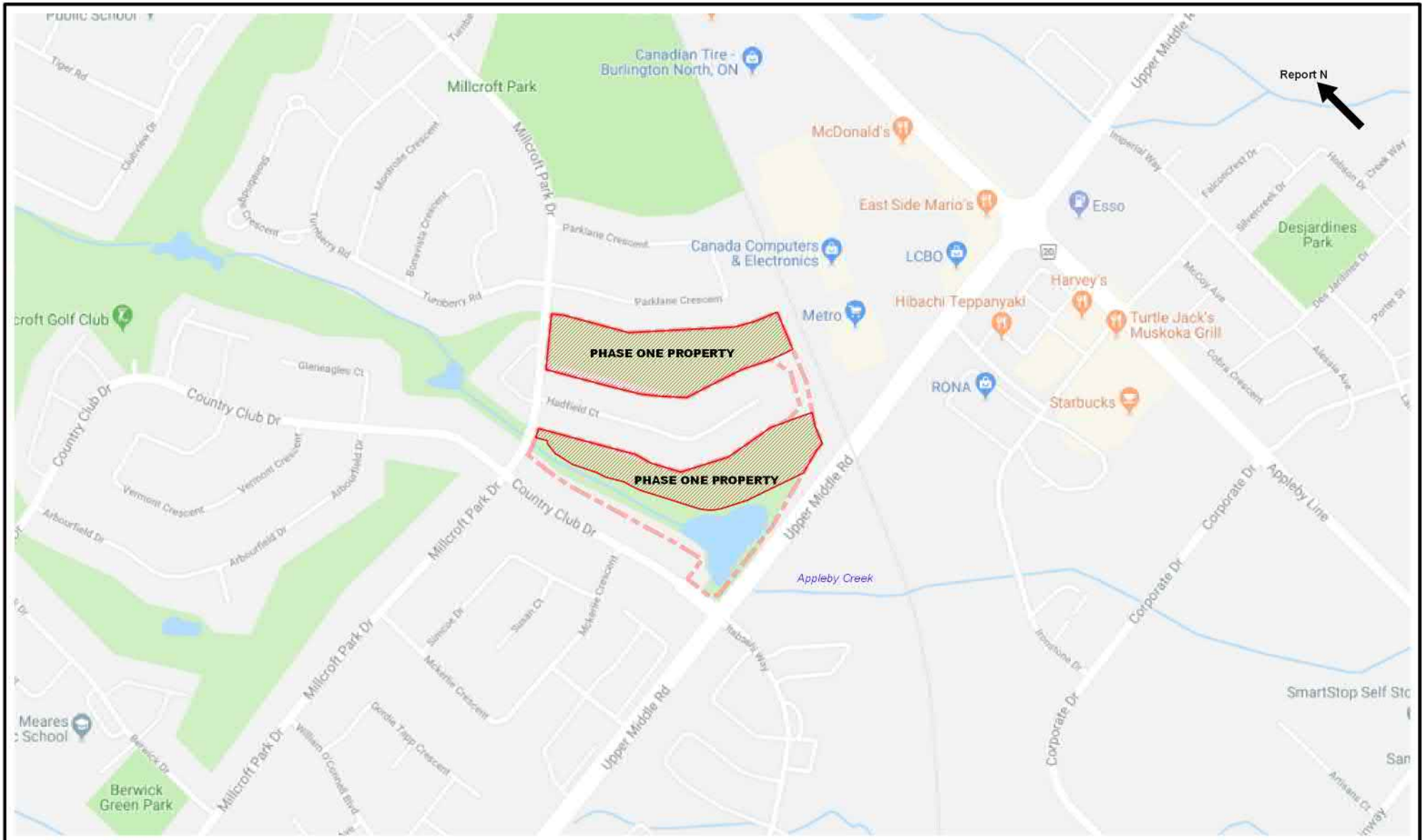
Parameter		Standard	Maximum Concentration	Location
OCPs	Total DDE	10	#REF!	All Samples
	Total DDT	0.05	#REF!	All Samples
	Dieldrin	0.35	#REF!	All Samples
	Endosulfan (Total)	0.56	#REF!	All Samples
	Endrin	0.36	#REF!	All Samples
	Heptachlor	0.038	#REF!	All Samples
	Heptachlor Epoxide	0.038	#REF!	All Samples
	Hexachlorobenzene	1	#REF!	All Samples
	Hexachlorobutadiene	0.44	#REF!	All Samples
	Hexachloroethane	2.1	#REF!	All Samples
	Methoxychlor	0.3	#REF!	All Samples

Notes for Soil & Groundwater Summary Tables

1.	mbgs =	Meters below ground surface
2.	masl =	Meters above sea level
3.		Units for all soil analyses are in µg/g (ppm) unless otherwise indicated
4.		Units for all groundwater analyses are in µg/L (ppb) unless otherwise indicated
5.	MECP Table 8 SCS =	Generic Condition Standards in a Potable Groundwater Condition for Use within 30 m of a Water Body as contained in Table 8 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
6.		For soil and groundwater analytical results, concentration exceeds the applicable Standards
7.	NM =	Not Monitored
8.	PHC =	Petroleum Hydrocarbon
9.	PAH =	Polycyclic Aromatic Hydrocarbon
10.	BTEX =	Benzene, Toluene, Ethylbenzene, Xylene
11.	OCPs =	Organochlorine Pesticides

Figures

J:\-GIS\18-687-20 Millcroft Golf Course_Argo (Millcroft) Ltd\1-QGIS\Phase Two\Figure 1 - Phase One Property Location.qgs



Legend

- Site Boundary
- Phase One Property

0 150 300 m

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Project: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
2155 Country Club Drive, Burlington, ON

Title: **SITE LOCATION PLAN**

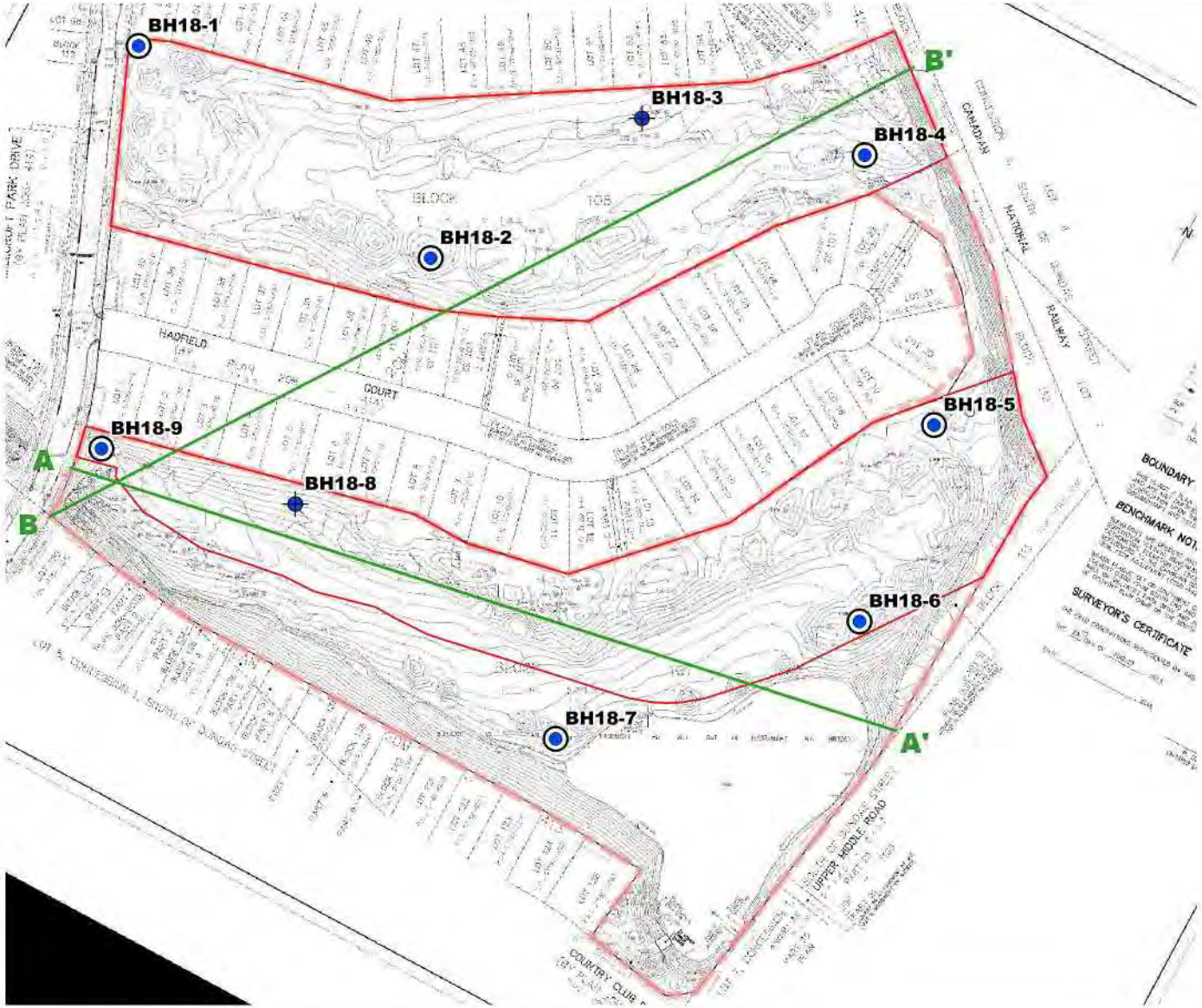
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Client: ARGO DEVELOPMENT CORP

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	S.A	S.Y	February 2019
Rev: 0	Scale: As Shown	Project No.: 18-687-100	Figure No.: 1

Image/Map Source: *Google Street Map*

J:\-GIS\18-687-20 Millcroft Golf Course_Argo (Millcroft) Ltd\1-QGIS\Phase Two\Figure 2 - Borehole Location Plan.qgs



Legend

- Site Boundary
- Phase One Property
- Cross Section Line
- Borehole Location
- Monitoring Well Location

0 50 100 m

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Title: **BOREHOLE AND MONITORING WELL LOCATIONS**

N

Client: ARGO DEVELOPMENT CORP

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Rev: 0	Scale: As Shown	Project No.: 18-687-100	Figure No.: 2
	Image/Map Source: *PDF Survey*		

J:\-GIS\18-687-20 Millcroft Golf Course_Argo (Millcroft) Ltd\1-QGIS\Phase Two\Figure 3A - PCA Locations.qgs



Legend

- Site Boundary
- Phase One Property
- 250m Buffer

0 100 200 m

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2155 Country Club Drive, Burlington, ON

Title: **POTENTIALLY CONTAMINATING ACTIVITIES (PCAs)**

N

Client: ARGO DEVELOPMENT CORP

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8.5 x 11	S.A	S.Y	February 2019
Rev: 0	Scale: As Shown	Project No.: 18-687-100	Figure No.: **3A**

Image/Map Source: *Google Satellite Image*

J:\-GIS\18-687-20 Millcroft Golf Course_Argo (Millcroft) Ltd\1-QGIS\Phase Two\Figure 3B - APEC Locations.qgs



Areas of Potential Environmental Concern
APEC-1 Entire property. Historical use of pesticides and herbicides on the golf course.
APEC-2 Entire property. Use of fill materials of unknown quality.
APEC -3 southeastern portion. Proximity to CNR

Legend

- Phase One Property
- Site Boundary
- 250m Buffer
- APEC 1 & 2
- APEC 3

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Project: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
2155 Country Club Drive, Burlington, ON

Title: **AREAS OF POTENTIAL ENVIRONMENTAL CONCERN**

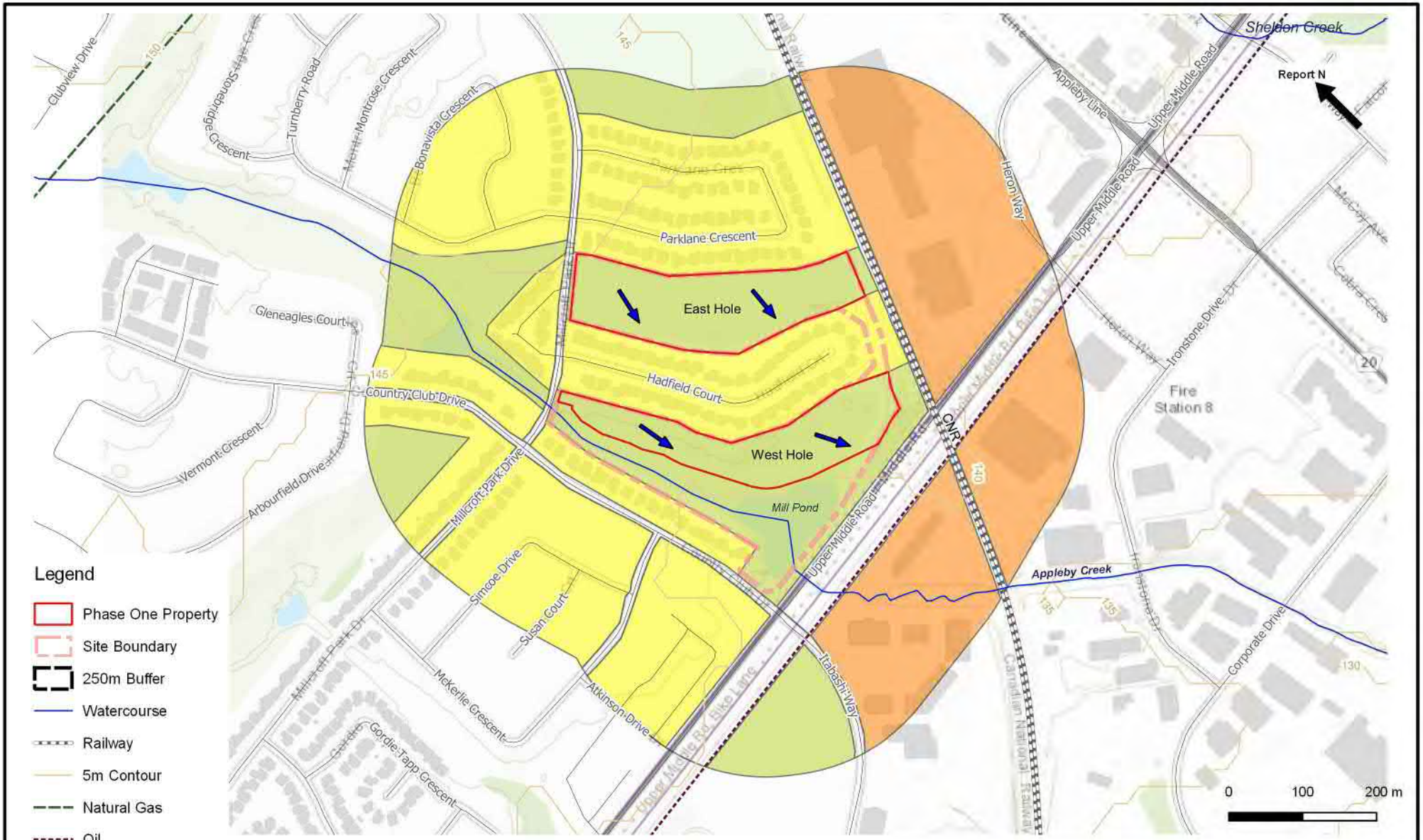
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Client: ARGO DEVELOPMENT CORP

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	S.A	S.Y	February 2019
Rev: 0	Scale: As Shown	Project No.: 18-687-100	Figure No.: **3B**

Image/Map Source: *Google Satellite Image*

J:\-GIS\18-687-20 Millcroft Golf Course_Argo (Millcroft) Ltd\1-QGIS\Phase Two\Figure 4 - Phase One Conceptual Site Model.qgs



Legend

- Phase One Property
- Site Boundary
- 250m Buffer
- Watercourse
- Railway
- 5m Contour
- Natural Gas
- Oil
- Power Line
- Groundwater Flow Direction
- Residential
- Commercial
- Parkland

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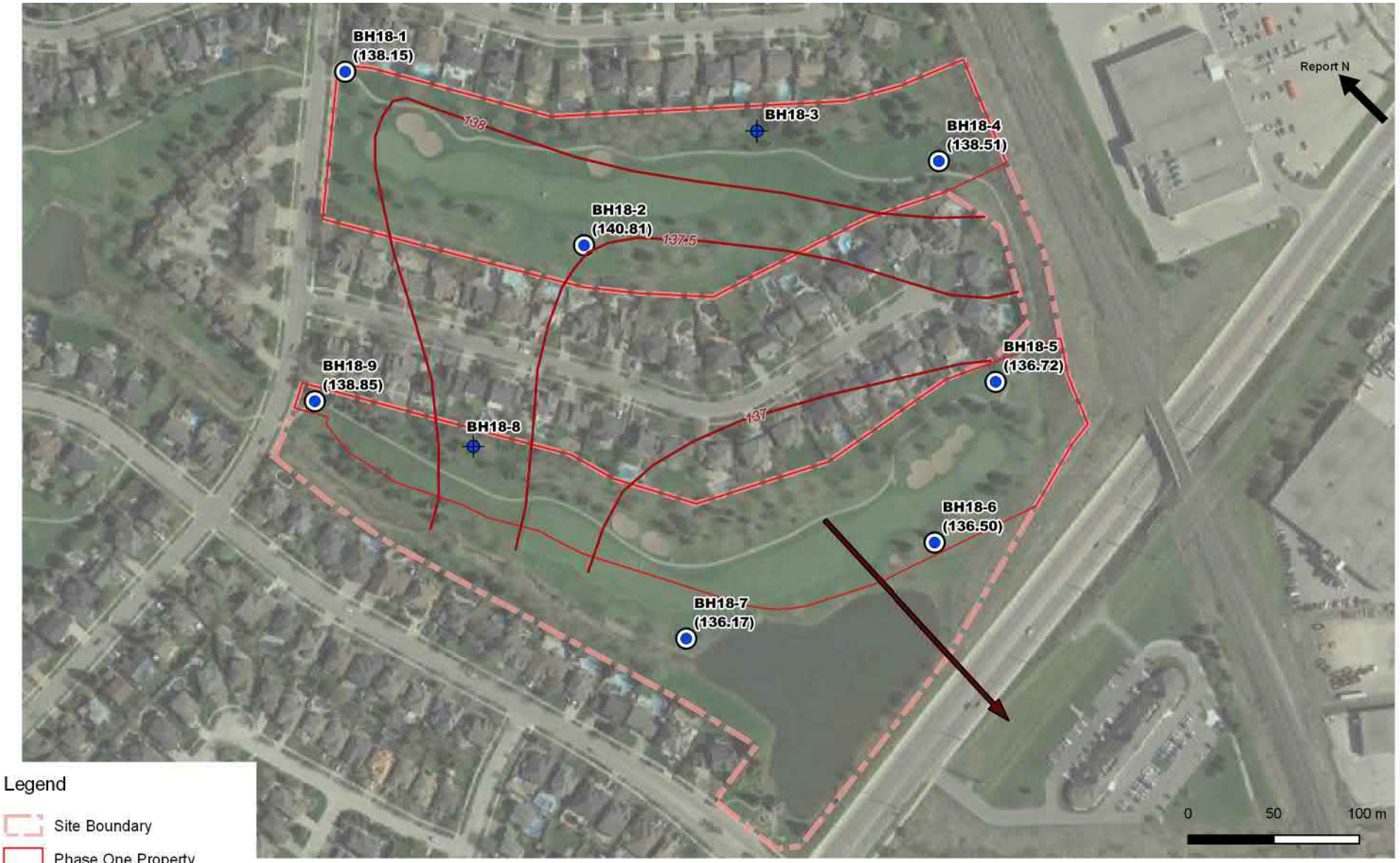
Title: **PHASE ONE CONCEPTUAL SITE MODEL**

N

Client: ARGO DEVELOPMENT CORP

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	S.A	S.Y	February 2019
Rev:	Scale: As Shown	Project No.: 18-687-100	Figure No.: 4
0	Image/Map Source: *Esri Topo Map*		

J:\-GIS\18-687-20 Millcroft Golf Course_Argo (Millcroft) Ltd\1-QGIS\Phase Two\Figure 5 - GW Elevation Contours.qgs



Legend

- Site Boundary
- Phase One Property
- Borehole Location
- Monitoring Well Location
- Groundwater Contour
- Groundwater Flow Direction

Groundwater Elevation on January 7, 2019

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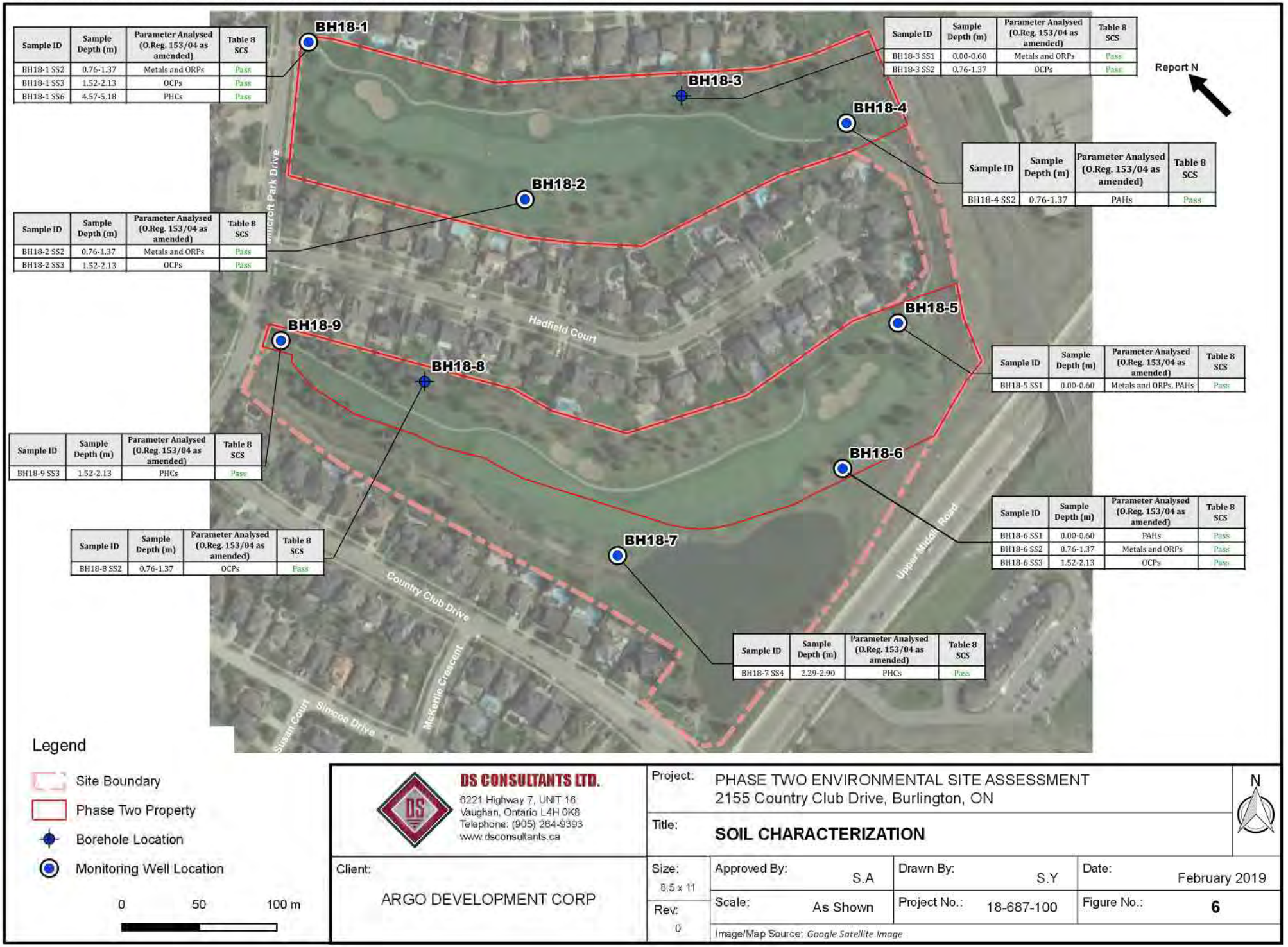
Title: **GROUND WATER ELEVATION CONTOURS**

N

Client: ARGO DEVELOPMENT CORP

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	S.A	S.Y	February 2019
Rev: 0	Scale: As Shown	Project No.: 18-687-100	Figure No.: 5
	Image/Map Source: *PDF Survey*		

J:\-GIS\18-687-20 Millcroft Golf Course_Argo (Millcroft) Ltd\1-QGIS\Phase Two\Figure 6 - Soil Characterization.qgs



Sample ID	Sample Depth (m)	Parameter Analysed (O.Reg. 153/04 as amended)	Table 8 SCS
BH18-1 SS2	0.76-1.37	Metals and ORPs	Pass
BH18-1 SS3	1.52-2.13	OCPs	Pass
BH18-1 SS6	4.57-5.18	PHCs	Pass

Sample ID	Sample Depth (m)	Parameter Analysed (O.Reg. 153/04 as amended)	Table 8 SCS
BH18-3 SS1	0.00-0.60	Metals and ORPs	Pass
BH18-3 SS2	0.76-1.37	OCPs	Pass

Sample ID	Sample Depth (m)	Parameter Analysed (O.Reg. 153/04 as amended)	Table 8 SCS
BH18-4 SS2	0.76-1.37	PAHs	Pass

Sample ID	Sample Depth (m)	Parameter Analysed (O.Reg. 153/04 as amended)	Table 8 SCS
BH18-2 SS2	0.76-1.37	Metals and ORPs	Pass
BH18-2 SS3	1.52-2.13	OCPs	Pass

Sample ID	Sample Depth (m)	Parameter Analysed (O.Reg. 153/04 as amended)	Table 8 SCS
BH18-5 SS1	0.00-0.60	Metals and ORPs, PAHs	Pass

Sample ID	Sample Depth (m)	Parameter Analysed (O.Reg. 153/04 as amended)	Table 8 SCS
BH18-9 SS3	1.52-2.13	PHCs	Pass

Sample ID	Sample Depth (m)	Parameter Analysed (O.Reg. 153/04 as amended)	Table 8 SCS
BH18-6 SS1	0.00-0.60	PAHs	Pass
BH18-6 SS2	0.76-1.37	Metals and ORPs	Pass
BH18-6 SS3	1.52-2.13	OCPs	Pass

Sample ID	Sample Depth (m)	Parameter Analysed (O.Reg. 153/04 as amended)	Table 8 SCS
BH18-8 SS2	0.76-1.37	OCPs	Pass

Sample ID	Sample Depth (m)	Parameter Analysed (O.Reg. 153/04 as amended)	Table 8 SCS
BH18-7 SS4	2.29-2.90	PHCs	Pass

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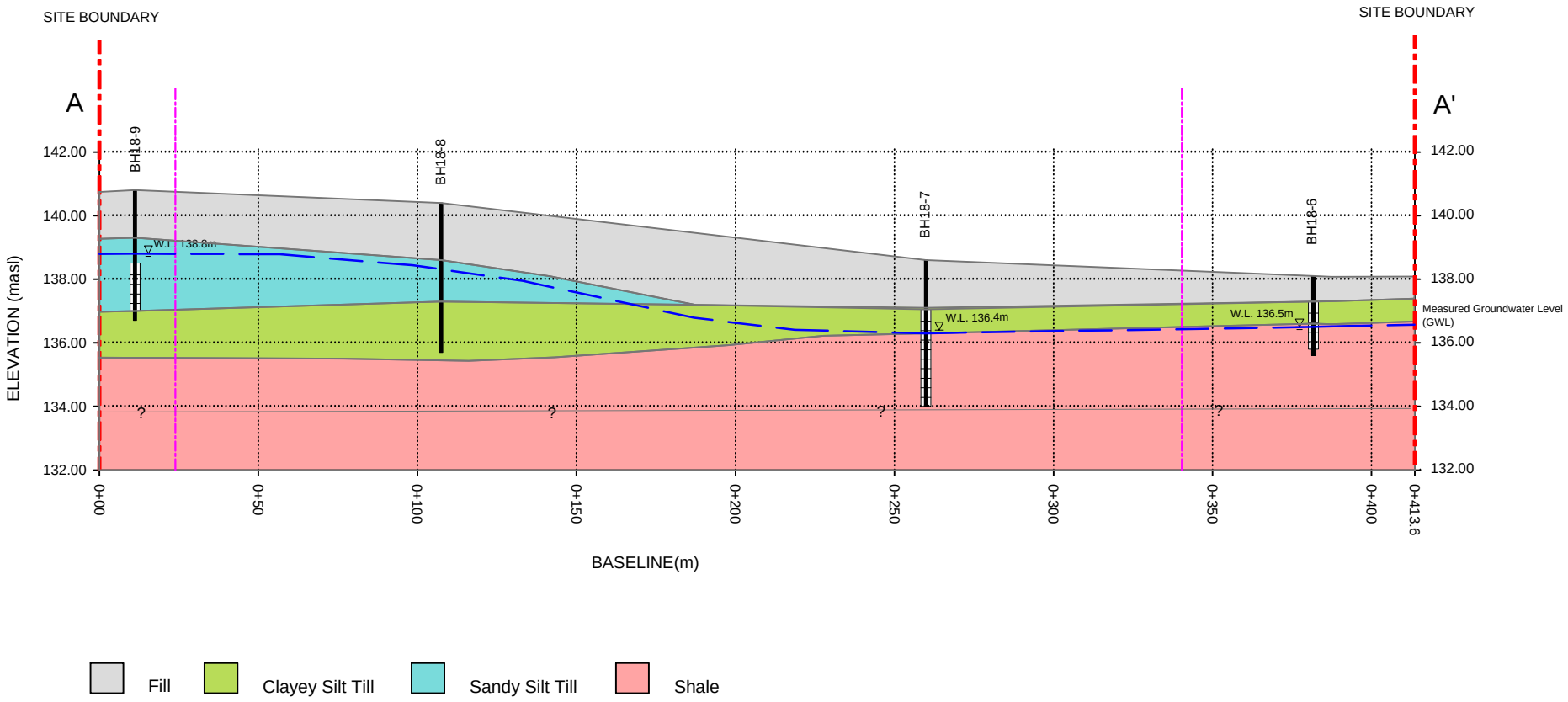
Title: **SOIL CHARACTERIZATION**

Client: ARGO DEVELOPMENT CORP

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	S.A	S.Y	February 2019
Rev: 0	Scale: As Shown	Project No.: 18-687-100	Figure No.: 6

Image/Map Source: *Google Satellite Image*

Path:j:\-gis\18-687-20 millcroft golf course_argo (millcroft) ltd\7-misc\cad\geological cross sections -millcroft.dwg



Well

Screen

Phase Two Property Boundary

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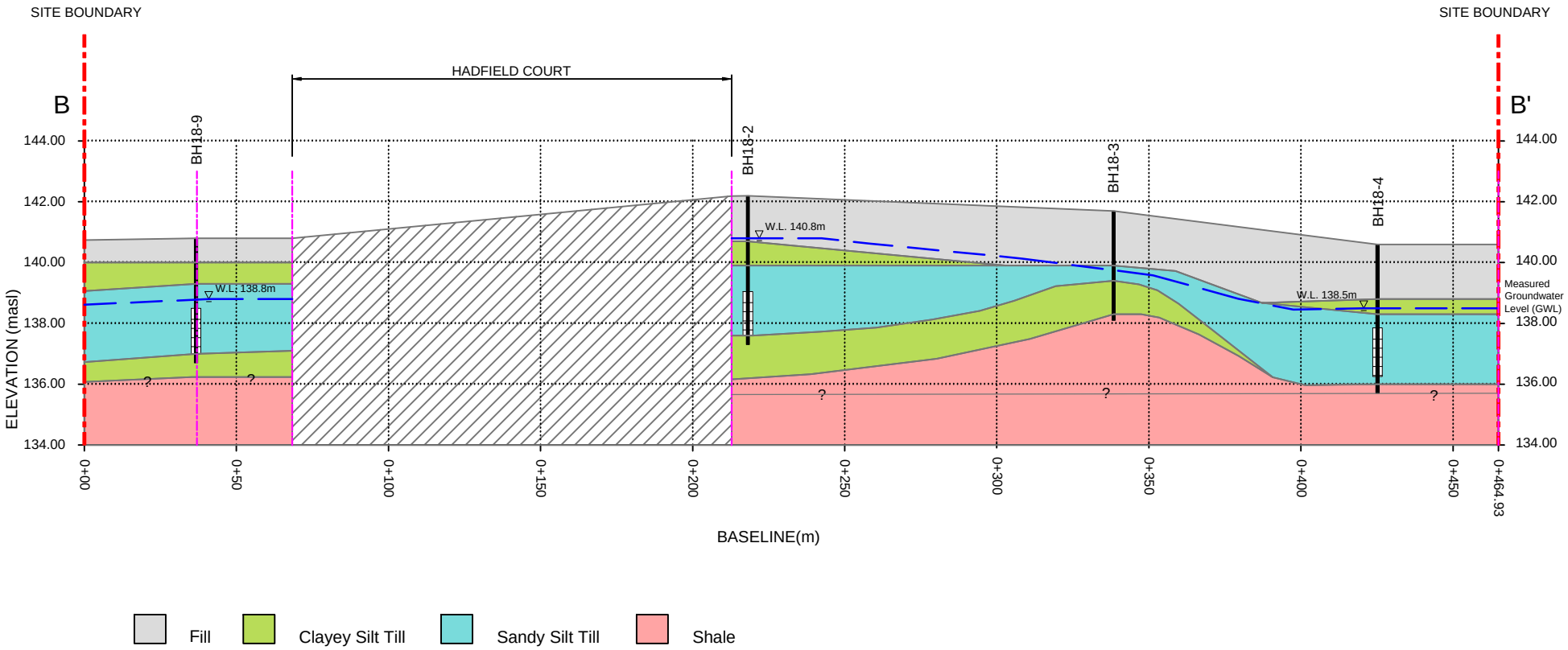
Project: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
2155 Country Club Drive, Burlington, ON

Title: **GEOLOGICAL CROSS SECTION A-A'**

Client: ARGO DEVELOPMENT CORP.

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	S.A	S.Y	February 2019
Rev.	**Scale:**	**Project No:**	**Figure No.**
	1:2000	18-687-100	8A

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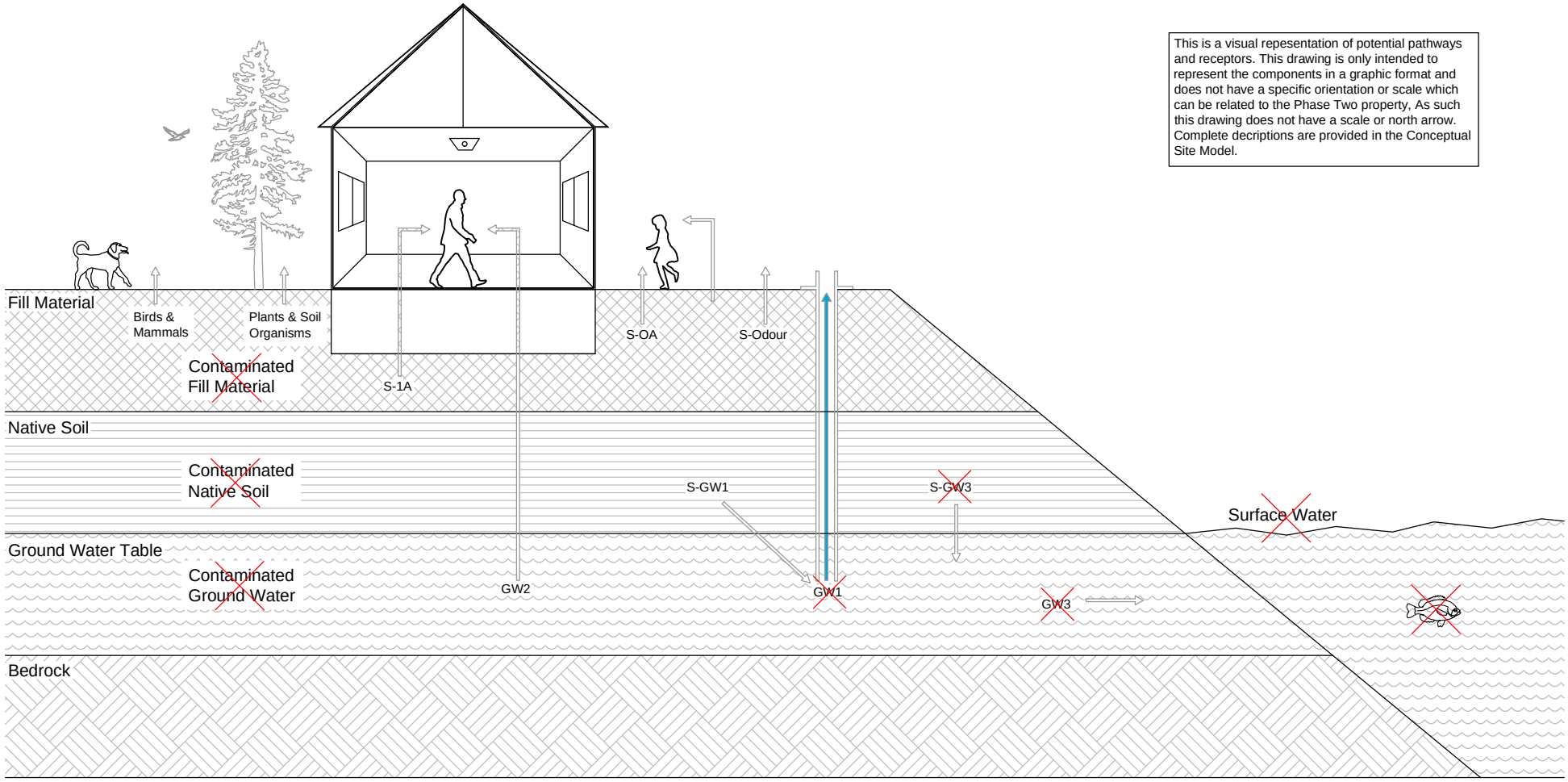
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Project: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
2155 Country Club Drive, Burlington, ON

Title: **GEOLOGICAL CROSS SECTION B-B'**

Client:	Size:	Approved By:	Drawn By:	Date:
ARGO DEVELOPMENT CORP.	8.5 x 11	S.A	S.Y	February 2019
	Rev.	Scale: 1:2000	Project No: 18-687-100	Figure No. 8B

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Project: PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
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Title: **PHASE TWO CONCEPTUAL SITE MODEL**

Client:	Size:	Approved By:	Drawn By:	Date:
ARGO DEVELOPMENT CORP	8.5 x 11	S.A	S.Y	February 2019
	Rev.	Scale: N.T.S	Project No: 18-687-100	Figure No. 9

Appendix A

PLAN OF SURVEY OF
BLOCK 107,
PLAN 20M–414
AND PART OF LOT 8,
CONCESSION 1,
SOUTH OF DUNDAS STREET
CITY OF BURLINGTON
REGIONAL MUNICIPALITY OF HALTON

SCALE 1:500

10m 5m 0m 10m 20m 30m 40metres

R–PE SURVEYING LTD., O.L.S.

DISTANCES AND COORDINATES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

NOTES

■	DENOTES MONUMENT FOUND
□	DENOTES MONUMENT SET
SIB	DENOTES STANDARD IRON BAR
SSIB	DENOTES SHORT STANDARD IRON BAR
IB	DENOTES IRON BAR
SCP	DENOTES SPECIFIED CONTROL POINT
P.I.N.	DENOTES PROPERTY IDENTIFIER NUMBER
PL1	DENOTES PLAN 20M–414
PL2	DENOTES PLAN 20M–413
PL3	DENOTES PLAN 20R–9030
PL4	DENOTES BUILDING LOCATION SURVEY BY DAVID HORWOOD LIMITED O.L.S., PROJECT No. 1700
PL5	DENOTES 20R–8142
PL6	DENOTES 20M–421
PL7	DENOTES BUILDING LOCATION SURVEY BY CARTER HORWOOD LIMITED O.L.S., PROJECT No. 1700
(Y)	DENOTES YATES & YATES LIMITED., O.L.S.
(NI)	DENOTES NOT IDENTIFED

BEARINGS ARE UTM GRID, DERIVED FROM SPECIFIED CONTROL POINTS 04320131653 AND 04319991589, UTM ZONE 17 (NAD–1983: CSRS: CBNV6–2010.0).

COORDINATES ARE UTM ZONE 17 (NAD–1983: CSRS: CBNV6–2010.0), TO URBAN ACCURACY PER SEC. 14 (2) OF O.REG. 216/10, AND CANNOT, IN THEMSELVES, BE USED TO RE–ESTABLISH CORNERS OR BOUNDARIES SHOWN ON THIS PLAN.

POINT ID	NORTHING	EASTING
SCP 04320131653	4805550.26	597024.13
SCP 04319991589	4805280.68	597958.90

DISTANCES ARE GROUND AND CAN BE CONVERTED TO GRID BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 0.999702.

SURVEYOR'S CERTIFICATE

I CERTIFY THAT:

1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT AND THE REGULATIONS MADE UNDER THEM.

2. THE SURVEY WAS COMPLETED ON THE _____ DAY OF _____ 2021.

DATE _____, 2021

R. DENBROEDER
ONTARIO LAND SURVEYOR

UTM COORDINATES OF CENTROID
NORTHING: 4804826.33
EASTING: 597439.52

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R–PE SURVEYING LTD.
ONTARIO LAND SURVEYORS
643 Chrislea Road, Suite 7
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Website: www.r–pe.ca

DRAWN: S.L. CHECKED: R.D.
JOB No. 16–073 CAD FILE No.16–073RSC3

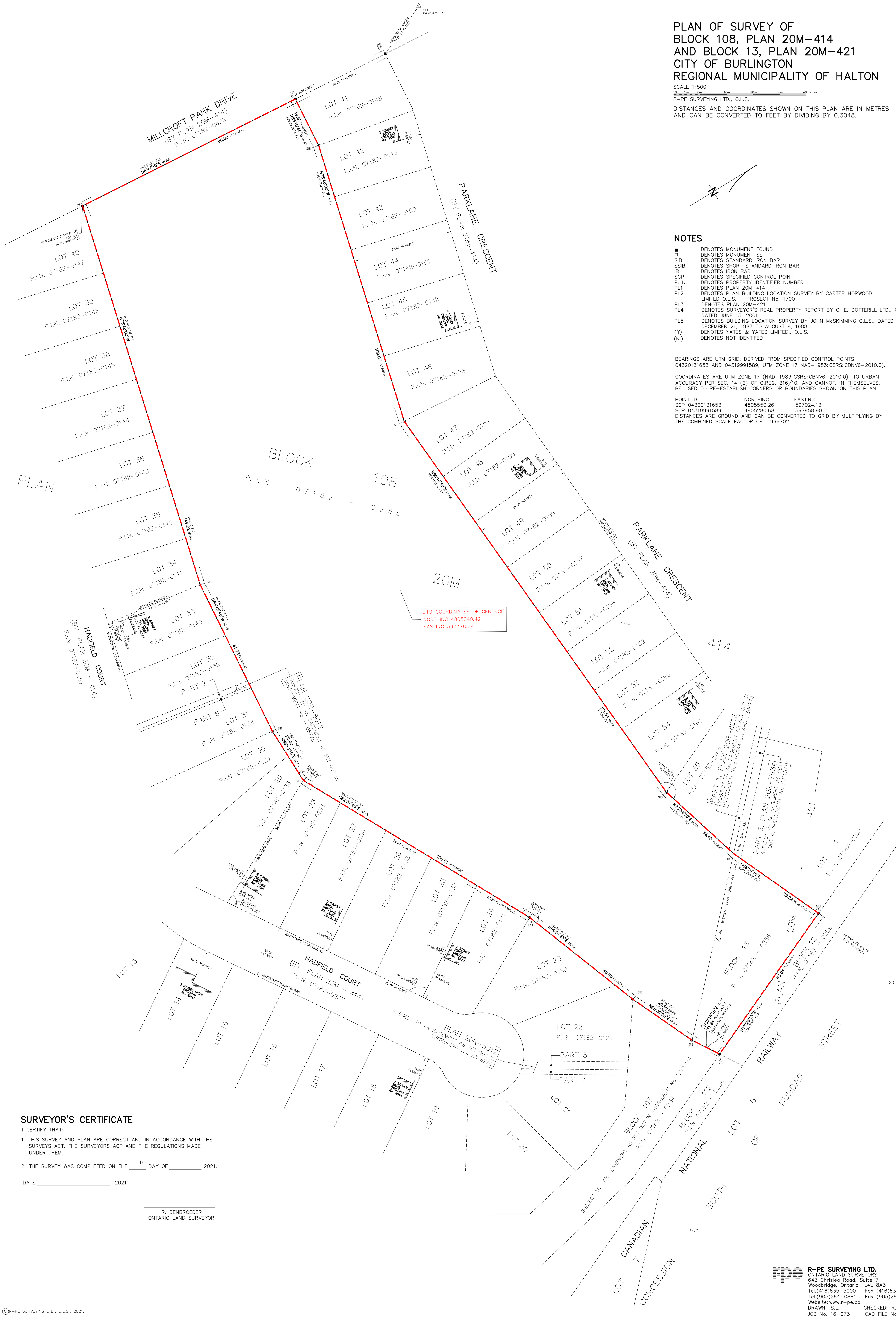
PLAN OF SURVEY OF
BLOCK 108, PLAN 20M−414
AND BLOCK 13, PLAN 20M−421
CITY OF BURLINGTON
REGIONAL MUNICIPALITY OF HALTON

SCALE 1:500

10m 5m 0m 10m 20m 30m 40metres

R−PE SURVEYING LTD., O.L.S.

DISTANCES AND COORDINATES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.



NOTES

■	DENOTES MONUMENT FOUND
□	DENOTES MONUMENT SET
SIB	DENOTES STANDARD IRON BAR
SSIB	DENOTES SHORT STANDARD IRON BAR
IB	DENOTES IRON BAR
SCP	DENOTES SPECIFIED CONTROL POINT
P.I.N.	DENOTES PROPERTY IDENTIFIER NUMBER
PL1	DENOTES PLAN 20M−414
PL2	DENOTES PLAN BUILDING LOCATION SURVEY BY CARTER HORWOOD LIMITED O.L.S. − PROSECT No. 1700
PL3	DENOTES PLAN 20M−421
PL4	DENOTES SURVEYOR'S REAL PROPERTY REPORT BY C. E. DOTTERILL LTD., O.L.S. DATED JUNE 15, 2001
PL5	DENOTES BUILDING LOCATION SURVEY BY JOHN McSKIMMING O.L.S., DATED FROM DECEMBER 21, 1987 TO AUGUST 8, 1988..
(Y)	DENOTES YATES & YATES LIMITED., O.L.S.
(NI)	DENOTES NOT IDENTIFED

BEARINGS ARE UTM GRID, DERIVED FROM SPECIFIED CONTROL POINTS 04320131653 AND 04319991589, UTM ZONE 17 NAD−1983: CSRS: CBNV6−2010.0).

COORDINATES ARE UTM ZONE 17 (NAD−1983: CSRS: CBNV6−2010.0), TO URBAN ACCURACY PER SEC. 14 (2) OF O.REG. 216/10, AND CANNOT, IN THEMSELVES, BE USED TO RE−ESTABLISH CORNERS OR BOUNDARIES SHOWN ON THIS PLAN.

POINT ID	NORTHING	EASTING
SCP 04320131653	4805550.26	597024.13
SCP 04319991589	4805280.68	597958.90

DISTANCES ARE GROUND AND CAN BE CONVERTED TO GRID BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 0.999702.

SURVEYOR'S CERTIFICATE

I CERTIFY THAT:

1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT AND THE REGULATIONS MADE UNDER THEM.
2. THE SURVEY WAS COMPLETED ON THE _____th DAY OF __________ 2021.

DATE ________________________, 2021

R. DENBROEDER
ONTARIO LAND SURVEYOR

R−PE SURVEYING LTD.
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Website: www.r−pe.ca

DRAWN: S.L. CHECKED: R.D.
JOB No. 16−073 CAD FILE No.16−073RSC5

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SKETCH SHOWING ELEVATIONS OF BLOCKS 107 AND 108 PLAN 20M–414 AND BLOCK 13, PLAN 20M–421 CITY OF BURLINGTON REGIONAL MUNICIPALITY OF HALTON

SCALE 1:750

10m 0m 10m 20m 30m 40m 50m 60m 70m 80m 90 metres

RADY–PENTEK & EDWARD SURVEYING LTD., O.L.S.

METRIC

DISTANCES AND COORDINATES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

LEGEND

INV	DENOTES INVERT ELEVATION
Ø	DENOTES DIAMETER
0.10Ø	DENOTES DECIDUOUS TREE
0.10Ø	DENOTES CONIFEROUS TREE
BWB	DENOTES BELL BOX
MHST	DENOTES MANHOLE STORM WATER
MHSA	DENOTES MANHOLE SANITARY
CB	DENOTES CATCH BASIN
LS	DENOTES LIGHT STANDARD
WV	DENOTES WATER VALVE
MHB	DENOTES MANHOLE BELL
GLB	DENOTES GROUND LEVEL BOX
HV	DENOTES HYDRO VAULT
	DENOTES CONCRETE RETAINING WALL
	DENOTES SAND TRAP

BOUNDARY NOTE

THIS IS NOT A PLAN OF SURVEY. BOUNDARIES ARE COMPILED AND ARE NOT CERTIFIED BY THIS PLAN AND ARE SUBJECT TO CLARIFICATION UPON THE INCORPORATION OF ADDITIONAL DOCUMENTARY AND FIELD SURVEY EVIDENCE.

BENCHMARK NOTE

ELEVATIONS ARE GEODETIC AND ARE REFERRED TO THE CITY OF BURLINGTON VERTICAL BENCHMARK NUMBER 414 HAVING AN ORTHOMETRIC ELEVATION OF 139.893 METRES. ELEVATIONS ARE REFERENCED TO THE CANADIAN GEODETIC VERTICAL DATUM OF 1928, 1978 ADJUSTMENT (CGVD–1928:1978).

BRASS PLAQUE SET ON SOUTHWEST CORNER OF WING WALL OF CULVERT 0.50M FROM SOUTH END AND 0.13M BELOW TOP OF WALL ON MILLCROFT PARK DRIVE AND APPROXIMATELY 40M EAST OF COUNTRY CLUB DRIVE ON THE SOUTH SIDE OF THE ROAD.

SURVEYOR'S CERTIFICATE

THE FIELD OBSERVATIONS REPRESENTED ON THIS PLAN WERE COMPLETED ON THE 22nd DAY OF AUGUST, 2018.

DATE _____, 2018.

_____
R. DENBROEDER
ONTARIO LAND SURVEYOR

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DRAWN: A.K. CHECKED: R.D.
JOB No. 16–073 CAD FILE No. 16073tp01

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Appendix B

DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH18-1

PROJECT: Geotechnical, Environmental, Hydrogeological Investigation
CLIENT: Argo Development Corp
PROJECT LOCATION: 2155 Country Club Drive, Burlington
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4805100.1 E 597203.488

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150 mm
Date: Dec-18-2018

REF. NO.: 18-687-100
ENCL NO.: 2

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS "N" 0.3 m	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
142.8												
142.0	**TOPSOIL:** 140 mm											
0.1	**FILL:**clayey silt, trace rootlets, moist, dark brown to brown, loose to compact		1	SS	8				○			HEX: 35ppm IBL: 0ppm
							142					
1			2	SS	20		Bentonite		○			HEX: 55ppm IBL: 0ppm
141.0												
1.8	**SANDY SILT TILL:**some gravel/cobbles, trace clay, greyish brown, moist, dense to very dense		3	SS	32		141		○			HEX: 35ppm IBL: 0ppm
2	reddish brown below 2.3 m		4	SS	80/ 230mm		Filter Pack		○			HEX: 40ppm IBL: 0ppm 14 23 54 9
3 139.7												
3.1	**CLAYEY SILT TILL/SHALE COMPLEX:** reddish brown, moist, hard		5	SS	50/ 50mm		139		○			HEX: 55ppm IBL: 0ppm
4						▽	W. L. 138.6 m Jan 03, 2019n Jan 07, 2019					
							Slotted Pipe					
			6	SS	50/ 50mm		138		○			HEX: 60ppm IBL: 0ppm
5							137					
6 136.7												
6.1 136.5	**SHALE BEDROCK:** Highly weathered shale		7	SS	50/ 100mm				○			HEX: 70ppm IBL: 0ppm
6.3	**END OF BOREHOLE**											

Notes:
1) 50mm dia. monitoring well installed upon completion.
2) Water Level Readings

Date	Water Depth (mbgs)
Jan. 3, 2019	4.16
Jan. 7, 2019	4.27

GROUNDWATER ELEVATIONS
Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

GRAPH NOTES: + 3, × 3: Numbers refer to Sensitivity; ○ ε=3% Strain at Failure

DS SOIL LOG 18-687-100 - MILLCROFT GOLF COURSE, BURLINGTON.GPJ DS.GDT 19-2-15

DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH18-2

PROJECT: Geotechnical, Environmental, Hydrogeological Investigation
CLIENT: Argo Development Corp
PROJECT LOCATION: 2155 Country Club Drive, Burlington
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4805001.917 E 597344.446

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150 mm
Date: Dec-18-2018

REF. NO.: 18-687-100
ENCL NO.: 3

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES NUMBER	TYPE	"N" BLOWS 0.3 m	GROUND WATER CONDITIONS	ELEVATION
142.2							
142.0	**TOPSOIL:**						
0.1	**FILL:**clayey silt, trace topsoil, very moist, brown, loose to compact		1	SS	5		142
			2	SS	15	W. L. 141.1 m Jan 03, 2019	
140.7						W. L. 140.8 m Jan 07, 2019	
1.5	**CLAYEY SILT TILL:** sandy, trace gravel/cobble, greyish brown, moist, hard		3	SS	32		
139.9							140
2.3	**SANDY SILT TILL:** trace clay, trace gravel/cobbles, reddish brown, moist, very dense		4	SS	50	Filter Pack	
			5	SS	50/ 150 mm	Slotted Pipe	139
137.6							138
137.6	**CLAYEY SILT TILL:** trace sand,		6	SS	50/		
4.7	reddish brown, moist, hard				75mm		
137.3	**SHALE BEDROCK:** Highly						
4.9	weathered shale						
	END OF BOREHOLE						

Notes:
1) 50mm dia. monitoring well installed upon completion.
2) Water Level Readings

Date	Water Depth (mbgs)
Jan. 3, 2019	1.04
Jan. 7, 2019	1.36

DYNAMIC CONE PENETRATION RESISTANCE PLOT
20 40 60 80 100

SHEAR STRENGTH (kPa)
○ UNCONFINED + FIELD VANE & Sensitivity
● QUICK TRIAXIAL × LAB VANE
20 40 60 80 100

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

POCKET PEN. (Cu) (kPa)

NATURAL UNIT WT (kN/m³)

METHANE AND GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL

HEX: 45ppm
IBL: 0ppm

HEX: 40ppm
IBL: 0ppm

HEX: 30ppm
IBL: 0ppm

HEX: 25ppm
IBL: 0ppm

HEX: 30ppm
IBL: 0ppm

5 26 61 8

HEX: 30 ppm
IBL: 0ppm

DS SOIL LOG 18-687-100 - MILLCROFT GOLF COURSE, BURLINGTON.GPJ DS.GDT 19-2-15

GROUNDWATER ELEVATIONS
Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

GRAPH NOTES
+ 3, × 3: Numbers refer to Sensitivity
○ 8 ε=3% Strain at Failure

DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH18-3

PROJECT: Geotechnical, Environmental, Hydrogeological Investigation
CLIENT: Argo Development Corp
PROJECT LOCATION: 2155 Country Club Drive, Burlington
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4805069.474 E 597444.447

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150 mm
Date: Dec-18-2018

REF. NO.: 18-687-100
ENCL NO.: 4

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
141.7												
141.6	**TOPSOIL:**											
0.1	**FILL:** clayey silt, trace topsoil, very moist, brown to reddish brown, loose to compact		1	SS	7				○			HEX: 20ppm IBL: 0ppm
			2	SS	21		141		○			HEX: 40ppm IBL: 0ppm
139.9			3	SS	29		140		○			HEX: 30ppm IBL: 0ppm
1.8	**SANDY SILT TILL:** silt pockets, trace gravel/cobbles, reddish brown, moist, compact to very dense											
139.4												
2.3	**CLAYEY SILT TILL:** trace sand, reddish brown to grey, hard		4	SS	84/ 280mm		139		○			HEX: 40ppm IBL: 0ppm
138.3			5	SS	87/ 255mm				○			HEX: 45ppm IBL: 0ppm
3.4	**SHALE BEDROCK:** Highly weathered shale											
138.1												
3.6	**END OF BOREHOLE**											

Notes:
1) Borehole dry upon completion

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: +3, ×3: Numbers refer to Sensitivity; ○ε=3% Strain at Failure

DS SOIL LOG 18-687-100 - MILLCROFT GOLF COURSE, BURLINGTON.GPJ DS.GDT 19-2-15

DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH18-4

PROJECT: Geotechnical, Environmental, Hydrogeological Investigation
CLIENT: Argo Development Corp
PROJECT LOCATION: 2155 Country Club Drive, Burlington
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4805053.465 E 597551.071

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150 mm
Date: Dec-19-2018

REF. NO.: 18-687-100
ENCL NO.: 5

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
140.6												
0.0 / 140.4	**TOPSOIL:** 180 mm											
0.2	**FILL:** clayey silt, trace rootlets, moist, dark brown to brown, compact		1	SS	11							HEX: 0ppm IBL: 0ppm
			2	SS	11		140 Bentonite					HEX: 0ppm IBL: 0ppm
138.8			3	SS	61	▽	139 W. L. 138.8 m Jan 03, 2019					HEX: 0ppm IBL: 0ppm
1.8	**CLAYEY SILT TILL:** trace sand, trace gravel/cobbles, reddish brown, moist, hard						W. L. 138.5 m Jan 07, 2019					
138.3							Filter Pack					
2.3	**SANDY SILT TILL:** trace clay, some gravel/cobbles, reddish brown, moist, very dense		4	SS	50/ 50mm		138					HEX: 5ppm IBL: 0ppm
			5	SS	50/ 25mm		Slotted Pipe 137					HEX: 5ppm IBL: 0ppm
136.0							136					
4.6 / 135.8	**SHALE BEDROCK:** Highly weathered shale		6	SS	50/ 25mm							HEX: 0ppm IBL: 0ppm
4.8	**END OF BOREHOLE**											

Notes:
1) 50mm dia. monitoring well installed upon completion.
2) Water Level Readings

Date	Water Depth (mbgs)
Jan. 3, 2019	1.76
Jan. 7, 2019	2.07

GROUNDWATER ELEVATIONS
Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

GRAPH NOTES: +3, ×3: Numbers refer to Sensitivity; ○ε=3% Strain at Failure

DS SOIL LOG 18-687-100 - MILLCROFT GOLF COURSE, BURLINGTON.GPJ DS.GDT 19-2-15

DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH18-5

PROJECT: Geotechnical, Environmental, Hydrogeological Investigation
CLIENT: Argo Development Corp
PROJECT LOCATION: 2155 Country Club Drive, Burlington
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4804925.877 E 597586.938

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150 mm
Date: Dec-19-2018

REF. NO.: 18-687-100
ENCL NO.: 6

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L — WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
140.2												
0.0 / 139.8	**TOPSOIL:** 350 mm		1	SS	4		140					HEX: 35ppm IBL: 0ppm
0.4	**FILL:**clayey silt, trace topsoil, moist, dark brown to brown, loose						Bentonite					
1			2	SS	9		Filter Pack					HEX: 15ppm IBL: 0ppm
138.3			3	SS	26							HEX: 45ppm IBL: 0ppm
2 1.9	**CLAYEY SILT TILL:** sandy, some gravel/cobbles, reddish brown, moist, very stiff to hard						138					
			4	SS	77	▽	W. L. 137.5 m Jan 03, 2019					HEX: 30ppm IBL: 0ppm 17 28 29 26
3	trace shale fragments below 3.1 m						Slotted Pipe 137					
			5	SS	99	▽	W. L. 136.7 m Jan 07, 2019					HEX: 30ppm IBL: 0ppm
4							136					
135.6												
4.6 / 135.4	**SHALE BEDROCK:** Highly weathered shale		6	SS	50/ 100mm							HEX: 35ppm IBL: 0ppm
4.8	**END OF BOREHOLE**											

Notes:
1) 50mm dia. monitoring well installed upon completion.
2) Water Level Readings

Date	Water Depth (mbgs)
Jan. 3, 2019	2.62
Jan. 7, 2019	3.44

GROUNDWATER ELEVATIONS
Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

GRAPH NOTES: $+^3$, $\times^3$: Numbers refer to Sensitivity; ○ ε=3% Strain at Failure

DS SOIL LOG 18-687-100 - MILLCROFT GOLF COURSE, BURLINGTON.GPJ DS.GDT 19-2-15

DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH18-6

PROJECT: Geotechnical, Environmental, Hydrogeological Investigation
CLIENT: Argo Development Corp
PROJECT LOCATION: 2155 Country Club Drive, Burlington
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4804813.93 E 597552.765

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150 mm
Date: Dec-19-2018

REF. NO.: 18-687-100
ENCL NO.: 7

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES NUMBER	TYPE	BLOWS / 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L / WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
138.1												
138.0	**TOPSOIL:**						138					
0.1	**FILL:** clayey silt, very moist, brown, loose		1	SS	4		Bentonite		○			HEX: 50ppm IBL: 0ppm
137.3							Filter Pack					
0.8	**SANDY SILT TILL:** trace clay, trace gravel/cobbles, trace shale fragments, reddish brown, moist, very dense		2	SS	59		137		○			HEX: 45ppm IBL: 0ppm 5 34 57 4
136.6							W. L. 136.6 m Jan 03, 2019n Jan 07, 2019					
1.5	**SHALE BEDROCK:** Highly weathered shale		3	SS	67				○			HEX: 35ppm IBL: 0ppm
							136					
135.6			4	SS	50/ 25mm				○			HEX: 40ppm IBL: 0ppm
2.5	**END OF BOREHOLE**											

Notes:
1) Auger refusal at 2.3 m
2) 50mm dia. monitoring well installed upon completion.
3) Water Level Readings

Date	Water Depth (mbgs)
Jan. 3, 2019	1.49
Jan. 7, 2019	1.60

GROUNDWATER ELEVATIONS
Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

GRAPH NOTES: $+^3$, $\times^3$: Numbers refer to Sensitivity; ○ ε=3% Strain at Failure

DS SOIL LOG 18-687-100 - MILLCROFT GOLF COURSE, BURLINGTON.GPJ DS.GDT 19-2-15

DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH18-7

PROJECT: Geotechnical, Environmental, Hydrogeological Investigation
CLIENT: Argo Development Corp
PROJECT LOCATION: 2155 Country Club Drive, Burlington
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4804773.829 E 597407.198

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150 mm
Date: Dec-20-2018

REF. NO.: 18-687-100
ENCL NO.: 8

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES: NUMBER	TYPE	BLOWS "N" 0.3 m	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L — WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
138.6												
138.6	**TOPSOIL:**											
0.1	**FILL:** clayey silt, trace rootlet/ topsoil, moist, dark brown to brown, loose		1	SS	4							HEX: 30ppm IBL: 0ppm
							Bentonite					
1			2	SS	8							HEX: 55ppm IBL: 0ppm
137.1							Filter Pack					
1.5	**CLAYEY SILT TILL:** sandy, some gravel/cobbles, reddish brown to grey, moist, hard		3	SS	43		137					HEX: 45ppm IBL: 0ppm
2						W. L. 136.5 m Jan 03, 2019 Jan 07, 2019						16 22 46 16
136.3												
2.3	**SHALE BEDROCK:** Highly weathered shale		4	SS	50/ 50mm		136					HEX: 55ppm IBL: 0ppm
3							Slotted Pipe					
			5	SS	50/ 100mm		135					HEX: 45ppm IBL: 0ppm
4			6	SS	50/ 25mm							HEX: 45ppm IBL: 0ppm
134.0							134					
4.6	**END OF BOREHOLE**											

Notes:
1) Water level at 2.1 mbgl upon completion of drilling
2) 50mm dia. monitoring well installed upon completion.
3) Water Level Readings

Date	Water Depth (mbgs)
Jan. 3, 2019	2.06
Jan. 7, 2019	2.14

GROUNDWATER ELEVATIONS
Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

GRAPH NOTES: $+^{3}$, $\times^{3}$: Numbers refer to Sensitivity; ○ ^{6}=3% Strain at Failure

DS SOIL LOG 18-687-100 - MILLCROFT GOLF COURSE, BURLINGTON.GPJ DS.GDT 19-2-15

DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH18-8

PROJECT: Geotechnical, Environmental, Hydrogeological Investigation
CLIENT: Argo Development Corp
PROJECT LOCATION: 2155 Country Club Drive, Burlington
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4804883.544 E 597281.841

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150 mm
Date: Dec-20-2018

REF. NO.: 18-687-100
ENCL NO.: 9

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
140.4								
140.0	**TOPSOIL:**							
0.1	**FILL:**clayey silt, trace rootlet/ topsoil, trace organics, moist, dark brown to brown, loose		1	SS	8		140	HEX: 45ppm IBL: 0ppm
1			2	SS	8		139	HEX: 75ppm IBL: 0ppm
138.6			3	SS	16			HEX: 55ppm IBL: 0ppm
1.8	**SANDY SILT TILL :**trace clay, trace gravel/cobbles, reddish brown, moist, compact						138	
2			4	SS	23			HEX: 50ppm IBL: 0ppm
3 137.3								
3.1	**CLAYEY SILT TILL:** sandy, trace gravel/cobbles, trace shale fragments, reddish brown, moist, hard		5	SS	66/ 230mm		137	HEX: 40ppm IBL: 0ppm
4							136	
135.7			6	SS	50/ 100mm			HEX: 45ppm IBL: 0ppm
4.7	**END OF BOREHOLE** Notes: 1) Auger refusal at 4.6 m 2) Borehole dry upon completion							

DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100)
SHEAR STRENGTH (kPa) (20 40 60 80 100)
○ UNCONFINED + FIELD VANE & Sensitivity
● QUICK TRIAXIAL × LAB VANE

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

POCKET PEN. (Cu) (kPa)
NATURAL UNIT WT (kN/m³)

GROUNDWATER ELEVATIONS
Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

GRAPH NOTES: $+^3$, $\times^3$: Numbers refer to Sensitivity; ○ ε=3% Strain at Failure

DS SOIL LOG 18-687-100 - MILLCROFT GOLF COURSE, BURLINGTON.GPJ DS.GDT 19-2-15

DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH18-9

PROJECT: Geotechnical, Environmental, Hydrogeological Investigation
CLIENT: Argo Development Corp
PROJECT LOCATION: 2155 Country Club Drive, Burlington
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4804908.419 E 597188.154

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150 mm
Date: Dec-20-2018

REF. NO.: 18-687-100
ENCL NO.: 10

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES: NUMBER	TYPE	"N" BLOWS 0.3 m	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L — WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
140.8												
140.7	**TOPSOIL:** 130 mm											
0.1 / 140.0	**FILL:** clayey silt, trace rootlet/ topsoil, moist, dark brown to brown, loose		1	SS	7							HEX: 40ppm IBL: 0ppm
0.8 / 139.3	**CLAYEY SILT TILL:** some sand, trace gravel/cobbles, greyish brown, moist, hard		2	SS	30		140 Bentonite					HEX: 35ppm IBL: 0ppm
1.5	**SANDY SILT TILL:** trace to some clay, some gravel/cobbles, reddish brown, moist, dense to very dense		3	SS	47	W. L. 139.1 m Jan 03, 2019 W. L. 138.8 m Jan 07, 2019						HEX: 45ppm IBL: 0ppm
			4	SS	81		138					HEX: 45ppm IBL: 0ppm 15 28 47 10
			5	SS	95/ 250mm		Slotted Pipe					HEX: 45ppm IBL: 0ppm
3.8 / 137.0							137					
4.1 / 136.7	**CLAYEY SILT TILL/SHALE COMPLEX:** reddish brown, trace shale fragments, moist, hard		6	SS	99/ 180mm							
	END OF BOREHOLE											HEX: 40ppm IBL: 0ppm

Notes:
1) Auger refusal at 3.9 m
2) 50mm dia. monitoring well installed upon completion.
3) Water Level Readings

Date	Water Depth (mbgs)
Jan. 3, 2019	1.74
Jan. 7, 2019	1.95

GROUNDWATER ELEVATIONS
Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

GRAPH NOTES: $+^3$, $\times^3$: Numbers refer to Sensitivity; ○ ε=3% Strain at Failure

DS SOIL LOG 18-687-100 - MILLCROFT GOLF COURSE, BURLINGTON.GPJ DS.GDT 19-2-15

Appendix C

DS Consultants (Vaughan)
ATTN: Shafi Andseta
6221 Highway 7
Unit 16
Vaughan ON L4H 0K8

Date Received: 21-DEC-18
Report Date: 03-JAN-19 12:49 (MT)
Version: FINAL REV. 2

Client Phone: 647-237-5110

Certificate of Analysis

Lab Work Order #: L2213801

Project P.O. #: 18-687-20
Job Reference:
C of C Numbers: 17-616382
Legal Site Desc:

Comments: 03-JAN-19 Report type revision to compare to Table 8 as per client request. -A.Fazekas

Amanda Fazekas
Account Manager

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ANALYTICAL REPORT

Summary of Guideline Exceedances

ALS ID	Client ID	Grouping	Analyte	Result	Guideline Limit	Unit
Guideline						
Ontario Regulation 153/04 - April 15, 2011 Standards - T8-Soil-Res/Park/Inst/Ind/Com/Commu Property Use						
(No parameter exceedances)						

ANALYTICAL REPORT

Physical Tests - SOIL

			Lab ID	L2213801-1	L2213801-2	L2213801-3	L2213801-4	L2213801-5	L2213801-6	L2213801-7
			Sample Date	18-DEC-18	20-DEC-18	20-DEC-18	19-DEC-18	19-DEC-18	19-DEC-18	18-DEC-18
			Sample ID	BH18-1 SS6	BH18-7 SS4	BH18-9 SS3	BH18-6 SS1	BH18-5 SS1	BH18-4 SS2	DUP 3
		Guide Limits								
Analyte	Unit	#1	#2							
% Moisture	%	-	-	5.59	5.44	8.49	12.3	26.8	15.1	12.9

Guide Limit #1: T8-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

ANALYTICAL REPORT

Volatile Organic Compounds - SOIL

Analyte	Unit	Guide Limits #1	Guide Limits #2	Lab ID: L2213801-1 / Sample Date: 18-DEC-18 / Sample ID: BH18-1 SS6	Lab ID: L2213801-2 / Sample Date: 20-DEC-18 / Sample ID: BH18-7 SS4	Lab ID: L2213801-3 / Sample Date: 20-DEC-18 / Sample ID: BH18-9 SS3
Benzene	ug/g	0.02	-	<0.0068	<0.0068	<0.0068
Ethylbenzene	ug/g	0.05	-	<0.018	<0.018	<0.018
Toluene	ug/g	0.2	-	<0.080	<0.080	<0.080
o-Xylene	ug/g	-	-	<0.020	<0.020	<0.020
m+p-Xylenes	ug/g	-	-	<0.030	<0.030	<0.030
Xylenes (Total)	ug/g	0.05	-	<0.050	<0.050	<0.050
Surrogate: 4-Bromofluorobenzene	%	-	-	103.7	102.0	107.4
Surrogate: 1,4-Difluorobenzene	%	-	-	104.8	105.3	109.6

Guide Limit #1: T8-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

ANALYTICAL REPORT

Hydrocarbons - SOIL

		Guide Limits				
Lab ID				L2213801-1	L2213801-2	L2213801-3
Sample Date				18-DEC-18	20-DEC-18	20-DEC-18
Sample ID				BH18-1 SS6	BH18-7 SS4	BH18-9 SS3
Analyte	**Unit**	**#1**	**#2**			
F1 (C6-C10)	ug/g	25	-	<5.0	<5.0	<5.0
F1-BTEX	ug/g	25	-	<5.0	<5.0	<5.0
F2 (C10-C16)	ug/g	10	-	<10	<10	<10
F3 (C16-C34)	ug/g	240	-	<50	<50	<50
F4 (C34-C50)	ug/g	120	-	<50	<50	<50
Total Hydrocarbons (C6-C50)	ug/g	-	-	<72	<72	<72
Chrom. to baseline at nC50		-	-	YES	YES	YES
Surrogate: 2-Bromobenzotrifluoride	%	-	-	91.8	101.5	97.6
Surrogate: 3,4-Dichlorotoluene	%	-	-	99.0	89.9	96.1

Guide Limit #1: T8-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

ANALYTICAL REPORT

Polycyclic Aromatic Hydrocarbons - SOIL

		Guide Limits					
Lab ID				L2213801-4	L2213801-5	L2213801-6	L2213801-7
Sample Date				19-DEC-18	19-DEC-18	19-DEC-18	18-DEC-18
Sample ID				BH18-6 SS1	BH18-5 SS1	BH18-4 SS2	DUP 3
Analyte	**Unit**	**#1**	**#2**				
Acenaphthene	ug/g	0.072	-	<0.050	<0.050	<0.050	<0.050
Acenaphthylene	ug/g	0.093	-	<0.050	<0.050	<0.050	<0.050
Anthracene	ug/g	0.22	-	<0.050	<0.050	<0.050	<0.050
Benzo(a)anthracene	ug/g	0.36	-	<0.050	<0.050	<0.050	<0.050
Benzo(a)pyrene	ug/g	0.3	-	<0.050	<0.050	<0.050	<0.050
Benzo(b)fluoranthene	ug/g	0.47	-	<0.050	<0.050	<0.050	<0.050
Benzo(g,h,i)perylene	ug/g	0.68	-	<0.050	<0.050	<0.050	<0.050
Benzo(k)fluoranthene	ug/g	0.48	-	<0.050	<0.050	<0.050	<0.050
Chrysene	ug/g	2.8	-	<0.050	<0.050	<0.050	<0.050
Dibenzo(ah)anthracene	ug/g	0.1	-	<0.050	<0.050	<0.050	<0.050
Fluoranthene	ug/g	0.69	-	<0.050	<0.050	<0.050	<0.050
Fluorene	ug/g	0.19	-	<0.050	<0.050	<0.050	<0.050
Indeno(1,2,3-cd)pyrene	ug/g	0.23	-	<0.050	<0.050	<0.050	<0.050
1+2-Methylnaphthalenes	ug/g	0.59	-	<0.042	<0.042	<0.042	<0.042
1-Methylnaphthalene	ug/g	0.59	-	<0.030	<0.030	<0.030	<0.030
2-Methylnaphthalene	ug/g	0.59	-	<0.030	<0.030	<0.030	<0.030
Naphthalene	ug/g	0.09	-	<0.013	<0.013	<0.013	<0.013
Phenanthrene	ug/g	0.69	-	<0.046	<0.046	<0.046	<0.046
Pyrene	ug/g	1	-	<0.050	<0.050	<0.050	<0.050
Surrogate: 2-Fluorobiphenyl	%	-	-	108.3	109.7	109.3	108.1
Surrogate: p-Terphenyl d14	%	-	-	104.2	114.4	107.5	114.0

Guide Limit #1: T8-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
BTX-511-HS-WT	Soil	BTEX-O.Reg 153/04 (July 2011)	SW846 8260

BTX is determined by extracting a soil or sediment sample as received with methanol, then analyzing by headspace-GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

F1-F4-511-CALC-WT	Soil	F1-F4 Hydrocarbon Calculated Parameters	CCME CWS-PHC, Pub #1310, Dec 2001-S

Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

Hydrocarbon results are expressed on a dry weight basis.

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
In samples where BTEX and F1 were analyzed , F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:
1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:
1. All extraction and analysis holding times were met.
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

F1-HS-511-WT	Soil	F1-O.Reg 153/04 (July 2011)	E3398/CCME TIER 1-HS

Fraction F1 is determined by extracting a soil or sediment sample as received with methanol, then analyzing by headspace-GC/FID.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

F2-F4-511-WT	Soil	F2-F4-O.Reg 153/04 (July 2011)	CCME Tier 1

Petroleum Hydrocarbons (F2-F4 fractions) are extracted from soil with 1:1 hexane:acetone using a rotary extractor. Extracts are treated with silica gel to remove polar organic interferences. F2, F3, & F4 are analyzed by GC-FID. F4G-sg is analyzed gravimetrically.

Notes:
1. F2 (C10-C16): Sum of all hydrocarbons that elute between nC10 and nC16.
2. F3 (C16-C34): Sum of all hydrocarbons that elute between nC16 and nC34.
3. F4 (C34-C50): Sum of all hydrocarbons that elute between nC34 and nC50.
4. F4G: Gravimetric Heavy Hydrocarbons
5. F4G-sg: Gravimetric Heavy Hydrocarbons (F4G) after silica gel treatment.
6. Where both F4 (C34-C50) and F4G-sg are reported for a sample, the larger of the two values is used for comparison against the relevant CCME guideline for F4.
7. F4G-sg cannot be added to the C6 to C50 hydrocarbon results to obtain an estimate of total extractable hydrocarbons.
8. This method is validated for use.
9. Data from analysis of validation and quality control samples is available upon request.
10. Reported results are expressed as milligrams per dry kilogram, unless otherwise indicated.

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

METHYLNAPS-CALC-WT	Soil	ABN-Calculated Parameters	SW846 8270
MOISTURE-WT	Soil	% Moisture	CCME PHC in Soil - Tier 1 (mod)
PAH-511-WT	Soil	PAH-O.Reg 153/04 (July 2011)	SW846 3510/8270

A representative sub-sample of soil is fortified with deuterium-labelled surrogates and a mechanical shaking techniqueis used to extract the sample with a mixture of methanol and toluene. The extracts are concentrated and analyzed by GC/MS. Results for benzo(b) fluoranthene may include contributions from benzo(j)fluoranthene, if also present in the sample.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

XYLENES-SUM-CALC-WT	Soil	Sum of Xylene Isomer Concentrations	CALCULATION

Total xylenes represents the sum of o-xylene and m&p-xylene.

**ALS test methods may incorporate modifications from specified reference methods to improve performance.

Chain of Custody Numbers:

17-616382

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guideline limits are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

Quality Control Report

Workorder: L2213801 Report Date: 03-JAN-19

Client: DS Consultants (Vaughan)
6221 Highway 7 Unit 16
Vaughan ON L4H 0K8
Contact: Shafi Andseta

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BTX-511-HS-WT	**Soil**							
Batch R4414487								
WG2960158-4 DUP		**WG2960158-3**						
Benzene		<0.0068	<0.0068	RPD-NA	ug/g	N/A	40	27-DEC-18
Ethylbenzene		<0.018	<0.018	RPD-NA	ug/g	N/A	40	27-DEC-18
m+p-Xylenes		<0.030	<0.030	RPD-NA	ug/g	N/A	40	27-DEC-18
o-Xylene		<0.020	<0.020	RPD-NA	ug/g	N/A	40	27-DEC-18
Toluene		<0.080	<0.080	RPD-NA	ug/g	N/A	40	27-DEC-18
WG2960158-2 LCS								
Benzene			103.1		%		70-130	27-DEC-18
Ethylbenzene			98.4		%		70-130	27-DEC-18
m+p-Xylenes			97.0		%		70-130	27-DEC-18
o-Xylene			100.3		%		70-130	27-DEC-18
Toluene			99.4		%		70-130	27-DEC-18
WG2960158-1 MB								
Benzene			<0.0068		ug/g		0.0068	27-DEC-18
Ethylbenzene			<0.018		ug/g		0.018	27-DEC-18
m+p-Xylenes			<0.030		ug/g		0.03	27-DEC-18
o-Xylene			<0.020		ug/g		0.02	27-DEC-18
Toluene			<0.080		ug/g		0.08	27-DEC-18
Surrogate: 1,4-Difluorobenzene			110.6		%		50-140	27-DEC-18
Surrogate: 4-Bromofluorobenzene			107.8		%		50-140	27-DEC-18
WG2960158-5 MS		**L2212094-6**						
Benzene			104.1		%		60-140	27-DEC-18
Ethylbenzene			100.3		%		60-140	27-DEC-18
m+p-Xylenes			98.5		%		60-140	27-DEC-18
o-Xylene			101.4		%		60-140	27-DEC-18
Toluene			101.8		%		60-140	27-DEC-18
F1-HS-511-WT	**Soil**							
Batch R4414487								
WG2960158-4 DUP		**WG2960158-3**						
F1 (C6-C10)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	27-DEC-18
WG2960158-2 LCS								
F1 (C6-C10)			104.2		%		80-120	27-DEC-18
WG2960158-1 MB								
F1 (C6-C10)			<5.0		ug/g		5	27-DEC-18
Surrogate: 3,4-Dichlorotoluene			100.5		%		60-140	27-DEC-18
WG2960158-6 MS		**L2213111-12**						

Quality Control Report

Client: DS Consultants (Vaughan)
6221 Highway 7 Unit 16
Vaughan ON L4H 0K8
Contact: Shafi Andseta

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F1-HS-511-WT	**Soil**							
Batch R4414487								
WG2960158-6 MS		**L2213111-12**						
F1 (C6-C10)			102.0		%		60-140	27-DEC-18
F2-F4-511-WT	**Soil**							
Batch R4416973								
WG2960108-4 DUP		**WG2960108-3**						
F2 (C10-C16)		<10	<10	RPD-NA	ug/g	N/A	30	27-DEC-18
F3 (C16-C34)		<50	<50	RPD-NA	ug/g	N/A	30	27-DEC-18
F4 (C34-C50)		<50	<50	RPD-NA	ug/g	N/A	30	27-DEC-18
WG2960108-2 LCS								
F2 (C10-C16)			106.5		%		80-120	27-DEC-18
F3 (C16-C34)			109.3		%		80-120	27-DEC-18
F4 (C34-C50)			111.3		%		80-120	27-DEC-18
WG2960108-1 MB								
F2 (C10-C16)			<10		ug/g		10	27-DEC-18
F3 (C16-C34)			<50		ug/g		50	27-DEC-18
F4 (C34-C50)			<50		ug/g		50	27-DEC-18
Surrogate: 2-Bromobenzotrifluoride			87.0		%		60-140	27-DEC-18
WG2960108-5 MS		**WG2960108-3**						
F2 (C10-C16)			98.5		%		60-140	28-DEC-18
F3 (C16-C34)			95.6		%		60-140	28-DEC-18
F4 (C34-C50)			95.0		%		60-140	28-DEC-18
MOISTURE-WT	**Soil**							
Batch R4414528								
WG2960190-3 DUP		**L2213777-8**						
% Moisture		7.84	8.10		%	3.2	20	25-DEC-18
WG2960190-2 LCS								
% Moisture			100.3		%		90-110	25-DEC-18
WG2960190-1 MB								
% Moisture			<0.10		%		0.1	25-DEC-18
PAH-511-WT	**Soil**							
Batch R4417255								
WG2959764-3 DUP		**WG2959764-5**						
1-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	28-DEC-18
2-Methylnaphthalene		<0.030	<0.030	RPD-NA	ug/g	N/A	40	28-DEC-18
Acenaphthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-DEC-18

Quality Control Report

Client: DS Consultants (Vaughan)
6221 Highway 7 Unit 16
Vaughan ON L4H 0K8
Contact: Shafi Andseta

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4417255								
WG2959764-3 DUP		**WG2959764-5**						
Acenaphthylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-DEC-18
Anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-DEC-18
Benzo(a)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-DEC-18
Benzo(a)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-DEC-18
Benzo(b)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-DEC-18
Benzo(g,h,i)perylene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-DEC-18
Benzo(k)fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-DEC-18
Chrysene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-DEC-18
Dibenzo(ah)anthracene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-DEC-18
Fluoranthene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-DEC-18
Fluorene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-DEC-18
Indeno(1,2,3-cd)pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-DEC-18
Naphthalene		<0.013	<0.013	RPD-NA	ug/g	N/A	40	28-DEC-18
Phenanthrene		<0.046	<0.046	RPD-NA	ug/g	N/A	40	28-DEC-18
Pyrene		<0.050	<0.050	RPD-NA	ug/g	N/A	40	28-DEC-18
WG2959764-2 LCS								
1-Methylnaphthalene			99.7		%		50-140	28-DEC-18
2-Methylnaphthalene			95.7		%		50-140	28-DEC-18
Acenaphthene			100.3		%		50-140	28-DEC-18
Acenaphthylene			92.7		%		50-140	28-DEC-18
Anthracene			96.9		%		50-140	28-DEC-18
Benzo(a)anthracene			95.6		%		50-140	28-DEC-18
Benzo(a)pyrene			90.7		%		50-140	28-DEC-18
Benzo(b)fluoranthene			93.7		%		50-140	28-DEC-18
Benzo(g,h,i)perylene			91.3		%		50-140	28-DEC-18
Benzo(k)fluoranthene			93.8		%		50-140	28-DEC-18
Chrysene			101.1		%		50-140	28-DEC-18
Dibenzo(ah)anthracene			94.9		%		50-140	28-DEC-18
Fluoranthene			93.3		%		50-140	28-DEC-18
Fluorene			95.1		%		50-140	28-DEC-18
Indeno(1,2,3-cd)pyrene			90.7		%		50-140	28-DEC-18
Naphthalene			96.5		%		50-140	28-DEC-18
Phenanthrene			99.1		%		50-140	28-DEC-18

Quality Control Report

Client: DS Consultants (Vaughan)
6221 Highway 7 Unit 16
Vaughan ON L4H 0K8
Contact: Shafi Andseta

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4417255								
WG2959764-2 LCS								
Pyrene			96.0		%		50-140	28-DEC-18
WG2959764-1 MB								
1-Methylnaphthalene			<0.030		ug/g		0.03	28-DEC-18
2-Methylnaphthalene			<0.030		ug/g		0.03	28-DEC-18
Acenaphthene			<0.050		ug/g		0.05	28-DEC-18
Acenaphthylene			<0.050		ug/g		0.05	28-DEC-18
Anthracene			<0.050		ug/g		0.05	28-DEC-18
Benzo(a)anthracene			<0.050		ug/g		0.05	28-DEC-18
Benzo(a)pyrene			<0.050		ug/g		0.05	28-DEC-18
Benzo(b)fluoranthene			<0.050		ug/g		0.05	28-DEC-18
Benzo(g,h,i)perylene			<0.050		ug/g		0.05	28-DEC-18
Benzo(k)fluoranthene			<0.050		ug/g		0.05	28-DEC-18
Chrysene			<0.050		ug/g		0.05	28-DEC-18
Dibenzo(ah)anthracene			<0.050		ug/g		0.05	28-DEC-18
Fluoranthene			<0.050		ug/g		0.05	28-DEC-18
Fluorene			<0.050		ug/g		0.05	28-DEC-18
Indeno(1,2,3-cd)pyrene			<0.050		ug/g		0.05	28-DEC-18
Naphthalene			<0.013		ug/g		0.013	28-DEC-18
Phenanthrene			<0.046		ug/g		0.046	28-DEC-18
Pyrene			<0.050		ug/g		0.05	28-DEC-18
Surrogate: 2-Fluorobiphenyl			108.7		%		50-140	28-DEC-18
Surrogate: p-Terphenyl d14			106.1		%		50-140	28-DEC-18
WG2959764-4 MS		**WG2959764-5**						
1-Methylnaphthalene			98.8		%		50-140	28-DEC-18
2-Methylnaphthalene			94.4		%		50-140	28-DEC-18
Acenaphthene			99.1		%		50-140	28-DEC-18
Acenaphthylene			93.6		%		50-140	28-DEC-18
Anthracene			95.1		%		50-140	28-DEC-18
Benzo(a)anthracene			95.5		%		50-140	28-DEC-18
Benzo(a)pyrene			92.0		%		50-140	28-DEC-18
Benzo(b)fluoranthene			90.0		%		50-140	28-DEC-18
Benzo(g,h,i)perylene			98.9		%		50-140	28-DEC-18
Benzo(k)fluoranthene			86.4		%		50-140	28-DEC-18
Chrysene			98.1		%		50-140	28-DEC-18

Quality Control Report

Client: DS Consultants (Vaughan)
6221 Highway 7 Unit 16
Vaughan ON L4H 0K8
Contact: Shafi Andseta

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Soil**							
Batch R4417255								
WG2959764-4 MS		**WG2959764-5**						
Dibenzo(ah)anthracene			118.4		%		50-140	28-DEC-18
Fluoranthene			90.1		%		50-140	28-DEC-18
Fluorene			94.7		%		50-140	28-DEC-18
Indeno(1,2,3-cd)pyrene			107.0		%		50-140	28-DEC-18
Naphthalene			94.6		%		50-140	28-DEC-18
Phenanthrene			97.2		%		50-140	28-DEC-18
Pyrene			93.2		%		50-140	28-DEC-18

Quality Control Report

Workorder: L2213801 Report Date: 03-JAN-19

Client: DS Consultants (Vaughan)
6221 Highway 7 Unit 16
Vaughan ON L4H 0K8
Contact: Shafi Andseta

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

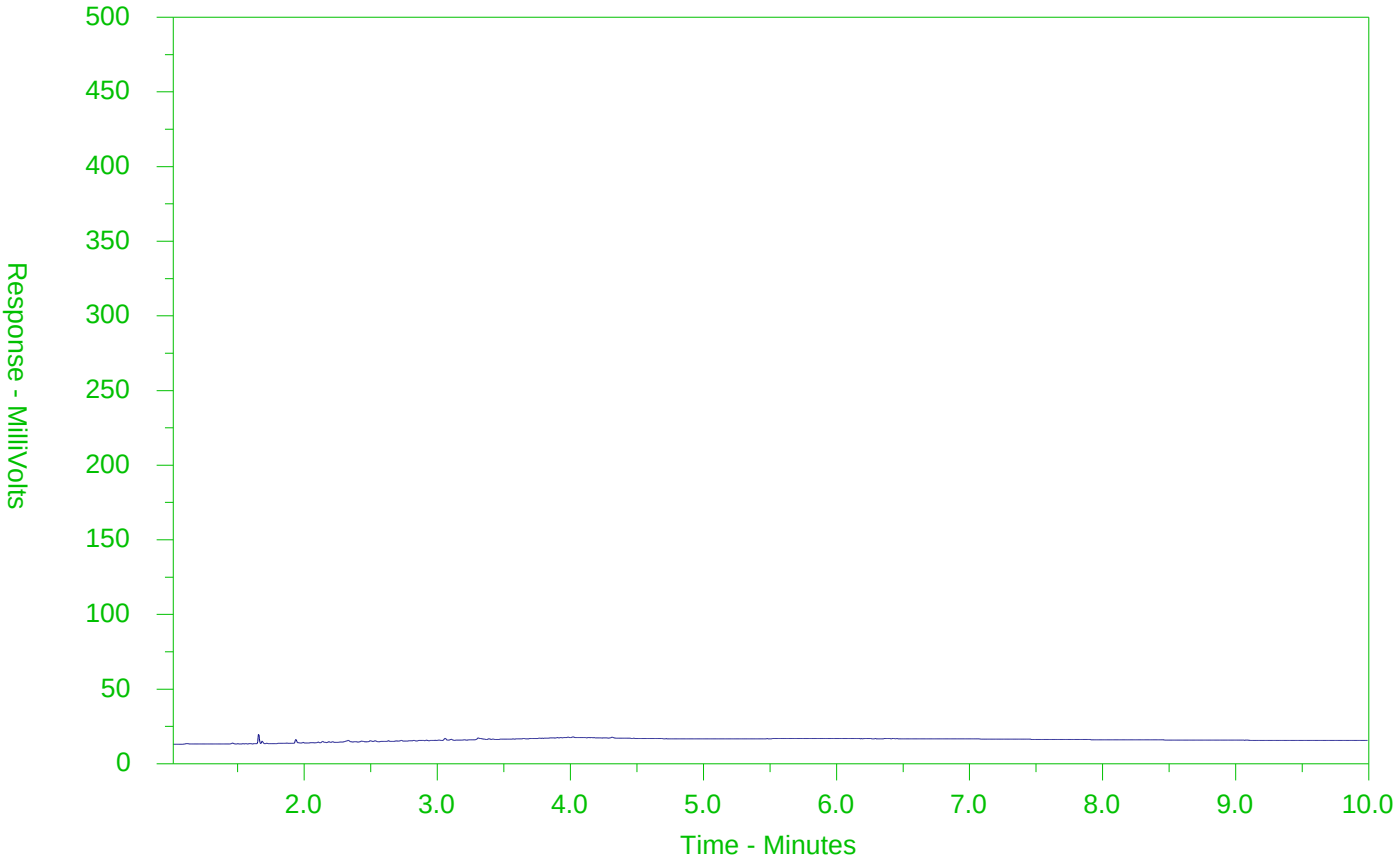
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2213801-1
Client Sample ID: BH18-1 SS6



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
←Diesel/Jet Fuels→			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

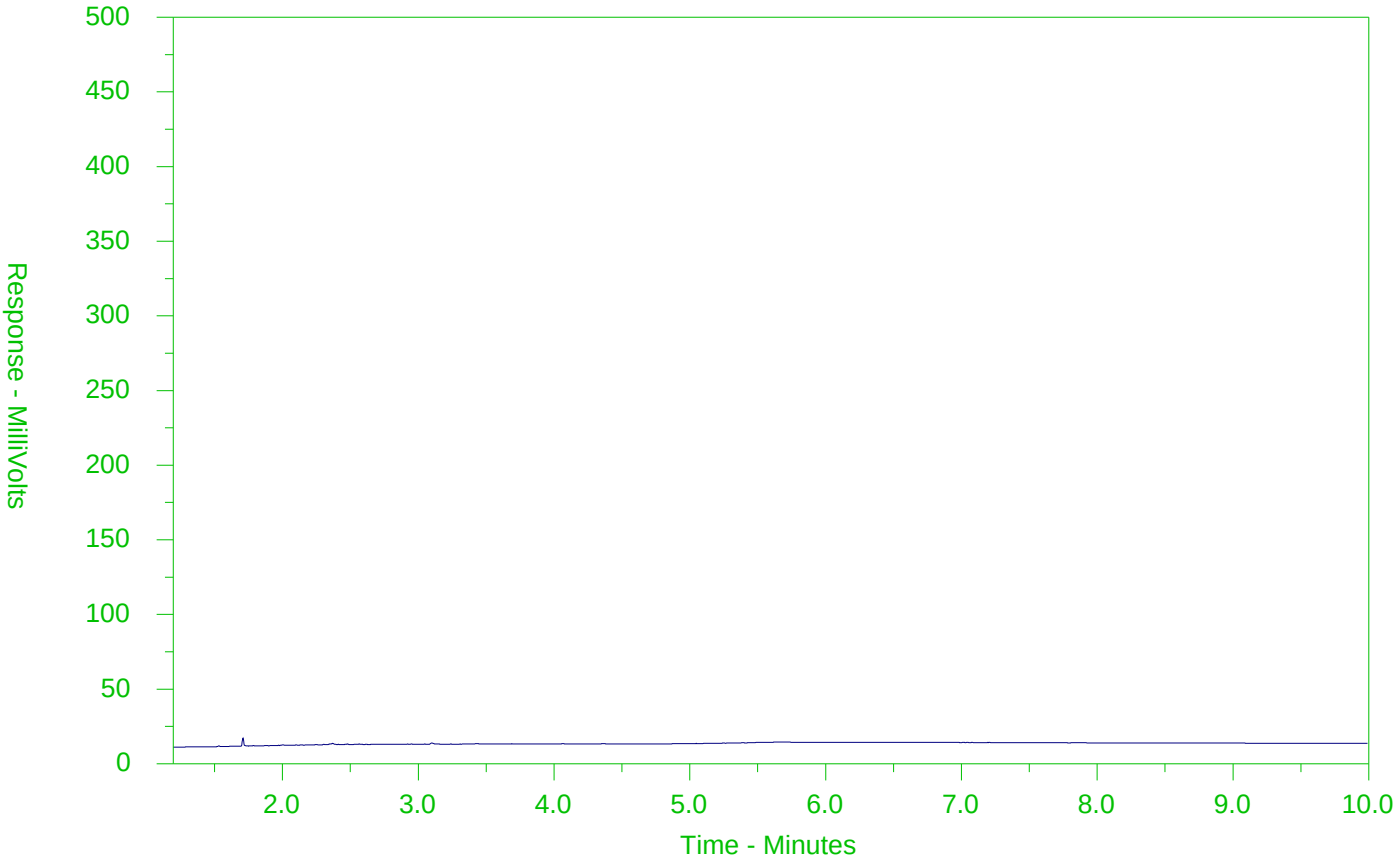
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2213801-2
Client Sample ID: BH18-7 SS4



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
←Diesel/Jet Fuels→			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

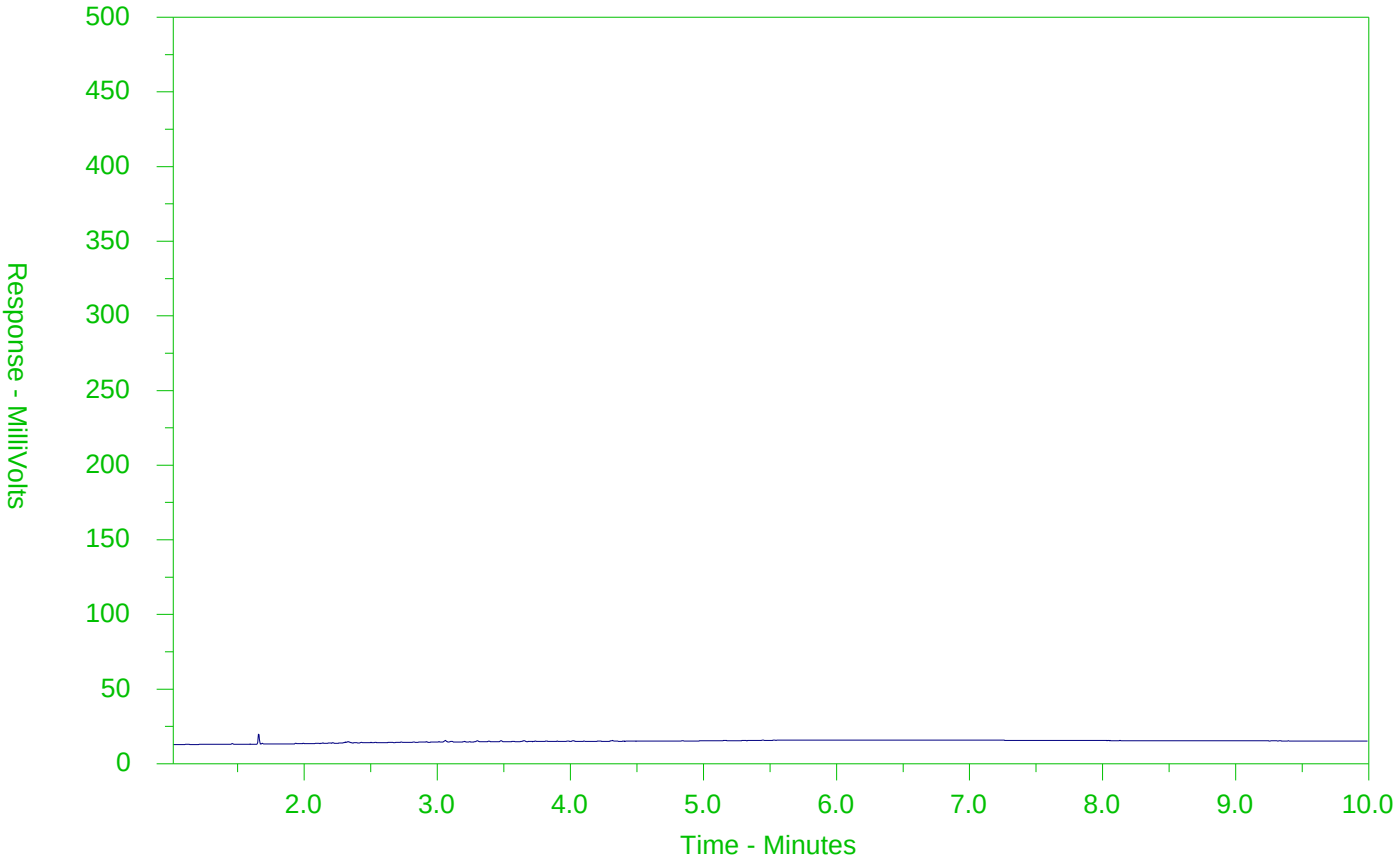
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2213801-3
Client Sample ID: BH18-9 SS3



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
←Diesel/Jet Fuels→			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2213801-COFC

COC Number: 17 - 616382

Page of

Report To	Contact and company name below will appear on the final report
Company:	DS Consultants LTD.
Contact:	Shafi Andreta
Phone:	905 264 9393
	Company address below will appear on the final report
Street:	C221 Highway 7 Unit 16
City/Province:	Vaughan, ON
Postal Code:	L4H 0K8
Invoice To	Same as Report To [x] YES [ ] NO
	Copy of Invoice with Report [x] YES [ ] NO
Company:	
Contact:	

Report Format / Distribution

Select Report Format: [x] PDF [x] EXCEL [ ] EDD (DIGITAL)

Quality Control (QC) Report with Report [x] YES [ ] NO

[x] Compare Results to Criteria on Report - provide details below if box checked

Select Distribution: [x] EMAIL [ ] MAIL [ ] FAX

Email 1 or Fax: shafi.andreta@dsconsultants.ca

Email 2: Isaac.feng@dsconsultants.ca

Email 3:

Invoice Distribution

Select Invoice Distribution: [x] EMAIL [ ] MAIL [ ] FAX

Email 1 or Fax:

Email 2:

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] [x] Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4-20%] [ ] | 3 day [P3-25%] [ ] | 2 day [P2-50%] [ ]

EMERGENCY: 1 Business day [E-100%] [ ] | Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] [ ]

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm

For tests that can not be performed according to the service level selected, you will be contacted.

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:		AFE/Cost Center:	PO#
Job #:		Major/Minor Code:	Routing Code:
PO / AFE:	18-687-20	Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):	L2213801	ALS Contact:	Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	PHCs + BTEX	PAHs	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
	BH18-1 556	18-12-18		SOIL	✓				4
	BH18-7 554	20-12-18			✓				4
	BH18-9 553	20-12-18			✓				4
	BH18-6 551	19-12-18				✓			2
	BH18-5 551	19-12-18				✓			2
	BH18-4 552	19-12-18		↓		✓			2
	DUP 3					✓			2

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? [ ] YES [ ] NO

Are samples for human consumption/ use? [ ] YES [ ] NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

Table 2 RPI Coarse

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen [ ] | SIF Observations Yes [ ] No [ ]

Ice Packs [ ] Ice Cubes [x] | Custody seal intact Yes [ ] No [ ]

Cooling Initiated [x]

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
15.0 °C				9.4			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: Isaac Feng	Date: Dec 21, 2018	Time:	Received by: RA	Date: 12/21/2018	Time: 0134	Received by:	Date: Dec 21/2018	Time: 315

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JULY 2017 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

DS Consultants (Vaughan)
ATTN: Shafi Andseta
6221 Highway 7
Unit 16
Vaughan ON L4H 0K8

Date Received: 21-DEC-18
Report Date: 03-JAN-19 09:26 (MT)
Version: FINAL REV. 2

Client Phone: 647-237-5110

Certificate of Analysis

Lab Work Order #: L2213807

Project P.O. #: 18-687-20
Job Reference:
C of C Numbers: 17-639345
Legal Site Desc:

Comments: 03-JAN-19 Revised report type to compare to Table 8 as per client request. -A.Fazekas

Amanda Fazekas
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ANALYTICAL REPORT

Summary of Guideline Exceedances

ALS ID	Client ID	Grouping	Analyte	Result	Guideline Limit	Unit
Guideline						
Ontario Regulation 153/04 - April 15, 2011 Standards - T8-Soil-Res/Park/Inst/Ind/Com/Commu Property Use						
(No parameter exceedances)						

ANALYTICAL REPORT

Physical Tests - SOIL

			Lab ID	L2213807-1	L2213807-2	L2213807-3	L2213807-4	L2213807-5	L2213807-6	L2213807-7	L2213807-8	L2213807-9
			Sample Date	18-DEC-18	18-DEC-18	18-DEC-18	19-DEC-18	19-DEC-18	18-DEC-18	18-DEC-18	18-DEC-18	19-DEC-18
			Sample ID	BH18-1 SS2	BH18-2 SS3	BH18-3 SS2	BH18-5 SS1	BH18-6 SS2	BH18-1 SS3	BH18-2 SS2	BH18-3 SS1	BH18-6 SS3
Analyte	Unit	Guide Limits #1	#2									
Conductivity	mS/cm	0.7	-	0.164	0.267	0.148	0.216	0.113				
% Moisture	%	-	-	11.2	11.8	10.4	18.4	8.08	10.8	11.4	16.5	4.85
pH	pH units	-	-	7.81	7.81	7.76	7.40	7.90				

Guide Limit #1: T8-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

ANALYTICAL REPORT

Physical Tests - SOIL

		Guide Limits				
Lab ID				L2213807-10	L2213807-11	L2213807-12
Sample Date				20-DEC-18	18-DEC-18	18-DEC-18
Sample ID				BH18-8 SS2	DUP1	DUP2
Analyte	**Unit**	**#1**	**#2**			
Conductivity	mS/cm	0.7	-		0.168	
% Moisture	%	-	-	18.7	10.1	21.5
pH	pH units	-	-		7.80	

Guide Limit #1: T8-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

ANALYTICAL REPORT

Cyanides - SOIL

		Lab ID	L2213807-1	L2213807-2	L2213807-3	L2213807-4	L2213807-5	L2213807-11
		Sample Date	18-DEC-18	18-DEC-18	18-DEC-18	19-DEC-18	19-DEC-18	18-DEC-18
		Sample ID	BH18-1 SS2	BH18-2 SS3	BH18-3 SS2	BH18-5 SS1	BH18-6 SS2	DUP1
Analyte	Unit	Guide Limits #1	#2					
Cyanide, Weak Acid Diss	ug/g	0.051	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050

Guide Limit #1: T8-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

ANALYTICAL REPORT

Saturated Paste Extractables - SOIL

Analyte	Unit	Guide Limits #1	Guide Limits #2	Lab ID	Sample Date	Sample ID				
				L2213807-1	L2213807-2	L2213807-3	L2213807-4	L2213807-5	L2213807-11	
				18-DEC-18	18-DEC-18	18-DEC-18	19-DEC-18	19-DEC-18	18-DEC-18	
				BH18-1 SS2	BH18-2 SS3	BH18-3 SS2	BH18-5 SS1	BH18-6 SS2	DUP1	
SAR	SAR	5	-	0.30	0.52	0.15	0.12	0.22	0.26	
Calcium (Ca)	mg/L	-	-	21.4	32.3	24.2	41.5	14.3	20.6	
Magnesium (Mg)	mg/L	-	-	3.5	4.5	1.0	1.9	2.2	3.8	
Sodium (Na)	mg/L	-	-	5.7	11.8	2.7	3.0	3.4	5.0	

Guide Limit #1: T8-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

ANALYTICAL REPORT

Metals - SOIL

		Guide Limits							
				Lab ID	L2213807-1	L2213807-2	L2213807-3	L2213807-4	L2213807-5	L2213807-11
				Sample Date	18-DEC-18	18-DEC-18	18-DEC-18	19-DEC-18	19-DEC-18	18-DEC-18
				Sample ID	BH18-1 SS2	BH18-2 SS3	BH18-3 SS2	BH18-5 SS1	BH18-6 SS2	DUP1
Analyte	Unit	#1	#2							
Antimony (Sb)	ug/g	1.3	-		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Arsenic (As)	ug/g	18	-		7.1	5.2	5.9	4.9	4.2	5.0
Barium (Ba)	ug/g	220	-		78.9	132	140	101	66.3	86.8
Beryllium (Be)	ug/g	2.5	-		0.63	0.69	0.66	0.71	0.52	0.63
Boron (B)	ug/g	36	-		11.3	10.8	10.8	5.0	14.9	11.1
Boron (B), Hot Water Ext.	ug/g	1.5	-		<0.10	0.15	<0.10	0.32	0.19	<0.10
Cadmium (Cd)	ug/g	1.2	-		<0.50	<0.50	<0.50	0.95	<0.50	<0.50
Chromium (Cr)	ug/g	70	-		20.9	22.5	22.1	24.8	16.1	20.0
Cobalt (Co)	ug/g	22	-		11.5	11.6	12.2	10.4	10.0	11.1
Copper (Cu)	ug/g	92	-		24.8	28.9	27.6	27.7	15.1	24.3
Lead (Pb)	ug/g	120	-		11.9	12.2	12.4	21.6	10.0	12.2
Mercury (Hg)	ug/g	0.27	-		0.0165	0.0189	0.0177	0.0633	0.0070	0.0148
Molybdenum (Mo)	ug/g	2	-		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Nickel (Ni)	ug/g	82	-		24.8	25.4	26.3	19.9	20.1	24.6
Selenium (Se)	ug/g	1.5	-		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Silver (Ag)	ug/g	0.5	-		<0.20	<0.20	<0.20	0.24	<0.20	<0.20
Thallium (Tl)	ug/g	1	-		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Uranium (U)	ug/g	2.5	-		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Vanadium (V)	ug/g	86	-		29.6	30.7	32.2	33.0	21.9	28.7
Zinc (Zn)	ug/g	290	-		54.8	60.2	59.3	95.3	43.9	54.8

Guide Limit #1: T8-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

ANALYTICAL REPORT

Speciated Metals - SOIL

		Guide Limits							
				Lab ID	L2213807-1	L2213807-2	L2213807-3	L2213807-4	L2213807-5	L2213807-11
				Sample Date	18-DEC-18	18-DEC-18	18-DEC-18	19-DEC-18	19-DEC-18	18-DEC-18
				Sample ID	BH18-1 SS2	BH18-2 SS3	BH18-3 SS2	BH18-5 SS1	BH18-6 SS2	DUP1
Analyte	Unit	#1	#2							
Chromium, Hexavalent	ug/g	0.66	-		<0.20	<0.20	0.25	<0.20	<0.20	<0.20

Guide Limit #1: T8-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

ANALYTICAL REPORT

Organochlorine Pesticides - SOIL

				Lab ID	L2213807-6	L2213807-7	L2213807-8	L2213807-9	L2213807-10	L2213807-12
				Sample Date	18-DEC-18	18-DEC-18	18-DEC-18	19-DEC-18	20-DEC-18	18-DEC-18
				Sample ID	BH18-1 SS3	BH18-2 SS2	BH18-3 SS1	BH18-6 SS3	BH18-8 SS2	DUP2
		Guide Limits								
Analyte	Unit	#1	#2							
Aldrin	ug/g	0.05	-	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
gamma-hexachlorocyclohexane	ug/g	0.01	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
a-chlordane	ug/g	-	-	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Chlordane (Total)	ug/g	0.05	-	<0.028	<0.028	<0.028	<0.028	<0.028	<0.028
g-chlordane	ug/g	-	-	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
op-DDD	ug/g	-	-	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
pp-DDD	ug/g	-	-	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Total DDD	ug/g	0.05	-	<0.028	<0.028	<0.028	<0.028	<0.028	<0.028
o,p-DDE	ug/g	-	-	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
pp-DDE	ug/g	-	-	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Total DDE	ug/g	0.05	-	<0.028	<0.028	<0.028	<0.028	<0.028	<0.028
op-DDT	ug/g	-	-	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
pp-DDT	ug/g	-	-	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Total DDT	ug/g	1.4	-	<0.028	<0.028	<0.028	<0.028	<0.028	<0.028
Dieldrin	ug/g	0.05	-	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Endosulfan I	ug/g	-	-	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Endosulfan II	ug/g	-	-	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Endosulfan (Total)	ug/g	0.04	-	<0.028	<0.028	<0.028	<0.028	<0.028	<0.028
Endrin	ug/g	0.04	-	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Heptachlor	ug/g	0.05	-	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Heptachlor Epoxide	ug/g	0.05	-	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Hexachlorobenzene	ug/g	0.02	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Hexachlorobutadiene	ug/g	0.01	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Hexachloroethane	ug/g	0.01	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Methoxychlor	ug/g	0.05	-	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Surrogate: 2-Fluorobiphenyl	%	-	-	91.0	91.7	87.2	89.0	86.6	87.4
Surrogate: d14-Terphenyl	%	-	-	102.9	102.4	91.6	97.2	93.1	98.8

Guide Limit #1: T8-Soil-Res/Park/Inst/Ind/Com/Commu Property Use

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
B-HWS-R511-WT	Soil	Boron-HWE-O.Reg 153/04 (July 2011)	HW EXTR, EPA 6010B

A dried solid sample is extracted with calcium chloride, the sample undergoes a heating process. After cooling the sample is filtered and analyzed by ICP/OES.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

CHLORDANE-T-CALC-WT	Soil	Chlordane Total sums	CALCULATION

Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

CN-WAD-R511-WT	Soil	Cyanide (WAD)-O.Reg 153/04 (July 2011)	MOE 3015/APHA 4500CN I-WAD

The sample is extracted with a strong base for 16 hours, and then filtered. The filtrate is then distilled where the cyanide is converted to cyanogen chloride by reacting with chloramine-T, the cyanogen chloride then reacts with a combination of barbituric acid and isonicotinic acid to form a highly colored complex.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

CR-CR6-IC-WT	Soil	Hexavalent Chromium in Soil	SW846 3060A/7199

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 7199, published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

DDD-DDE-DDT-CALC-WT	Soil	DDD, DDE, DDT sums	CALCULATION

Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

EC-WT	Soil	Conductivity (EC)	MOEE E3138

A representative subsample is tumbled with de-ionized (DI) water. The ratio of water to soil is 2:1 v/w. After tumbling the sample is then analyzed by a conductivity meter.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

ENDOSULFAN-T-CALC-WT	Soil	Endosulfan Total sums	CALCULATION

Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

HG-200.2-CVAA-WT	Soil	Mercury in Soil by CVAAS	EPA 200.2/1631E (mod)

Soil samples are digested with nitric and hydrochloric acids, followed by analysis by CVAAS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

MET-200.2-CCMS-WT	Soil	Metals in Soil by CRC ICPMS	EPA 200.2/6020A (mod)

Soil/sediment is dried, disaggregated, and sieved (2 mm). For tests intended to support Ontario regulations, the <2mm fraction is ground to pass through a 0.355 mm sieve. Strong Acid Leachable Metals in the <2mm fraction are solubilized by heated digestion with nitric and hydrochloric acids. Instrumental analysis is by Collision / Reaction Cell ICPMS.

Limitations: This method is intended to liberate environmentally available metals. Silicate minerals are not solubilized. Some metals may be only partially recovered (matrix dependent), including Al,

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**

Ba, Be, Cr, S, Sr, Ti, Tl, V, W, and Zr. Elemental Sulfur may be poorly recovered by this method. Volatile forms of sulfur (e.g. sulfide, H2S) may be excluded if lost during sampling, storage, or digestion.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

MOISTURE-WT	Soil	% Moisture	CCME PHC in Soil - Tier 1 (mod)
PEST-OC-511-WT	Soil	OC Pesticides-O.Reg 153/04 (July 2011)	SW846 8270 (511)

Soil sample is extracted in a solvent, after extraction a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

PH-WT	Soil	pH	MOEE E3137A

A minimum 10g portion of the sample is extracted with 20mL of 0.01M calcium chloride solution by shaking for at least 30 minutes. The aqueous layer is separated from the soil and then analyzed using a pH meter and electrode.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

SAR-R511-WT	Soil	SAR-O.Reg 153/04 (July 2011)	SW846 6010C

A dried, disaggregated solid sample is extracted with deionized water, the aqueous extract is separated from the solid, acidified and then analyzed using a ICP/OES. The concentrations of Na, Ca and Mg are reported as per CALA requirements for calculated parameters. These individual parameters are not for comparison to any guideline.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

**ALS test methods may incorporate modifications from specified reference methods to improve performance.

Chain of Custody Numbers:

17-639345

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA

Reference Information

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guideline limits are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

Quality Control Report

Workorder: L2213807 Report Date: 03-JAN-19

Client: DS Consultants (Vaughan)
6221 Highway 7 Unit 16
Vaughan ON L4H 0K8
Contact: Shafi Andseta

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
B-HWS-R511-WT	**Soil**							
Batch R4413548								
WG2960085-4 DUP		**L2214042-1**						
Boron (B), Hot Water Ext.		0.21	0.20		ug/g	2.9	30	24-DEC-18
WG2960085-2 IRM		**HOTB-SAL_SOIL5**						
Boron (B), Hot Water Ext.			96.5		%		70-130	24-DEC-18
WG2960085-3 LCS								
Boron (B), Hot Water Ext.			100.4		%		70-130	24-DEC-18
WG2960085-1 MB								
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	24-DEC-18
CN-WAD-R511-WT	**Soil**							
Batch R4419932								
WG2960130-3 DUP		**L2213449-1**						
Cyanide, Weak Acid Diss		<0.050	<0.050	RPD-NA	ug/g	N/A	35	28-DEC-18
WG2960130-2 LCS								
Cyanide, Weak Acid Diss			96.8		%		80-120	28-DEC-18
WG2960130-1 MB								
Cyanide, Weak Acid Diss			<0.050		ug/g		0.05	28-DEC-18
WG2960130-4 MS		**L2213449-1**						
Cyanide, Weak Acid Diss			94.0		%		70-130	28-DEC-18
CR-CR6-IC-WT	**Soil**							
Batch R4417968								
WG2960649-4 CRM		**WT-SQC012**						
Chromium, Hexavalent			85.8		%		70-130	28-DEC-18
WG2960649-3 DUP		**L2213785-1**						
Chromium, Hexavalent		<0.20	<0.20	RPD-NA	ug/g	N/A	35	28-DEC-18
WG2960649-2 LCS								
Chromium, Hexavalent			89.9		%		80-120	28-DEC-18
WG2960649-1 MB								
Chromium, Hexavalent			<0.20		ug/g		0.2	28-DEC-18
EC-WT	**Soil**							
Batch R4413312								
WG2960083-4 DUP		**WG2960083-3**						
Conductivity		0.423	0.410		mS/cm	3.1	20	24-DEC-18
WG2960083-2 IRM		**WT SAR2**						
Conductivity			94.2		%		70-130	24-DEC-18
WG2960185-1 LCS								
Conductivity			104.0		%		90-110	24-DEC-18
WG2960083-1 MB								

Quality Control Report

Client: DS Consultants (Vaughan)
6221 Highway 7 Unit 16
Vaughan ON L4H 0K8
Contact: Shafi Andseta

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EC-WT	**Soil**							
Batch R4413312								
WG2960083-1 MB								
Conductivity			<0.0040		mS/cm		0.004	24-DEC-18
Batch R4413316								
WG2960084-4 DUP		**WG2960084-3**						
Conductivity		0.131	0.135		mS/cm	3.5	20	24-DEC-18
WG2960084-2 IRM		**WT SAR2**						
Conductivity			101.2		%		70-130	24-DEC-18
WG2960188-1 LCS								
Conductivity			102.7		%		90-110	24-DEC-18
WG2960084-1 MB								
Conductivity			<0.0040		mS/cm		0.004	24-DEC-18
HG-200.2-CVAA-WT	**Soil**							
Batch R4415850								
WG2960271-2 CRM		**WT-CANMET-TILL1**						
Mercury (Hg)			94.1		%		70-130	27-DEC-18
WG2960271-6 DUP		**WG2960271-5**						
Mercury (Hg)		0.0220	0.0223		ug/g	1.2	40	27-DEC-18
WG2960271-3 LCS								
Mercury (Hg)			99.0		%		80-120	27-DEC-18
WG2960271-1 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	27-DEC-18
Batch R4419989								
WG2962163-2 CRM		**WT-CANMET-TILL1**						
Mercury (Hg)			98.2		%		70-130	31-DEC-18
WG2962163-6 DUP		**WG2962163-5**						
Mercury (Hg)		0.0339	0.0352		ug/g	3.8	40	31-DEC-18
WG2962163-3 LCS								
Mercury (Hg)			101.0		%		80-120	31-DEC-18
WG2962163-1 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	31-DEC-18
MET-200.2-CCMS-WT	**Soil**							
Batch R4415870								
WG2960271-2 CRM		**WT-CANMET-TILL1**						
Antimony (Sb)			113.2		%		70-130	27-DEC-18
Arsenic (As)			104.4		%		70-130	27-DEC-18
Barium (Ba)			101.2		%		70-130	27-DEC-18

Quality Control Report

Client: DS Consultants (Vaughan)
6221 Highway 7 Unit 16
Vaughan ON L4H 0K8
Contact: Shafi Andseta

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4415870								
WG2960271-2 CRM		**WT-CANMET-TILL1**						
Beryllium (Be)			100.6		%		70-130	27-DEC-18
Boron (B)			3.5		mg/kg		0-8.2	27-DEC-18
Cadmium (Cd)			103.2		%		70-130	27-DEC-18
Chromium (Cr)			104.6		%		70-130	27-DEC-18
Cobalt (Co)			103.0		%		70-130	27-DEC-18
Copper (Cu)			106.0		%		70-130	27-DEC-18
Lead (Pb)			109.9		%		70-130	27-DEC-18
Molybdenum (Mo)			107.4		%		70-130	27-DEC-18
Nickel (Ni)			103.8		%		70-130	27-DEC-18
Selenium (Se)			0.35		mg/kg		0.11-0.51	27-DEC-18
Silver (Ag)			0.25		mg/kg		0.13-0.33	27-DEC-18
Thallium (Tl)			0.133		mg/kg		0.077-0.18	27-DEC-18
Uranium (U)			104.0		%		70-130	27-DEC-18
Vanadium (V)			105.5		%		70-130	27-DEC-18
Zinc (Zn)			98.8		%		70-130	27-DEC-18
WG2960271-6 DUP		**WG2960271-5**						
Antimony (Sb)		0.11	<0.10	RPD-NA	ug/g	N/A	30	27-DEC-18
Arsenic (As)		2.95	2.30		ug/g	25	30	27-DEC-18
Barium (Ba)		90.0	71.8		ug/g	22	40	27-DEC-18
Beryllium (Be)		0.49	0.39		ug/g	21	30	27-DEC-18
Boron (B)		5.6	<5.0	RPD-NA	ug/g	N/A	30	27-DEC-18
Cadmium (Cd)		<0.5	N/A		ug/g	<0.5	0.04	27-DEC-18
Chromium (Cr)		20.2	15.7		ug/g	25	30	27-DEC-18
Cobalt (Co)		6.69	5.12		ug/g	27	30	27-DEC-18
Copper (Cu)		12.9	9.91		ug/g	26	30	27-DEC-18
Lead (Pb)		9.91	8.12		ug/g	20	40	27-DEC-18
Molybdenum (Mo)		0.28	0.23		ug/g	18	40	27-DEC-18
Nickel (Ni)		13.8	10.6		ug/g	26	30	27-DEC-18
Selenium (Se)		<0.20	<0.20	RPD-NA	ug/g	N/A	30	27-DEC-18
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	27-DEC-18
Thallium (Tl)		0.129	0.109		ug/g	17	30	27-DEC-18
Uranium (U)		0.611	0.499		ug/g	20	30	27-DEC-18
Vanadium (V)		36.6	27.8		ug/g	27	30	27-DEC-18

Quality Control Report

Client: DS Consultants (Vaughan)
6221 Highway 7 Unit 16
Vaughan ON L4H 0K8
Contact: Shafi Andseta

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4415870								
WG2960271-6 DUP		**WG2960271-5**						
Zinc (Zn)		43.7	34.1		ug/g	25	30	27-DEC-18
WG2960271-4 LCS								
Antimony (Sb)			104.1		%		80-120	27-DEC-18
Arsenic (As)			99.0		%		80-120	27-DEC-18
Barium (Ba)			103.9		%		80-120	27-DEC-18
Beryllium (Be)			92.9		%		80-120	27-DEC-18
Boron (B)			92.6		%		80-120	27-DEC-18
Cadmium (Cd)			98.7		%		80-120	27-DEC-18
Chromium (Cr)			98.5		%		80-120	27-DEC-18
Cobalt (Co)			98.4		%		80-120	27-DEC-18
Copper (Cu)			97.2		%		80-120	27-DEC-18
Lead (Pb)			99.3		%		80-120	27-DEC-18
Molybdenum (Mo)			102.7		%		80-120	27-DEC-18
Nickel (Ni)			97.4		%		80-120	27-DEC-18
Selenium (Se)			95.8		%		80-120	27-DEC-18
Silver (Ag)			99.8		%		80-120	27-DEC-18
Thallium (Tl)			99.0		%		80-120	27-DEC-18
Uranium (U)			100.7		%		80-120	27-DEC-18
Vanadium (V)			102.2		%		80-120	27-DEC-18
Zinc (Zn)			94.5		%		80-120	27-DEC-18
WG2960271-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	27-DEC-18
Arsenic (As)			<0.10		mg/kg		0.1	27-DEC-18
Barium (Ba)			<0.50		mg/kg		0.5	27-DEC-18
Beryllium (Be)			<0.10		mg/kg		0.1	27-DEC-18
Boron (B)			<5.0		mg/kg		5	27-DEC-18
Cadmium (Cd)			<0.020		mg/kg		0.02	27-DEC-18
Chromium (Cr)			<0.50		mg/kg		0.5	27-DEC-18
Cobalt (Co)			<0.10		mg/kg		0.1	27-DEC-18
Copper (Cu)			<0.50		mg/kg		0.5	27-DEC-18
Lead (Pb)			<0.50		mg/kg		0.5	27-DEC-18
Molybdenum (Mo)			<0.10		mg/kg		0.1	27-DEC-18
Nickel (Ni)			<0.50		mg/kg		0.5	27-DEC-18
Selenium (Se)			<0.20		mg/kg		0.2	27-DEC-18

Quality Control Report

Client: DS Consultants (Vaughan)
6221 Highway 7 Unit 16
Vaughan ON L4H 0K8
Contact: Shafi Andseta

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4415870								
WG2960271-1 MB								
Silver (Ag)			<0.10		mg/kg		0.1	27-DEC-18
Thallium (Tl)			<0.050		mg/kg		0.05	27-DEC-18
Uranium (U)			<0.050		mg/kg		0.05	27-DEC-18
Vanadium (V)			<0.20		mg/kg		0.2	27-DEC-18
Zinc (Zn)			<2.0		mg/kg		2	27-DEC-18
Batch R4420976								
WG2962163-2 CRM		**WT-CANMET-TILL1**						
Antimony (Sb)			98.4		%		70-130	31-DEC-18
Arsenic (As)			97.7		%		70-130	31-DEC-18
Barium (Ba)			98.0		%		70-130	31-DEC-18
Beryllium (Be)			92.9		%		70-130	31-DEC-18
Boron (B)			2.8		mg/kg		0-8.2	31-DEC-18
Cadmium (Cd)			99.8		%		70-130	31-DEC-18
Chromium (Cr)			99.1		%		70-130	31-DEC-18
Cobalt (Co)			97.6		%		70-130	31-DEC-18
Copper (Cu)			100.9		%		70-130	31-DEC-18
Lead (Pb)			99.7		%		70-130	31-DEC-18
Molybdenum (Mo)			101.6		%		70-130	31-DEC-18
Nickel (Ni)			97.9		%		70-130	31-DEC-18
Selenium (Se)			0.31		mg/kg		0.11-0.51	31-DEC-18
Silver (Ag)			0.22		mg/kg		0.13-0.33	31-DEC-18
Thallium (Tl)			0.125		mg/kg		0.077-0.18	31-DEC-18
Uranium (U)			102.8		%		70-130	31-DEC-18
Vanadium (V)			97.7		%		70-130	31-DEC-18
Zinc (Zn)			99.9		%		70-130	31-DEC-18
WG2962163-6 DUP		**WG2962163-5**						
Antimony (Sb)		0.13	0.14		ug/g	13	30	31-DEC-18
Arsenic (As)		4.64	5.10		ug/g	9.6	30	31-DEC-18
Barium (Ba)		84.4	92.9		ug/g	9.7	40	31-DEC-18
Beryllium (Be)		0.68	0.80		ug/g	16	30	31-DEC-18
Boron (B)		5.2	6.2		ug/g	17	30	31-DEC-18
Cadmium (Cd)		0.158	0.187		ug/g	17	30	31-DEC-18
Chromium (Cr)		25.0	27.5		ug/g	9.4	30	31-DEC-18
Cobalt (Co)		11.7	13.0		ug/g	11	30	31-DEC-18

Quality Control Report

Client: DS Consultants (Vaughan)
6221 Highway 7 Unit 16
Vaughan ON L4H 0K8
Contact: Shafi Andseta

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4420976								
WG2962163-6 DUP		**WG2962163-5**						
Copper (Cu)		24.2	26.6		ug/g	9.2	30	31-DEC-18
Lead (Pb)		13.1	14.7		ug/g	12	40	31-DEC-18
Molybdenum (Mo)		0.34	0.40		ug/g	17	40	31-DEC-18
Nickel (Ni)		25.1	27.9		ug/g	11	30	31-DEC-18
Selenium (Se)		<0.20	0.21	RPD-NA	ug/g	N/A	30	31-DEC-18
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	31-DEC-18
Thallium (Tl)		0.162	0.185		ug/g	13	30	31-DEC-18
Uranium (U)		0.602	0.667		ug/g	10	30	31-DEC-18
Vanadium (V)		35.4	39.9		ug/g	12	30	31-DEC-18
Zinc (Zn)		62.2	70.6		ug/g	13	30	31-DEC-18
WG2962163-4 LCS								
Antimony (Sb)			104.2		%		80-120	31-DEC-18
Arsenic (As)			100.5		%		80-120	31-DEC-18
Barium (Ba)			105.8		%		80-120	31-DEC-18
Beryllium (Be)			94.3		%		80-120	31-DEC-18
Boron (B)			95.4		%		80-120	31-DEC-18
Cadmium (Cd)			101.8		%		80-120	31-DEC-18
Chromium (Cr)			99.2		%		80-120	31-DEC-18
Cobalt (Co)			98.5		%		80-120	31-DEC-18
Copper (Cu)			98.6		%		80-120	31-DEC-18
Lead (Pb)			97.9		%		80-120	31-DEC-18
Molybdenum (Mo)			101.5		%		80-120	31-DEC-18
Nickel (Ni)			99.2		%		80-120	31-DEC-18
Selenium (Se)			104.9		%		80-120	31-DEC-18
Silver (Ag)			99.0		%		80-120	31-DEC-18
Thallium (Tl)			96.9		%		80-120	31-DEC-18
Uranium (U)			99.5		%		80-120	31-DEC-18
Vanadium (V)			102.2		%		80-120	31-DEC-18
Zinc (Zn)			97.7		%		80-120	31-DEC-18
WG2962163-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	31-DEC-18
Arsenic (As)			<0.10		mg/kg		0.1	31-DEC-18
Barium (Ba)			<0.50		mg/kg		0.5	31-DEC-18
Beryllium (Be)			<0.10		mg/kg		0.1	31-DEC-18

Quality Control Report

Client: DS Consultants (Vaughan)
6221 Highway 7 Unit 16
Vaughan ON L4H 0K8
Contact: Shafi Andseta

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT	**Soil**							
Batch R4420976								
WG2962163-1 MB								
Boron (B)			<5.0		mg/kg		5	31-DEC-18
Cadmium (Cd)			<0.020		mg/kg		0.02	31-DEC-18
Chromium (Cr)			<0.50		mg/kg		0.5	31-DEC-18
Cobalt (Co)			<0.10		mg/kg		0.1	31-DEC-18
Copper (Cu)			<0.50		mg/kg		0.5	31-DEC-18
Lead (Pb)			<0.50		mg/kg		0.5	31-DEC-18
Molybdenum (Mo)			<0.10		mg/kg		0.1	31-DEC-18
Nickel (Ni)			<0.50		mg/kg		0.5	31-DEC-18
Selenium (Se)			<0.20		mg/kg		0.2	31-DEC-18
Silver (Ag)			<0.10		mg/kg		0.1	31-DEC-18
Thallium (Tl)			<0.050		mg/kg		0.05	31-DEC-18
Uranium (U)			<0.050		mg/kg		0.05	31-DEC-18
Vanadium (V)			<0.20		mg/kg		0.2	31-DEC-18
Zinc (Zn)			<2.0		mg/kg		2	31-DEC-18
MOISTURE-WT	**Soil**							
Batch R4414527								
WG2960233-3 DUP		**L2214024-1**						
% Moisture		18.9	19.6		%	3.4	20	25-DEC-18
WG2960233-2 LCS								
% Moisture			100.0		%		90-110	25-DEC-18
WG2960233-1 MB								
% Moisture			<0.10		%		0.1	25-DEC-18
Batch R4414528								
WG2960190-3 DUP		**L2213777-8**						
% Moisture		7.84	8.10		%	3.2	20	25-DEC-18
WG2960190-2 LCS								
% Moisture			100.3		%		90-110	25-DEC-18
WG2960190-1 MB								
% Moisture			<0.10		%		0.1	25-DEC-18
PEST-OC-511-WT	**Soil**							
Batch R4422268								
WG2960788-3 DUP		**WG2960788-5**						
Aldrin		<0.020	<0.020	RPD-NA	ug/g	N/A	40	02-JAN-19
a-chlordane		<0.020	<0.020	RPD-NA	ug/g	N/A	40	02-JAN-19
g-chlordane		<0.020	<0.020	RPD-NA	ug/g	N/A	40	02-JAN-19

Quality Control Report

Client: DS Consultants (Vaughan)
6221 Highway 7 Unit 16
Vaughan ON L4H 0K8
Contact: Shafi Andseta

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PEST-OC-511-WT	**Soil**							
Batch R4422268								
WG2960788-3 DUP		**WG2960788-5**						
op-DDD		<0.020	<0.020	RPD-NA	ug/g	N/A	40	02-JAN-19
pp-DDD		<0.020	<0.020	RPD-NA	ug/g	N/A	40	02-JAN-19
o,p-DDE		<0.020	<0.020	RPD-NA	ug/g	N/A	40	02-JAN-19
pp-DDE		<0.020	<0.020	RPD-NA	ug/g	N/A	40	02-JAN-19
op-DDT		<0.020	<0.020	RPD-NA	ug/g	N/A	40	02-JAN-19
pp-DDT		<0.020	<0.020	RPD-NA	ug/g	N/A	40	02-JAN-19
Dieldrin		<0.020	<0.020	RPD-NA	ug/g	N/A	40	02-JAN-19
Endosulfan I		<0.020	<0.020	RPD-NA	ug/g	N/A	40	02-JAN-19
Endosulfan II		<0.020	<0.020	RPD-NA	ug/g	N/A	40	02-JAN-19
Endrin		<0.020	<0.020	RPD-NA	ug/g	N/A	40	02-JAN-19
gamma-hexachlorocyclohexane		<0.010	<0.010	RPD-NA	ug/g	N/A	40	02-JAN-19
Heptachlor		<0.020	<0.020	RPD-NA	ug/g	N/A	40	02-JAN-19
Heptachlor Epoxide		<0.020	<0.020	RPD-NA	ug/g	N/A	40	02-JAN-19
Hexachlorobenzene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	02-JAN-19
Hexachlorobutadiene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	02-JAN-19
Hexachloroethane		<0.010	<0.010	RPD-NA	ug/g	N/A	40	02-JAN-19
Methoxychlor		<0.020	<0.020	RPD-NA	ug/g	N/A	40	02-JAN-19
WG2960788-2 LCS								
Aldrin			96.4		%		50-140	02-JAN-19
a-chlordane			86.5		%		50-140	02-JAN-19
g-chlordane			88.9		%		50-140	02-JAN-19
op-DDD			93.8		%		50-140	02-JAN-19
pp-DDD			93.3		%		50-140	02-JAN-19
o,p-DDE			93.8		%		50-140	02-JAN-19
pp-DDE			92.3		%		50-140	02-JAN-19
op-DDT			83.5		%		50-140	02-JAN-19
pp-DDT			86.8		%		50-140	02-JAN-19
Dieldrin			100.2		%		50-140	02-JAN-19
Endosulfan I			92.0		%		50-140	02-JAN-19
Endosulfan II			91.5		%		50-140	02-JAN-19
Endrin			87.3		%		50-140	02-JAN-19
gamma-hexachlorocyclohexane			84.3		%		50-140	02-JAN-19
Heptachlor			75.2		%		50-140	02-JAN-19

Quality Control Report

Client: DS Consultants (Vaughan)
6221 Highway 7 Unit 16
Vaughan ON L4H 0K8
Contact: Shafi Andseta

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PEST-OC-511-WT	**Soil**							
Batch R4422268								
WG2960788-2 LCS								
Heptachlor Epoxide			84.9		%		50-140	02-JAN-19
Hexachlorobenzene			85.2		%		50-140	02-JAN-19
Hexachlorobutadiene			86.3		%		50-140	02-JAN-19
Hexachloroethane			90.5		%		50-140	02-JAN-19
Methoxychlor			94.6		%		50-140	02-JAN-19
WG2960788-1 MB								
Aldrin			<0.020		ug/g		0.02	02-JAN-19
a-chlordane			<0.020		ug/g		0.02	02-JAN-19
g-chlordane			<0.020		ug/g		0.02	02-JAN-19
op-DDD			<0.020		ug/g		0.02	02-JAN-19
pp-DDD			<0.020		ug/g		0.02	02-JAN-19
o,p-DDE			<0.020		ug/g		0.02	02-JAN-19
pp-DDE			<0.020		ug/g		0.02	02-JAN-19
op-DDT			<0.020		ug/g		0.02	02-JAN-19
pp-DDT			<0.020		ug/g		0.02	02-JAN-19
Dieldrin			<0.020		ug/g		0.02	02-JAN-19
Endosulfan I			<0.020		ug/g		0.02	02-JAN-19
Endosulfan II			<0.020		ug/g		0.02	02-JAN-19
Endrin			<0.020		ug/g		0.02	02-JAN-19
gamma-hexachlorocyclohexane			<0.010		ug/g		0.01	02-JAN-19
Heptachlor			<0.020		ug/g		0.02	02-JAN-19
Heptachlor Epoxide			<0.020		ug/g		0.02	02-JAN-19
Hexachlorobenzene			<0.010		ug/g		0.01	02-JAN-19
Hexachlorobutadiene			<0.010		ug/g		0.01	02-JAN-19
Hexachloroethane			<0.010		ug/g		0.01	02-JAN-19
Methoxychlor			<0.020		ug/g		0.02	02-JAN-19
Surrogate: 2-Fluorobiphenyl			99.7		%		50-140	02-JAN-19
Surrogate: d14-Terphenyl			105.6		%		50-140	02-JAN-19
WG2960788-4 MS		**WG2960788-5**						
Aldrin			97.3		%		50-140	02-JAN-19
a-chlordane			85.1		%		50-140	02-JAN-19
g-chlordane			86.5		%		50-140	02-JAN-19
op-DDD			95.5		%		50-140	02-JAN-19
pp-DDD			97.9		%		50-140	02-JAN-19

Quality Control Report

Client: DS Consultants (Vaughan)
6221 Highway 7 Unit 16
Vaughan ON L4H 0K8
Contact: Shafi Andseta

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PEST-OC-511-WT	**Soil**							
Batch R4422268								
WG2960788-4 MS		**WG2960788-5**						
o,p-DDE			93.6		%		50-140	02-JAN-19
pp-DDE			91.6		%		50-140	02-JAN-19
op-DDT			83.4		%		50-140	02-JAN-19
pp-DDT			82.2		%		50-140	02-JAN-19
Dieldrin			101.0		%		50-140	02-JAN-19
Endosulfan I			92.5		%		50-140	02-JAN-19
Endosulfan II			94.7		%		50-140	02-JAN-19
Endrin			94.3		%		50-140	02-JAN-19
gamma-hexachlorocyclohexane			85.4		%		50-140	02-JAN-19
Heptachlor			75.6		%		50-140	02-JAN-19
Heptachlor Epoxide			84.2		%		50-140	02-JAN-19
Hexachlorobenzene			84.9		%		50-140	02-JAN-19
Hexachlorobutadiene			85.5		%		50-140	02-JAN-19
Hexachloroethane			87.2		%		50-140	02-JAN-19
Methoxychlor			98.4		%		50-140	02-JAN-19
PH-WT	**Soil**							
Batch R4415291								
WG2960403-1 DUP		**L2214042-4**						
pH		7.55	7.49	J	pH units	0.06	0.3	27-DEC-18
WG2960693-1 LCS								
pH			6.99		pH units		6.9-7.1	27-DEC-18
Batch R4415512								
WG2960677-1 DUP		**L2213785-1**						
pH		7.57	7.58	J	pH units	0.01	0.3	27-DEC-18
WG2960869-1 LCS								
pH			6.99		pH units		6.9-7.1	27-DEC-18
SAR-R511-WT	**Soil**							
Batch R4413847								
WG2960083-4 DUP		**WG2960083-3**						
Calcium (Ca)		30.9	30.2		mg/L	2.5	30	24-DEC-18
Sodium (Na)		42.7	40.5		mg/L	5.5	30	24-DEC-18
Magnesium (Mg)		1.4	1.3		mg/L	7.1	30	24-DEC-18
WG2960083-2 IRM		**WT SAR2**						
Calcium (Ca)			87.4		%		70-130	24-DEC-18

Quality Control Report

Client: DS Consultants (Vaughan)
6221 Highway 7 Unit 16
Vaughan ON L4H 0K8
Contact: Shafi Andseta

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SAR-R511-WT	**Soil**							
Batch R4413847								
WG2960083-2 IRM		**WT SAR2**						
Sodium (Na)			85.3		%		70-130	24-DEC-18
Magnesium (Mg)			89.4		%		70-130	24-DEC-18
WG2960083-1 MB								
Calcium (Ca)			<1.0		mg/L		1	24-DEC-18
Sodium (Na)			<1.0		mg/L		1	24-DEC-18
Magnesium (Mg)			<1.0		mg/L		1	24-DEC-18
Batch R4415489								
WG2960084-4 DUP		**WG2960084-3**						
Calcium (Ca)		6.6	6.5		mg/L	1.8	30	24-DEC-18
Sodium (Na)		20.1	20.7		mg/L	3.3	30	24-DEC-18
Magnesium (Mg)		<1.0	<1.0	RPD-NA	mg/L	N/A	30	24-DEC-18
WG2960084-2 IRM		**WT SAR2**						
Calcium (Ca)			95.5		%		70-130	24-DEC-18
Sodium (Na)			90.6		%		70-130	24-DEC-18
Magnesium (Mg)			96.5		%		70-130	24-DEC-18
WG2960084-1 MB								
Calcium (Ca)			<1.0		mg/L		1	24-DEC-18
Sodium (Na)			<1.0		mg/L		1	24-DEC-18
Magnesium (Mg)			<1.0		mg/L		1	24-DEC-18

Quality Control Report

Workorder: L2213807 Report Date: 03-JAN-19

Client: DS Consultants (Vaughan)
6221 Highway 7 Unit 16
Vaughan ON L4H 0K8
Contact: Shafi Andseta

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2213807-COFC

COC Number: 17 - 639345

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Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	QS Consultants LTD	Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)	Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Shafi Andleeb	Quality Control (QC) Report with Report ☑ YES ☐ NO	PRIORITY (Business Days): 4 day [P4-20%] ☐ / 3 day [P3-25%] ☐ / 2 day [P2-50%] ☐
Phone:	905 264 9393	☑ Compare Results to Criteria on Report - provide details below if box checked	EMERGENCY: 1 Business day [E-100%] ☐ / Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] ☐
	Company address below will appear on the final report	Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
Street:	6221 Highway 7, Unit 16	Email 1 or Fax: Shafi.andleeb@qsconsultants.ca	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:	Vaughan, ON	Email 2: Isaac.feng@qsconsultants.ca	
Postal Code:	L4H 0K8	Email 3	
Invoice To	Same as Report To ☑ YES ☐ NO	**Invoice Distribution**	
	Copy of Invoice with Report ☑ YES ☐ NO	Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:		AFE/Cost Center:	PO#
Job #:		Major/Minor Code:	Routing Code:
PO / AFE:	18-687-20	Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):	L2213807	ALS Contact:	Sampler:

Analysis Request — Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Metals + Inorganics	OC pesticides	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
	BH18-1 SS2	18-12-18		SOIL	✓				2
	BH18-2 SS3	18-12-18			✓				2
	BH18-3 SS2	18-12-18			✓				2
	BH18-5 SS1	19-12-18			✓				2
	BH18-6 SS2	19-12-18			✓				2
	BH18-1 SS3	18-12-18				✓			2
	BH18-2 SS2	18-12-18				✓			2
	BH18-3 SS1	18-12-18				✓			2
	BH18-6 SS3	19-12-18				✓			2
	BH18-8 SS2	20-12-18				✓			2
	DUP1				✓	✓			2
	DUP2					✓			2

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	Table 2 Residential Coarse
Are samples for human consumption/ use? ☐ YES ☐ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐	SIF Observations	Yes ☐	No	☐
Ice Packs	☐	Ice Cubes ☒	Custody seal intact	Yes ☐	No ☐
Cooling Initiated	☑				

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
15.0			7.4		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: Isaac Feng	Date: Dec 21, 2018	Time:	Received by: RA	Date: 12/21/2018	Time: 9:34	Received by:	Date: Dec 21/2018	Time: 5:15

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JULY 2017 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of this white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form.**

DS Consultants (Vaughan)
ATTN: Shafi Andseta
6221 Highway 7
Unit 16
Vaughan ON L4H 0K8

Date Received: 08-JAN-19
Report Date: 15-JAN-19 14:58 (MT)
Version: FINAL

Client Phone: 647-237-5110

Certificate of Analysis

Lab Work Order #: L2217334

Project P.O. #: 18-687-20
Job Reference:
C of C Numbers: 17-639700
Legal Site Desc:

Amanda Fazekas
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ANALYTICAL REPORT

Summary of Guideline Exceedances

ALS ID	Client ID	Grouping	Analyte	Result	Guideline Limit	Unit	Guideline

Ontario Regulation 153/04 - April 15, 2011 Standards - T8-Ground Water - All Types of Property Use

(No parameter exceedances)

* Please refer to the Reference Information section for an explanation of any qualifiers noted.

ANALYTICAL REPORT

Physical Tests - WATER

Analyte	Unit	Guide Limits #1	Guide Limits #2	Lab ID	Sample Date	Sample ID					
				L2217334-1	L2217334-2	L2217334-3	L2217334-5	L2217334-6	L2217334-7	L2217334-10
				07-JAN-19	07-JAN-19	07-JAN-19	07-JAN-19	07-JAN-19	07-JAN-19	07-JAN-19
				BH18-1	BH18-2	BH18-4	BH18-6	BH18-7	BH18-9	DUP3
Conductivity	mS/cm	-	-	1.16	0.848	1.15	0.631	1.23	1.07	1.21
pH	pH units	-	-	7.64	7.72	7.57	7.84	7.58	7.60	7.55

Guide Limit #1: T8-Ground Water - All Types of Property Use

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

* Please refer to the Reference Information section for an explanation of any qualifiers noted.

ANALYTICAL REPORT

Anions and Nutrients - WATER

Analyte	Unit	Guide Limits #1	Guide Limits #2	Lab ID	Sample Date	Sample ID					
				L2217334-1	L2217334-2	L2217334-3	L2217334-5	L2217334-6	L2217334-7	L2217334-10
				07-JAN-19	07-JAN-19	07-JAN-19	07-JAN-19	07-JAN-19	07-JAN-19	07-JAN-19
				BH18-1	BH18-2	BH18-4	BH18-6	BH18-7	BH18-9	DUP3
Chloride (Cl)	mg/L	790	-	37.8	7.79	132	28.6	129	87.1	130

Guide Limit #1: T8-Ground Water - All Types of Property Use

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

ANALYTICAL REPORT

Cyanides - WATER

		Lab ID	L2217334-1	L2217334-2	L2217334-3	L2217334-5	L2217334-6	L2217334-7	L2217334-10
		Sample Date	07-JAN-19	07-JAN-19	07-JAN-19	07-JAN-19	07-JAN-19	07-JAN-19	07-JAN-19
		Sample ID	BH18-1	BH18-2	BH18-4	BH18-6	BH18-7	BH18-9	DUP3
Analyte	Unit	Guide Limits #1	#2						
Cyanide, Weak Acid Diss	ug/L	52	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0

Guide Limit #1: T8-Ground Water - All Types of Property Use

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

* Please refer to the Reference Information section for an explanation of any qualifiers noted.

ANALYTICAL REPORT

Dissolved Metals - WATER

Analyte	Unit	Guide Limits #1	Guide Limits #2	Lab ID	L2217334-1	L2217334-2	L2217334-3	L2217334-5	L2217334-6	L2217334-7	L2217334-10
				Sample Date	07-JAN-19	07-JAN-19	07-JAN-19	07-JAN-19	07-JAN-19	07-JAN-19	07-JAN-19
				Sample ID	BH18-1	BH18-2	BH18-4	BH18-6	BH18-7	BH18-9	DUP3
Dissolved Mercury Filtration Location		-	-		FIELD	LAB	LAB	LAB	LAB	LAB	LAB
Dissolved Metals Filtration Location		-	-		FIELD	LAB	LAB	LAB	LAB	LAB	LAB
Antimony (Sb)-Dissolved	ug/L	6	-		0.33	0.13	0.17	0.16	0.22	0.21	0.20
Arsenic (As)-Dissolved	ug/L	25	-		3.60	0.61	0.55	0.79	1.38	1.07	1.48
Barium (Ba)-Dissolved	ug/L	1000	-		76.0	67.3	108	74.1	93.3	91.1	93.6
Beryllium (Be)-Dissolved	ug/L	4	-		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Boron (B)-Dissolved	ug/L	5000	-		265	115	134	135	500	175	494
Cadmium (Cd)-Dissolved	ug/L	2.1	-		0.011	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chromium (Cr)-Dissolved	ug/L	50	-		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Cobalt (Co)-Dissolved	ug/L	3.8	-		0.24	0.12	0.19	<0.10	0.43	0.23	0.45
Copper (Cu)-Dissolved	ug/L	69	-		1.14	0.41	0.45	0.76	0.96	1.11	1.00
Lead (Pb)-Dissolved	ug/L	10	-		0.139	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Mercury (Hg)-Dissolved	ug/L	0.29	-		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Molybdenum (Mo)-Dissolved	ug/L	70	-		22.7	6.03	6.72	4.70	7.84	9.51	7.73
Nickel (Ni)-Dissolved	ug/L	100	-		1.56	0.85	0.86	0.54	1.41	1.22	1.50
Selenium (Se)-Dissolved	ug/L	10	-		0.285	0.693	0.088	0.111	0.241	0.163	0.229
Silver (Ag)-Dissolved	ug/L	1.2	-		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Sodium (Na)-Dissolved	ug/L	490000	-		29000	17600	44900	14100	41800	38300	41300
Thallium (Tl)-Dissolved	ug/L	2	-		0.027	0.016	0.025	0.013	0.016	0.028	0.016
Uranium (U)-Dissolved	ug/L	20	-		7.77	4.86	2.14	2.51	11.3	3.26	11.3
Vanadium (V)-Dissolved	ug/L	6.2	-		2.12	0.63	0.81	1.02	1.19	1.13	1.24
Zinc (Zn)-Dissolved	ug/L	890	-		6.6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

Guide Limit #1: T8-Ground Water - All Types of Property Use

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

* Please refer to the Reference Information section for an explanation of any qualifiers noted.

ANALYTICAL REPORT

Speciated Metals - WATER

Analyte	Unit	Guide Limits #1	Guide Limits #2	Lab ID	Sample Date	Sample ID					
				L2217334-1	L2217334-2	L2217334-3	L2217334-5	L2217334-6	L2217334-7	L2217334-10
				07-JAN-19	07-JAN-19	07-JAN-19	07-JAN-19	07-JAN-19	07-JAN-19	07-JAN-19
				BH18-1	BH18-2	BH18-4	BH18-6	BH18-7	BH18-9	DUP3
Chromium, Hexavalent	ug/L	25	-	<0.50	<0.50 RRR	<0.50 RRR	<0.50 RRR	<0.50 RRR	<0.50 RRR	<0.50 RRR

Guide Limit #1: T8-Ground Water - All Types of Property Use

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

* Please refer to the Reference Information section for an explanation of any qualifiers noted.

ANALYTICAL REPORT

Volatile Organic Compounds - WATER

Analyte	Unit	Guide Limits #1	Guide Limits #2	Lab ID	L2217334-1	L2217334-6	L2217334-7	L2217334-11	L2217334-12
				Sample Date	07-JAN-19	07-JAN-19	07-JAN-19	07-JAN-19	07-JAN-19
				Sample ID	BH18-1	BH18-7	BH18-9	DUP4	TRIP BLANK
Acetone	ug/L	2700	-		<30 OWP	<30 OWP	<30 OWP	<30 OWP	<30
Benzene	ug/L	5	-		<0.50 OWP	0.60 OWP	<0.50 OWP	<0.50 OWP	<0.50
Bromodichloromethane	ug/L	16	-		<2.0 OWP	<2.0 OWP	<2.0 OWP	<2.0 OWP	<2.0
Bromoform	ug/L	25	-		<5.0 OWP	<5.0 OWP	<5.0 OWP	<5.0 OWP	<5.0
Bromomethane	ug/L	0.89	-		<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50
Carbon tetrachloride	ug/L	0.79	-		<0.20 OWP	<0.20 OWP	<0.20 OWP	<0.20 OWP	<0.20
Chlorobenzene	ug/L	30	-		<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50
Dibromochloromethane	ug/L	25	-		<2.0 OWP	<2.0 OWP	<2.0 OWP	<2.0 OWP	<2.0
Chloroform	ug/L	2.4	-		<1.0 OWP	<1.0 OWP	<1.0 OWP	<1.0 OWP	<1.0
1,2-Dibromoethane	ug/L	0.2	-		<0.20 OWP	<0.20 OWP	<0.20 OWP	<0.20 OWP	<0.20
1,2-Dichlorobenzene	ug/L	3	-		<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50
1,3-Dichlorobenzene	ug/L	59	-		<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50
1,4-Dichlorobenzene	ug/L	1	-		<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50
Dichlorodifluoromethane	ug/L	590	-		<2.0 OWP	<2.0 OWP	<2.0 OWP	<2.0 OWP	<2.0
1,1-Dichloroethane	ug/L	5	-		<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50
1,2-Dichloroethane	ug/L	1.6	-		<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50
1,1-Dichloroethylene	ug/L	1.6	-		<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50
cis-1,2-Dichloroethylene	ug/L	1.6	-		<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50
trans-1,2-Dichloroethylene	ug/L	1.6	-		<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50
Methylene Chloride	ug/L	50	-		<5.0 OWP	<5.0 OWP	<5.0 OWP	<5.0 OWP	<5.0
1,2-Dichloropropane	ug/L	5	-		<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50
cis-1,3-Dichloropropene	ug/L	-	-		<0.30 OWP	<0.30 OWP	<0.30 OWP	<0.30 OWP	<0.30
trans-1,3-Dichloropropene	ug/L	-	-		<0.30 OWP	<0.30 OWP	<0.30 OWP	<0.30 OWP	<0.30
1,3-Dichloropropene (cis & trans)	ug/L	0.5	-		<0.50	<0.50	<0.50	<0.50	<0.50
Ethylbenzene	ug/L	2.4	-		<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50
n-Hexane	ug/L	51	-		<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50
Methyl Ethyl Ketone	ug/L	1800	-		<20 OWP	<20 OWP	<20 OWP	<20 OWP	<20
Methyl Isobutyl Ketone	ug/L	640	-		<20 OWP	<20 OWP	<20 OWP	<20 OWP	<20
MTBE	ug/L	15	-		<2.0 OWP	<2.0 OWP	<2.0 OWP	<2.0 OWP	<2.0
Styrene	ug/L	5.4	-		<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50

Guide Limit #1: T8-Ground Water - All Types of Property Use

* Please refer to the Reference Information section for an explanation of any qualifiers noted.

ANALYTICAL REPORT

Volatile Organic Compounds - WATER

		Lab ID	L2217334-1	L2217334-6	L2217334-7	L2217334-11	L2217334-12
		Sample Date	07-JAN-19	07-JAN-19	07-JAN-19	07-JAN-19	07-JAN-19
		Sample ID	BH18-1	BH18-7	BH18-9	DUP4	TRIP BLANK
		Guide Limits					
Analyte	Unit	#1	#2				
1,1,1,2-Tetrachloroethane	ug/L	1.1	-	<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50
1,1,2,2-Tetrachloroethane	ug/L	1	-	<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50
Tetrachloroethylene	ug/L	1.6	-	<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50
Toluene	ug/L	22	-	<0.50 OWP	0.52 OWP	<0.50 OWP	<0.50 OWP	<0.50
1,1,1-Trichloroethane	ug/L	200	-	<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50
1,1,2-Trichloroethane	ug/L	4.7	-	<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50
Trichloroethylene	ug/L	1.6	-	<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50
Trichlorofluoromethane	ug/L	150	-	<5.0 OWP	<5.0 OWP	<5.0 OWP	<5.0 OWP	<5.0
Vinyl chloride	ug/L	0.5	-	<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50 OWP	<0.50
o-Xylene	ug/L	-	-	<0.30 OWP	<0.30 OWP	<0.30 OWP	<0.30 OWP	<0.30
m+p-Xylenes	ug/L	-	-	<0.40 OWP	<0.40 OWP	<0.40 OWP	<0.40 OWP	<0.40
Xylenes (Total)	ug/L	300	-	<0.50	<0.50	<0.50	<0.50	<0.50
Surrogate: 4-Bromofluorobenzene	%	-	-	97.7	98.5	99.6	98.7	100.0
Surrogate: 1,4-Difluorobenzene	%	-	-	102.1	102.2	101.6	101.2	100.9

Guide Limit #1: T8-Ground Water - All Types of Property Use

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

* Please refer to the Reference Information section for an explanation of any qualifiers noted.

ANALYTICAL REPORT

Hydrocarbons - WATER

Analyte	Unit	Guide Limits #1	Guide Limits #2	Lab ID	Sample Date	Sample ID
				L2217334-1	07-JAN-19	BH18-1
				L2217334-6	07-JAN-19	BH18-7
				L2217334-7	07-JAN-19	BH18-9
				L2217334-11	07-JAN-19	DUP4
F1 (C6-C10)	ug/L	420	-	<25 OWP	<25 OWP	<25 OWP	<25 OWP
F1-BTEX	ug/L	420	-	<25	<25	<25	<25
F2 (C10-C16)	ug/L	150	-	<100	<100 OWP	<100	<100
F3 (C16-C34)	ug/L	500	-	<250	<250 OWP	<250	<250
F4 (C34-C50)	ug/L	500	-	<250	<250 OWP	<250	<250
Total Hydrocarbons (C6-C50)	ug/L	-	-	<370	<370	<370	<370
Chrom. to baseline at nC50		-	-	YES	YES	YES	YES
Surrogate: 2-Bromobenzotrifluoride	%	-	-	109.7	110.5	111.2	108.0
Surrogate: 3,4-Dichlorotoluene	%	-	-	99.5	91.6	99.5	97.7

Guide Limit #1: T8-Ground Water - All Types of Property Use

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

* Please refer to the Reference Information section for an explanation of any qualifiers noted.

ANALYTICAL REPORT

Polycyclic Aromatic Hydrocarbons - WATER

		Guide Limits					
Lab ID				L2217334-3	L2217334-4	L2217334-5	L2217334-9
Sample Date				07-JAN-19	07-JAN-19	07-JAN-19	07-JAN-19
Sample ID				BH18-4	BH18-5	BH18-6	DUP2
Analyte	**Unit**	**#1**	**#2**				
Acenaphthene	ug/L	4.1	-	<0.020	<0.020	<0.020	<0.020
Acenaphthylene	ug/L	1	-	<0.020	<0.020	<0.020	<0.020
Anthracene	ug/L	1	-	<0.020	<0.020	<0.020	<0.020
Benzo(a)anthracene	ug/L	1	-	<0.020	<0.020	<0.020	<0.020
Benzo(a)pyrene	ug/L	0.01	-	<0.010	<0.010	<0.010	<0.010
Benzo(b)fluoranthene	ug/L	0.1	-	<0.020	<0.020	<0.020	<0.020
Benzo(g,h,i)perylene	ug/L	0.2	-	<0.020	<0.020	<0.020	<0.020
Benzo(k)fluoranthene	ug/L	0.1	-	<0.020	<0.020	<0.020	<0.020
Chrysene	ug/L	0.1	-	<0.020	<0.020	<0.020	<0.020
Dibenzo(ah)anthracene	ug/L	0.2	-	<0.020	<0.020	<0.020	<0.020
Fluoranthene	ug/L	0.41	-	<0.020	<0.020	<0.020	<0.020
Fluorene	ug/L	120	-	<0.020	<0.020	<0.020	<0.020
Indeno(1,2,3-cd)pyrene	ug/L	0.2	-	<0.020	<0.020	<0.020	<0.020
1+2-Methylnaphthalenes	ug/L	3.2	-	<0.028	<0.028	<0.028	<0.028
1-Methylnaphthalene	ug/L	3.2	-	<0.020	<0.020	<0.020	<0.020
2-Methylnaphthalene	ug/L	3.2	-	<0.020	<0.020	<0.020	<0.020
Naphthalene	ug/L	11	-	<0.050	<0.050	<0.050	<0.050
Phenanthrene	ug/L	1	-	<0.020	<0.020	0.029	<0.020
Pyrene	ug/L	4.1	-	<0.020	<0.020	<0.020	<0.020
Surrogate: d10-Acenaphthene	%	-	-	111.7	106.5	112.7	109.3
Surrogate: d12-Chrysene	%	-	-	91.9	80.0	90.8	93.7
Surrogate: d8-Naphthalene	%	-	-	101.3	92.6	103.8	99.9
Surrogate: d10-Phenanthrene	%	-	-	112.2	107.3	111.1	107.7

Guide Limit #1: T8-Ground Water - All Types of Property Use

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

* Please refer to the Reference Information section for an explanation of any qualifiers noted.

ANALYTICAL REPORT

Organochlorine Pesticides - WATER

				Lab ID	L2217334-2	L2217334-4	L2217334-5	L2217334-8
				Sample Date	07-JAN-19	07-JAN-19	07-JAN-19	07-JAN-19
				Sample ID	BH18-2	BH18-5	BH18-6	DUP1
		Guide Limits						
Analyte	Unit	#1	#2					
Aldrin	ug/L	0.35	-	<0.010	<0.010	<0.010	<0.010
gamma-hexachlorocyclohexane	ug/L	0.95	-	<0.010	<0.010	<0.010	<0.010
a-chlordane	ug/L	-	-	<0.040	<0.040	<0.040	<0.040
Chlordane (Total)	ug/L	0.06	-	<0.057	<0.057	<0.057	<0.057
g-chlordane	ug/L	-	-	<0.040	<0.040	<0.040	<0.040
o,p-DDD	ug/L	-	-	<0.030	<0.030	<0.030	<0.030
pp-DDD	ug/L	-	-	<0.030	<0.030	<0.030	<0.030
Total DDD	ug/L	1.8	-	<0.042	<0.042	<0.042	<0.042
o,p-DDE	ug/L	-	-	<0.0080	<0.0080	<0.0080	<0.0080
pp-DDE	ug/L	-	-	<0.0080	<0.0080	<0.0080	<0.0080
Total DDE	ug/L	10	-	<0.011	<0.011	<0.011	<0.011
op-DDT	ug/L	-	-	<0.030	<0.030	<0.030	<0.030
pp-DDT	ug/L	-	-	<0.030	<0.030	<0.030	<0.030
Total DDT	ug/L	0.05	-	<0.042	<0.042	<0.042	<0.042
Dieldrin	ug/L	0.35	-	<0.050	<0.050	<0.050	<0.050
Endosulfan I	ug/L	-	-	<0.030	<0.030	<0.030	<0.030
Endosulfan II	ug/L	-	-	<0.030	<0.030	<0.030	<0.030
Endosulfan (Total)	ug/L	0.56	-	<0.042	<0.042	<0.042	<0.042
Endrin	ug/L	0.36	-	<0.040	<0.040	<0.040	<0.040
Heptachlor	ug/L	0.038	-	<0.010	<0.010	<0.010	<0.010
Heptachlor Epoxide	ug/L	0.038	-	<0.010	<0.010	<0.010	<0.010
Hexachlorobenzene	ug/L	1	-	<0.010	<0.010	<0.010	<0.010
Hexachlorobutadiene	ug/L	0.44	-	<0.010	<0.010	<0.010	<0.010
Hexachloroethane	ug/L	2.1	-	<0.010	<0.010	<0.010	<0.010
Methoxychlor	ug/L	0.3	-	<0.050	<0.050	<0.050	<0.050
Surrogate: 2-Fluorobiphenyl	%	-	-	91.9	113.4	105.2	105.9
Surrogate: d14-Terphenyl	%	-	-	121.0	129.4	145.0 RRR	126.4

Guide Limit #1: T8-Ground Water - All Types of Property Use

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

* Please refer to the Reference Information section for an explanation of any qualifiers noted.

Reference Information

Additional Comments for Sample Listed:

Samplenum	Matrix	Report Remarks	Sample Comments
L2217334-10	Water	Note: Cr6: Sample was lab-filtered. Parameter exceeded hold time prior to analysis.	
L2217334-2	Water	Note: Cr6: Sample was lab-filtered. Parameter exceeded hold time prior to analysis.	
L2217334-3	Water	Note: Cr6: Sample was lab-filtered. Parameter exceeded hold time prior to analysis.	
L2217334-5	Water	Note: Cr6: Sample was lab-filtered. Parameter exceeded hold time prior to analysis.	
L2217334-5	Water	Note: RRR: d14-T surrogate results exceed ALS DQO. Non-detected sample results are considered reliable. Other results, if reported, have been qualified.	
L2217334-6	Water	Note: Cr6: Sample was lab-filtered. Parameter exceeded hold time prior to analysis.	
L2217334-7	Water	Note: Cr6: Sample was lab-filtered. Parameter exceeded hold time prior to analysis.	

Qualifiers for Individual Parameters Listed:

Qualifier	Description
OWP	Organic water sample contained visible sediment (must be included as part of analysis). Measured concentrations of organic substances in water can be biased high due to presence of

sediment.

RRR Refer to Report Remarks for issues regarding this analysis

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
CHLORDANE-T-CALC-WT	Water	Chlordane Total sums	CALCULATION

Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

CL-IC-N-WT	Water	Chloride by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

CN-WAD-R511-WT	Water	Cyanide (WAD)-O.Reg 153/04	APHA 4500CN I-Weak acid Dist Colorimet

Weak acid dissociable cyanide (WAD) is determined by undergoing a distillation procedure. Cyanide is converted to cyanogen chloride by reacting with chloramine-T, the cyanogen chloride then reacts with a combination of barbituric acid and isonicotinic acid to form a highly colored complex.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

CR-CR6-IC-R511-WT	Water	Hex Chrom-O.Reg 153/04 (July 2011)	EPA 7199

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 7199, published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution. Chromium (III) is calculated as the difference between the total chromium and the chromium (VI) results.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

DDD-DDE-DDT-CALC-WT	Water	DDD, DDE, DDT sums	CALCULATION

Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

EC-R511-WT	Water	Conductivity-O.Reg 153/04 (July 2011)	APHA 2510 B

Water samples can be measured directly by immersing the conductivity cell into the sample.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

ENDOSULFAN-T-CALC-WT	Water	Endosulfan Total sums	CALCULATION

Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

F1-F4-511-CALC-WT	Water	F1-F4 Hydrocarbon Calculated Parameters	CCME CWS-PHC, Pub #1310, Dec 2001-L

Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
In samples where BTEX and F1 were analyzed , F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**

Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:
1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:
1. All extraction and analysis holding times were met.
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

F1-HS-511-WT	Water	F1-O.Reg 153/04 (July 2011)	E3398/CCME TIER 1-HS

Fraction F1 is determined by analyzing by headspace-GC/FID.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

F2-F4-511-WT	Water	F2-F4-O.Reg 153/04 (July 2011)	EPA 3511/CCME Tier 1

Petroleum Hydrocarbons (F2-F4 fractions) are extracted from water using a hexane micro-extraction technique. Instrumental analysis is by GC-FID, as per the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Tier 1 Method, CCME, 2001.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

HG-D-UG/L-CVAA-WT	Water	Diss. Mercury in Water by CVAAS (ug/L)	EPA 1631E (mod)

Water samples are filtered (0.45 um), preserved with hydrochloric acid, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

MET-D-UG/L-MS-WT	Water	Diss. Metals in Water by ICPMS (ug/L)	EPA 200.8

The metal constituents of a non-acidified sample that pass through a membrane filter prior to ICP/MS analysis.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

METHYLNAPS-CALC-WT	Water	PAH-Calculated Parameters	SW846 8270
PAH-511-WT	Water	PAH-O. Reg 153/04 (July 2011)	SW846 3510/8270

Aqueous samples, fortified with surrogates, are extracted using liquid/liquid extraction technique. The sample extracts are concentrated and then analyzed using GC/MS. Results for benzo(b) fluoranthene may include contributions from benzo(j)fluoranthene, if also present in the sample.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

PEST-OC-511-WT	Water	OC Pesticides-O. Reg 153/04 (July 2011)	SW846 8270 (511)

Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).			
PH-WT	Water	pH	APHA 4500 H-Electrode
Water samples are analyzed directly by a calibrated pH meter.			
Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011). Holdtime for samples under this regulation is 28 days			
VOC-1,3-DCP-CALC-WT	Water	Regulation 153 VOCs	SW8260B/SW8270C
VOC-511-HS-WT	Water	VOC by GCMS HS O.Reg 153/04 (July 2011)	SW846 8260
Liquid samples are analyzed by headspace GC/MSD.			
Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).			
XYLENES-SUM-CALC-WT	Water	Sum of Xylene Isomer Concentrations	CALCULATION
Total xylenes represents the sum of o-xylene and m&p-xylene.			

**ALS test methods may incorporate modifications from specified reference methods to improve performance.

Chain of Custody Numbers:

17-639700

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA

Reference Information

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guideline limits are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

Quality Control Report

Workorder: L2217334 Report Date: 15-JAN-19

Client: DS Consultants (Vaughan)
6221 Highway 7 Unit 16
Vaughan ON L4H 0K8

Contact: Shafi Andseta

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CL-IC-N-WT	**Water**							
Batch R4438367								
WG2966551-10 DUP		**L2217352-1**						
Chloride (Cl)		1.65	1.63		mg/L	1.4	20	09-JAN-19
WG2966551-4 DUP		**WG2966551-3**						
Chloride (Cl)		7.73	7.77		mg/L	0.5	20	09-JAN-19
WG2966551-2 LCS								
Chloride (Cl)			102.3		%		90-110	09-JAN-19
WG2966551-7 LCS								
Chloride (Cl)			101.7		%		90-110	09-JAN-19
WG2966551-1 MB								
Chloride (Cl)			<0.50		mg/L		0.5	09-JAN-19
WG2966551-6 MB								
Chloride (Cl)			<0.50		mg/L		0.5	09-JAN-19
WG2966551-5 MS		**WG2966551-3**						
Chloride (Cl)			104.3		%		75-125	09-JAN-19
WG2966551-9 MS		**L2217352-1**						
Chloride (Cl)			106.3		%		75-125	09-JAN-19
CN-WAD-R511-WT	**Water**							
Batch R4437832								
WG2966320-3 DUP		**L2217334-2**						
Cyanide, Weak Acid Diss		<2.0	<2.0	RPD-NA	ug/L	N/A	20	09-JAN-19
WG2966320-2 LCS								
Cyanide, Weak Acid Diss			101.1		%		80-120	09-JAN-19
WG2966320-1 MB								
Cyanide, Weak Acid Diss			<2.0		ug/L		2	09-JAN-19
WG2966320-4 MS		**L2217334-2**						
Cyanide, Weak Acid Diss			86.8		%		75-125	09-JAN-19
CR-CR6-IC-R511-WT	**Water**							
Batch R4435593								
WG2966585-4 DUP		**WG2966585-3**						
Chromium, Hexavalent		26.1	25.5		ug/L	2.3	20	09-JAN-19
WG2966585-2 LCS								
Chromium, Hexavalent			96.2		%		80-120	09-JAN-19
WG2966585-1 MB								
Chromium, Hexavalent			<0.50		ug/L		0.5	09-JAN-19
WG2966585-5 MS		**WG2966585-3**						
Chromium, Hexavalent			89.1		%		70-130	09-JAN-19
EC-R511-WT	**Water**							

Quality Control Report

Client: DS Consultants (Vaughan)
6221 Highway 7 Unit 16
Vaughan ON L4H 0K8
Contact: Shafi Andseta

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EC-R511-WT	**Water**							
Batch R4437536								
WG2966443-4 DUP		**WG2966443-3**						
Conductivity		2.41	2.40		mS/cm	0.4	10	09-JAN-19
WG2966443-2 LCS								
Conductivity			98.0		%		90-110	09-JAN-19
WG2966443-1 MB								
Conductivity			<0.0030		mS/cm		0.003	09-JAN-19
F1-HS-511-WT	**Water**							
Batch R4438097								
WG2961410-4 DUP		**WG2961410-3**						
F1 (C6-C10)		<25	<25	RPD-NA	ug/L	N/A	30	10-JAN-19
WG2961410-1 LCS								
F1 (C6-C10)			108.4		%		80-120	10-JAN-19
WG2961410-2 MB								
F1 (C6-C10)			<25		ug/L		25	10-JAN-19
Surrogate: 3,4-Dichlorotoluene			115.3		%		60-140	10-JAN-19
WG2961410-5 MS		**WG2961410-3**						
F1 (C6-C10)			93.1		%		60-140	10-JAN-19
F2-F4-511-WT	**Water**							
Batch R4436007								
WG2966113-2 LCS								
F2 (C10-C16)			105.8		%		70-130	09-JAN-19
F3 (C16-C34)			108.4		%		70-130	09-JAN-19
F4 (C34-C50)			111.0		%		70-130	09-JAN-19
WG2966113-3 LCSD		**WG2966113-2**						
F2 (C10-C16)		105.8	107.8		%	1.9	50	09-JAN-19
F3 (C16-C34)		108.4	110.0		%	1.4	50	09-JAN-19
F4 (C34-C50)		111.0	109.4		%	1.5	50	09-JAN-19
WG2966113-1 MB								
F2 (C10-C16)			<100		ug/L		100	09-JAN-19
F3 (C16-C34)			<250		ug/L		250	09-JAN-19
F4 (C34-C50)			<250		ug/L		250	09-JAN-19
Surrogate: 2-Bromobenzotrifluoride			112.3		%		60-140	09-JAN-19
HG-D-UG/L-CVAA-WT	**Water**							

Quality Control Report

Client: DS Consultants (Vaughan)
6221 Highway 7 Unit 16
Vaughan ON L4H 0K8
Contact: Shafi Andseta

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-D-UG/L-CVAA-WT	**Water**							
Batch R4434974								
WG2966270-3 DUP		**L2217334-1**						
Mercury (Hg)-Dissolved		<0.010	<0.010	RPD-NA	ug/L	N/A	20	09-JAN-19
WG2966270-2 LCS								
Mercury (Hg)-Dissolved			105.0		%		80-120	09-JAN-19
WG2966270-1 MB								
Mercury (Hg)-Dissolved			<0.010		ug/L		0.01	09-JAN-19
WG2966270-4 MS		**L2217334-2**						
Mercury (Hg)-Dissolved			81.8		%		70-130	09-JAN-19
MET-D-UG/L-MS-WT	**Water**							
Batch R4435347								
WG2966167-4 DUP		**WG2966167-3**						
Antimony (Sb)-Dissolved		0.33	0.32		ug/L	4.0	20	09-JAN-19
Arsenic (As)-Dissolved		3.60	3.61		ug/L	0.4	20	09-JAN-19
Barium (Ba)-Dissolved		76.0	76.3		ug/L	0.4	20	09-JAN-19
Beryllium (Be)-Dissolved		<0.10	<0.10	RPD-NA	ug/L	N/A	20	09-JAN-19
Boron (B)-Dissolved		265	276		ug/L	4.1	20	09-JAN-19
Cadmium (Cd)-Dissolved		0.0114	0.0058	J	ug/L	0.0055	0.01	09-JAN-19
Chromium (Cr)-Dissolved		<0.50	<0.50	RPD-NA	ug/L	N/A	20	09-JAN-19
Cobalt (Co)-Dissolved		0.24	0.24		ug/L	0.9	20	09-JAN-19
Copper (Cu)-Dissolved		1.14	1.13		ug/L	0.6	20	09-JAN-19
Lead (Pb)-Dissolved		0.139	0.144		ug/L	3.1	20	09-JAN-19
Molybdenum (Mo)-Dissolved		22.7	23.2		ug/L	2.3	20	09-JAN-19
Nickel (Ni)-Dissolved		1.56	1.53		ug/L	2.0	20	09-JAN-19
Selenium (Se)-Dissolved		0.285	0.298		ug/L	4.4	20	09-JAN-19
Silver (Ag)-Dissolved		<0.050	<0.050	RPD-NA	ug/L	N/A	20	09-JAN-19
Sodium (Na)-Dissolved		29000	29300		ug/L	0.9	20	09-JAN-19
Thallium (Tl)-Dissolved		0.027	0.029		ug/L	9.6	20	09-JAN-19
Uranium (U)-Dissolved		7.77	8.02		ug/L	3.1	20	09-JAN-19
Vanadium (V)-Dissolved		2.12	2.11		ug/L	0.5	20	09-JAN-19
Zinc (Zn)-Dissolved		6.6	6.3		ug/L	3.4	20	09-JAN-19
WG2966168-4 DUP		**WG2966168-3**						
Antimony (Sb)-Dissolved		0.13	0.12		ug/L	6.5	20	09-JAN-19
Arsenic (As)-Dissolved		0.61	0.59		ug/L	2.5	20	09-JAN-19
Barium (Ba)-Dissolved		67.3	66.5		ug/L	1.2	20	09-JAN-19
Beryllium (Be)-Dissolved		<0.10	<0.10	RPD-NA	ug/L	N/A	20	09-JAN-19

Quality Control Report

Client: DS Consultants (Vaughan)
6221 Highway 7 Unit 16
Vaughan ON L4H 0K8
Contact: Shafi Andseta

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-UG/L-MS-WT	**Water**							
Batch R4435347								
WG2966168-4 DUP		**WG2966168-3**						
Boron (B)-Dissolved		115	117		ug/L	1.5	20	09-JAN-19
Cadmium (Cd)-Dissolved		<0.0050	<0.0050	RPD-NA	ug/L	N/A	20	09-JAN-19
Chromium (Cr)-Dissolved		<0.50	<0.50	RPD-NA	ug/L	N/A	20	09-JAN-19
Cobalt (Co)-Dissolved		0.12	0.12		ug/L	4.2	20	09-JAN-19
Copper (Cu)-Dissolved		0.41	0.40		ug/L	2.7	20	09-JAN-19
Lead (Pb)-Dissolved		<0.050	<0.050	RPD-NA	ug/L	N/A	20	09-JAN-19
Molybdenum (Mo)-Dissolved		6.03	6.23		ug/L	3.1	20	09-JAN-19
Nickel (Ni)-Dissolved		0.85	0.85		ug/L	0.0	20	09-JAN-19
Selenium (Se)-Dissolved		0.693	0.659		ug/L	5.0	20	09-JAN-19
Silver (Ag)-Dissolved		<0.050	<0.050	RPD-NA	ug/L	N/A	20	09-JAN-19
Sodium (Na)-Dissolved		17600	17300		ug/L	1.7	20	09-JAN-19
Thallium (Tl)-Dissolved		0.016	0.016		ug/L	0.3	20	09-JAN-19
Uranium (U)-Dissolved		4.86	4.80		ug/L	1.2	20	09-JAN-19
Vanadium (V)-Dissolved		0.63	0.63		ug/L	0.3	20	09-JAN-19
Zinc (Zn)-Dissolved		<1.0	<1.0	RPD-NA	ug/L	N/A	20	09-JAN-19
WG2966167-2 LCS								
Antimony (Sb)-Dissolved			102.5		%		80-120	09-JAN-19
Arsenic (As)-Dissolved			102.6		%		80-120	09-JAN-19
Barium (Ba)-Dissolved			106.6		%		80-120	09-JAN-19
Beryllium (Be)-Dissolved			106.5		%		80-120	09-JAN-19
Boron (B)-Dissolved			105.7		%		80-120	09-JAN-19
Cadmium (Cd)-Dissolved			102.4		%		80-120	09-JAN-19
Chromium (Cr)-Dissolved			101.8		%		80-120	09-JAN-19
Cobalt (Co)-Dissolved			99.7		%		80-120	09-JAN-19
Copper (Cu)-Dissolved			98.8		%		80-120	09-JAN-19
Lead (Pb)-Dissolved			101.4		%		80-120	09-JAN-19
Molybdenum (Mo)-Dissolved			106.1		%		80-120	09-JAN-19
Nickel (Ni)-Dissolved			99.5		%		80-120	09-JAN-19
Selenium (Se)-Dissolved			97.0		%		80-120	09-JAN-19
Silver (Ag)-Dissolved			104.8		%		80-120	09-JAN-19
Sodium (Na)-Dissolved			100.9		%		80-120	09-JAN-19
Thallium (Tl)-Dissolved			102.5		%		80-120	09-JAN-19
Uranium (U)-Dissolved			106.9		%		80-120	09-JAN-19

Quality Control Report

Client: DS Consultants (Vaughan)
6221 Highway 7 Unit 16
Vaughan ON L4H 0K8
Contact: Shafi Andseta

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-UG/L-MS-WT	**Water**							
Batch R4435347								
WG2966167-2 LCS								
Vanadium (V)-Dissolved			102.4		%		80-120	09-JAN-19
Zinc (Zn)-Dissolved			101.4		%		80-120	09-JAN-19
WG2966168-2 LCS								
Antimony (Sb)-Dissolved			105.4		%		80-120	09-JAN-19
Arsenic (As)-Dissolved			101.6		%		80-120	09-JAN-19
Barium (Ba)-Dissolved			103.5		%		80-120	09-JAN-19
Beryllium (Be)-Dissolved			104.3		%		80-120	09-JAN-19
Boron (B)-Dissolved			101.7		%		80-120	09-JAN-19
Cadmium (Cd)-Dissolved			103.0		%		80-120	09-JAN-19
Chromium (Cr)-Dissolved			102.2		%		80-120	09-JAN-19
Cobalt (Co)-Dissolved			100.2		%		80-120	09-JAN-19
Copper (Cu)-Dissolved			98.6		%		80-120	09-JAN-19
Lead (Pb)-Dissolved			100.6		%		80-120	09-JAN-19
Molybdenum (Mo)-Dissolved			103.5		%		80-120	09-JAN-19
Nickel (Ni)-Dissolved			99.0		%		80-120	09-JAN-19
Selenium (Se)-Dissolved			97.4		%		80-120	09-JAN-19
Silver (Ag)-Dissolved			107.9		%		80-120	09-JAN-19
Sodium (Na)-Dissolved			98.9		%		80-120	09-JAN-19
Thallium (Tl)-Dissolved			104.4		%		80-120	09-JAN-19
Uranium (U)-Dissolved			105.1		%		80-120	09-JAN-19
Vanadium (V)-Dissolved			102.7		%		80-120	09-JAN-19
Zinc (Zn)-Dissolved			101.5		%		80-120	09-JAN-19
WG2966167-1 MB								
Antimony (Sb)-Dissolved			<0.10		ug/L		0.1	09-JAN-19
Arsenic (As)-Dissolved			<0.10		ug/L		0.1	09-JAN-19
Barium (Ba)-Dissolved			<0.10		ug/L		0.1	09-JAN-19
Beryllium (Be)-Dissolved			<0.10		ug/L		0.1	09-JAN-19
Boron (B)-Dissolved			<10		ug/L		10	09-JAN-19
Cadmium (Cd)-Dissolved			<0.0050		ug/L		0.005	09-JAN-19
Chromium (Cr)-Dissolved			<0.50		ug/L		0.5	09-JAN-19
Cobalt (Co)-Dissolved			<0.10		ug/L		0.1	09-JAN-19
Copper (Cu)-Dissolved			<0.20		ug/L		0.2	09-JAN-19
Lead (Pb)-Dissolved			<0.050		ug/L		0.05	09-JAN-19
Molybdenum (Mo)-Dissolved			<0.050		ug/L		0.05	09-JAN-19

Quality Control Report

Client: DS Consultants (Vaughan)
6221 Highway 7 Unit 16
Vaughan ON L4H 0K8
Contact: Shafi Andseta

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-UG/L-MS-WT	**Water**							
Batch R4435347								
WG2966167-1 MB								
Nickel (Ni)-Dissolved			<0.50		ug/L		0.5	09-JAN-19
Selenium (Se)-Dissolved			<0.050		ug/L		0.05	09-JAN-19
Silver (Ag)-Dissolved			<0.050		ug/L		0.05	09-JAN-19
Sodium (Na)-Dissolved			<50		ug/L		50	09-JAN-19
Thallium (Tl)-Dissolved			<0.010		ug/L		0.01	09-JAN-19
Uranium (U)-Dissolved			<0.010		ug/L		0.01	09-JAN-19
Vanadium (V)-Dissolved			<0.50		ug/L		0.5	09-JAN-19
Zinc (Zn)-Dissolved			<1.0		ug/L		1	09-JAN-19
WG2966168-1 MB								
Antimony (Sb)-Dissolved			<0.10		ug/L		0.1	09-JAN-19
Arsenic (As)-Dissolved			<0.10		ug/L		0.1	09-JAN-19
Barium (Ba)-Dissolved			<0.10		ug/L		0.1	09-JAN-19
Beryllium (Be)-Dissolved			<0.10		ug/L		0.1	09-JAN-19
Boron (B)-Dissolved			<10		ug/L		10	09-JAN-19
Cadmium (Cd)-Dissolved			<0.0050		ug/L		0.005	09-JAN-19
Chromium (Cr)-Dissolved			<0.50		ug/L		0.5	09-JAN-19
Cobalt (Co)-Dissolved			<0.10		ug/L		0.1	09-JAN-19
Copper (Cu)-Dissolved			<0.20		ug/L		0.2	09-JAN-19
Lead (Pb)-Dissolved			<0.050		ug/L		0.05	09-JAN-19
Molybdenum (Mo)-Dissolved			<0.050		ug/L		0.05	09-JAN-19
Nickel (Ni)-Dissolved			<0.50		ug/L		0.5	09-JAN-19
Selenium (Se)-Dissolved			<0.050		ug/L		0.05	09-JAN-19
Silver (Ag)-Dissolved			<0.050		ug/L		0.05	09-JAN-19
Sodium (Na)-Dissolved			<50		ug/L		50	09-JAN-19
Thallium (Tl)-Dissolved			<0.010		ug/L		0.01	09-JAN-19
Uranium (U)-Dissolved			<0.010		ug/L		0.01	09-JAN-19
Vanadium (V)-Dissolved			<0.50		ug/L		0.5	09-JAN-19
Zinc (Zn)-Dissolved			<1.0		ug/L		1	09-JAN-19
WG2966167-5 MS		**WG2966167-3**						
Antimony (Sb)-Dissolved			99.6		%		70-130	09-JAN-19
Arsenic (As)-Dissolved			101.6		%		70-130	09-JAN-19
Barium (Ba)-Dissolved			N/A	MS-B	%		-	09-JAN-19
Beryllium (Be)-Dissolved			101.9		%		70-130	09-JAN-19
Boron (B)-Dissolved			N/A	MS-B	%		-	09-JAN-19

Quality Control Report

Client: DS Consultants (Vaughan)
6221 Highway 7 Unit 16
Vaughan ON L4H 0K8
Contact: Shafi Andseta

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-UG/L-MS-WT	**Water**							
Batch R4435347								
WG2966167-5 MS		**WG2966167-3**						
Cadmium (Cd)-Dissolved			102.9		%		70-130	09-JAN-19
Chromium (Cr)-Dissolved			100.9		%		70-130	09-JAN-19
Cobalt (Co)-Dissolved			96.1		%		70-130	09-JAN-19
Copper (Cu)-Dissolved			94.0		%		70-130	09-JAN-19
Lead (Pb)-Dissolved			95.1		%		70-130	09-JAN-19
Molybdenum (Mo)-Dissolved			N/A	MS-B	%		-	09-JAN-19
Nickel (Ni)-Dissolved			93.2		%		70-130	09-JAN-19
Selenium (Se)-Dissolved			101.9		%		70-130	09-JAN-19
Silver (Ag)-Dissolved			88.1		%		70-130	09-JAN-19
Sodium (Na)-Dissolved			N/A	MS-B	%		-	09-JAN-19
Thallium (Tl)-Dissolved			97.6		%		70-130	09-JAN-19
Uranium (U)-Dissolved			N/A	MS-B	%		-	09-JAN-19
Vanadium (V)-Dissolved			103.6		%		70-130	09-JAN-19
Zinc (Zn)-Dissolved			93.5		%		70-130	09-JAN-19
WG2966168-5 MS		**WG2966168-6**						
Antimony (Sb)-Dissolved			100.9		%		70-130	09-JAN-19
Arsenic (As)-Dissolved			101.9		%		70-130	09-JAN-19
Barium (Ba)-Dissolved			N/A	MS-B	%		-	09-JAN-19
Beryllium (Be)-Dissolved			105.4		%		70-130	09-JAN-19
Boron (B)-Dissolved			N/A	MS-B	%		-	09-JAN-19
Cadmium (Cd)-Dissolved			103.2		%		70-130	09-JAN-19
Chromium (Cr)-Dissolved			97.2		%		70-130	09-JAN-19
Cobalt (Co)-Dissolved			95.3		%		70-130	09-JAN-19
Copper (Cu)-Dissolved			91.8		%		70-130	09-JAN-19
Lead (Pb)-Dissolved			97.1		%		70-130	09-JAN-19
Molybdenum (Mo)-Dissolved			96.8		%		70-130	09-JAN-19
Nickel (Ni)-Dissolved			92.1		%		70-130	09-JAN-19
Selenium (Se)-Dissolved			98.6		%		70-130	09-JAN-19
Silver (Ag)-Dissolved			97.8		%		70-130	10-JAN-19
Sodium (Na)-Dissolved			N/A	MS-B	%		-	09-JAN-19
Thallium (Tl)-Dissolved			101.3		%		70-130	09-JAN-19
Uranium (U)-Dissolved			N/A	MS-B	%		-	09-JAN-19
Vanadium (V)-Dissolved			102.3		%		70-130	09-JAN-19
Zinc (Zn)-Dissolved			95.2		%		70-130	09-JAN-19

Quality Control Report

Client: DS Consultants (Vaughan)
6221 Highway 7 Unit 16
Vaughan ON L4H 0K8
Contact: Shafi Andseta

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Water**							
Batch R4436309								
WG2966113-2 LCS								
1-Methylnaphthalene			109.4		%		50-140	09-JAN-19
2-Methylnaphthalene			107.4		%		50-140	09-JAN-19
Acenaphthene			111.6		%		50-140	09-JAN-19
Acenaphthylene			113.8		%		50-140	09-JAN-19
Anthracene			118.1		%		50-140	09-JAN-19
Benzo(a)anthracene			121.0		%		50-140	09-JAN-19
Benzo(a)pyrene			111.0		%		50-140	09-JAN-19
Benzo(b)fluoranthene			101.0		%		50-140	09-JAN-19
Benzo(g,h,i)perylene			113.0		%		50-140	09-JAN-19
Benzo(k)fluoranthene			106.8		%		50-140	09-JAN-19
Chrysene			126.1		%		50-140	09-JAN-19
Dibenzo(ah)anthracene			117.1		%		50-140	09-JAN-19
Fluoranthene			117.9		%		50-140	09-JAN-19
Fluorene			114.0		%		50-140	09-JAN-19
Indeno(1,2,3-cd)pyrene			126.9		%		50-140	09-JAN-19
Naphthalene			108.4		%		50-140	09-JAN-19
Phenanthrene			118.4		%		50-140	09-JAN-19
Pyrene			119.8		%		50-140	09-JAN-19
WG2966113-3 LCSD		**WG2966113-2**						
1-Methylnaphthalene		109.4	105.8		%	3.3	50	09-JAN-19
2-Methylnaphthalene		107.4	101.9		%	5.2	50	09-JAN-19
Acenaphthene		111.6	105.8		%	5.3	50	09-JAN-19
Acenaphthylene		113.8	108.8		%	4.5	50	09-JAN-19
Anthracene		118.1	114.3		%	3.2	50	09-JAN-19
Benzo(a)anthracene		121.0	115.6		%	4.5	50	09-JAN-19
Benzo(a)pyrene		111.0	107.3		%	3.4	50	09-JAN-19
Benzo(b)fluoranthene		101.0	100.9		%	0.1	50	09-JAN-19
Benzo(g,h,i)perylene		113.0	109.5		%	3.1	50	09-JAN-19
Benzo(k)fluoranthene		106.8	107.0		%	0.2	50	09-JAN-19
Chrysene		126.1	117.0		%	7.4	50	09-JAN-19
Dibenzo(ah)anthracene		117.1	113.2		%	3.4	50	09-JAN-19
Fluoranthene		117.9	113.6		%	3.7	50	09-JAN-19
Fluorene		114.0	109.9		%	3.6	50	09-JAN-19

Quality Control Report

Client: DS Consultants (Vaughan)
6221 Highway 7 Unit 16
Vaughan ON L4H 0K8
Contact: Shafi Andseta

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-511-WT	**Water**							
Batch R4436309								
WG2966113-3 LCSD		**WG2966113-2**						
Indeno(1,2,3-cd)pyrene		126.9	124.9		%	1.6	50	09-JAN-19
Naphthalene		108.4	103.2		%	4.9	50	09-JAN-19
Phenanthrene		118.4	114.6		%	3.2	50	09-JAN-19
Pyrene		119.8	113.8		%	5.1	50	09-JAN-19
WG2966113-1 MB								
1-Methylnaphthalene			<0.020		ug/L		0.02	09-JAN-19
2-Methylnaphthalene			<0.020		ug/L		0.02	09-JAN-19
Acenaphthene			<0.020		ug/L		0.02	09-JAN-19
Acenaphthylene			<0.020		ug/L		0.02	09-JAN-19
Anthracene			<0.020		ug/L		0.02	09-JAN-19
Benzo(a)anthracene			<0.020		ug/L		0.02	09-JAN-19
Benzo(a)pyrene			<0.010		ug/L		0.01	09-JAN-19
Benzo(b)fluoranthene			<0.020		ug/L		0.02	09-JAN-19
Benzo(g,h,i)perylene			<0.020		ug/L		0.02	09-JAN-19
Benzo(k)fluoranthene			<0.020		ug/L		0.02	09-JAN-19
Chrysene			<0.020		ug/L		0.02	09-JAN-19
Dibenzo(ah)anthracene			<0.020		ug/L		0.02	09-JAN-19
Fluoranthene			<0.020		ug/L		0.02	09-JAN-19
Fluorene			<0.020		ug/L		0.02	09-JAN-19
Indeno(1,2,3-cd)pyrene			<0.020		ug/L		0.02	09-JAN-19
Naphthalene			<0.050		ug/L		0.05	09-JAN-19
Phenanthrene			<0.020		ug/L		0.02	09-JAN-19
Pyrene			<0.020		ug/L		0.02	09-JAN-19
Surrogate: d8-Naphthalene			97.1		%		60-140	09-JAN-19
Surrogate: d10-Phenanthrene			113.5		%		60-140	09-JAN-19
Surrogate: d12-Chrysene			103.1		%		60-140	09-JAN-19
Surrogate: d10-Acenaphthene			107.8		%		60-140	09-JAN-19
PEST-OC-511-WT	**Water**							
Batch R4447011								
WG2966203-2 LCS								
Aldrin			88.6		%		50-140	15-JAN-19
a-chlordane			91.9		%		50-140	15-JAN-19
g-chlordane			92.0		%		50-140	15-JAN-19
o,p-DDD			88.6		%		50-140	15-JAN-19

Quality Control Report

Client: DS Consultants (Vaughan)
6221 Highway 7 Unit 16
Vaughan ON L4H 0K8
Contact: Shafi Andseta

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PEST-OC-511-WT	**Water**							
Batch R4447011								
WG2966203-2 LCS								
pp-DDD			87.1		%		50-140	15-JAN-19
o,p-DDE			89.6		%		50-140	15-JAN-19
pp-DDE			85.8		%		50-140	15-JAN-19
op-DDT			115.7		%		50-140	15-JAN-19
pp-DDT			127.9		%		50-140	15-JAN-19
Dieldrin			96.5		%		50-140	15-JAN-19
Endosulfan I			92.2		%		50-140	15-JAN-19
Endosulfan II			93.2		%		50-140	15-JAN-19
Endrin			123.6		%		50-140	15-JAN-19
gamma-hexachlorocyclohexane			95.5		%		50-140	15-JAN-19
Heptachlor			105.1		%		50-140	15-JAN-19
Heptachlor Epoxide			108.2		%		50-140	15-JAN-19
Hexachlorobenzene			82.8		%		40-130	15-JAN-19
Hexachlorobutadiene			67.0		%		40-130	15-JAN-19
Hexachloroethane			57.9		%		40-130	15-JAN-19
Methoxychlor			145.9	LCS-H	%		50-140	15-JAN-19
WG2966203-1 MB								
Aldrin			<0.010		ug/L		0.01	15-JAN-19
a-chlordane			<0.040		ug/L		0.04	15-JAN-19
g-chlordane			<0.040		ug/L		0.04	15-JAN-19
o,p-DDD			<0.030		ug/L		0.03	15-JAN-19
pp-DDD			<0.030		ug/L		0.03	15-JAN-19
o,p-DDE			<0.0080		ug/L		0.008	15-JAN-19
pp-DDE			<0.0080		ug/L		0.008	15-JAN-19
op-DDT			<0.030		ug/L		0.03	15-JAN-19
pp-DDT			<0.030		ug/L		0.03	15-JAN-19
Dieldrin			<0.050		ug/L		0.05	15-JAN-19
Endosulfan I			<0.030		ug/L		0.03	15-JAN-19
Endosulfan II			<0.030		ug/L		0.03	15-JAN-19
Endrin			<0.040		ug/L		0.04	15-JAN-19
gamma-hexachlorocyclohexane			<0.010		ug/L		0.01	15-JAN-19
Heptachlor			<0.010		ug/L		0.01	15-JAN-19
Heptachlor Epoxide			<0.010		ug/L		0.01	15-JAN-19
Hexachlorobenzene			<0.010		ug/L		0.01	15-JAN-19

Quality Control Report

Client: DS Consultants (Vaughan)
6221 Highway 7 Unit 16
Vaughan ON L4H 0K8
Contact: Shafi Andseta

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PEST-OC-511-WT	**Water**							
Batch R4447011								
WG2966203-1 MB								
Hexachlorobutadiene			<0.010		ug/L		0.01	15-JAN-19
Hexachloroethane			<0.010		ug/L		0.01	15-JAN-19
Methoxychlor			<0.050		ug/L		0.05	15-JAN-19
Surrogate: 2-Fluorobiphenyl			95.8		%		50-140	15-JAN-19
Surrogate: d14-Terphenyl			97.4		%		60-140	15-JAN-19
PH-WT	**Water**							
Batch R4437536								
WG2966443-4 DUP		**WG2966443-3**						
pH		7.69	7.66	J	pH units	0.03	0.2	09-JAN-19
WG2966443-2 LCS								
pH			7.00		pH units		6.9-7.1	09-JAN-19
VOC-511-HS-WT	**Water**							
Batch R4438097								
WG2961410-4 DUP		**WG2961410-3**						
1,1,1,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	10-JAN-19
1,1,2,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	10-JAN-19
1,1,1-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	10-JAN-19
1,1,2-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	10-JAN-19
1,1-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	10-JAN-19
1,1-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	10-JAN-19
1,2-Dibromoethane		<0.20	<0.20	RPD-NA	ug/L	N/A	30	10-JAN-19
1,2-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	10-JAN-19
1,2-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	10-JAN-19
1,2-Dichloropropane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	10-JAN-19
1,3-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	10-JAN-19
1,4-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	10-JAN-19
Acetone		<30	<30	RPD-NA	ug/L	N/A	30	10-JAN-19
Benzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	10-JAN-19
Bromodichloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	10-JAN-19
Bromoform		<5.0	<5.0	RPD-NA	ug/L	N/A	30	10-JAN-19
Bromomethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	10-JAN-19
Carbon tetrachloride		<0.20	<0.20	RPD-NA	ug/L	N/A	30	10-JAN-19
Chlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	10-JAN-19

Quality Control Report

Client: DS Consultants (Vaughan)
6221 Highway 7 Unit 16
Vaughan ON L4H 0K8
Contact: Shafi Andseta

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R4438097								
WG2961410-4 DUP		**WG2961410-3**						
Chloroform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	10-JAN-19
cis-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	10-JAN-19
cis-1,3-Dichloropropene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	10-JAN-19
Dibromochloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	10-JAN-19
Dichlorodifluoromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	10-JAN-19
Ethylbenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	10-JAN-19
n-Hexane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	10-JAN-19
m+p-Xylenes		<0.40	<0.40	RPD-NA	ug/L	N/A	30	10-JAN-19
Methyl Ethyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	10-JAN-19
Methyl Isobutyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	10-JAN-19
Methylene Chloride		<5.0	<5.0	RPD-NA	ug/L	N/A	30	10-JAN-19
MTBE		<2.0	<2.0	RPD-NA	ug/L	N/A	30	10-JAN-19
o-Xylene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	10-JAN-19
Styrene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	10-JAN-19
Tetrachloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	10-JAN-19
Toluene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	10-JAN-19
trans-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	10-JAN-19
trans-1,3-Dichloropropene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	10-JAN-19
Trichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	10-JAN-19
Trichlorofluoromethane		<5.0	<5.0	RPD-NA	ug/L	N/A	30	10-JAN-19
Vinyl chloride		<0.50	<0.50	RPD-NA	ug/L	N/A	30	10-JAN-19
WG2961410-1 LCS								
1,1,1,2-Tetrachloroethane			98.4		%		70-130	10-JAN-19
1,1,2,2-Tetrachloroethane			106.8		%		70-130	10-JAN-19
1,1,1-Trichloroethane			101.2		%		70-130	10-JAN-19
1,1,2-Trichloroethane			106.8		%		70-130	10-JAN-19
1,1-Dichloroethane			103.4		%		70-130	10-JAN-19
1,1-Dichloroethylene			105.8		%		70-130	10-JAN-19
1,2-Dibromoethane			102.4		%		70-130	10-JAN-19
1,2-Dichlorobenzene			106.2		%		70-130	10-JAN-19
1,2-Dichloroethane			103.6		%		70-130	10-JAN-19
1,2-Dichloropropane			99.8		%		70-130	10-JAN-19
1,3-Dichlorobenzene			111.1		%		70-130	10-JAN-19

Quality Control Report

Client: DS Consultants (Vaughan)
6221 Highway 7 Unit 16
Vaughan ON L4H 0K8
Contact: Shafi Andseta

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R4438097								
WG2961410-1 LCS								
1,4-Dichlorobenzene			111.4		%		70-130	10-JAN-19
Acetone			121.9		%		60-140	10-JAN-19
Benzene			106.9		%		70-130	10-JAN-19
Bromodichloromethane			94.0		%		70-130	10-JAN-19
Bromoform			95.7		%		70-130	10-JAN-19
Bromomethane			128.5		%		60-140	10-JAN-19
Carbon tetrachloride			102.2		%		70-130	10-JAN-19
Chlorobenzene			104.9		%		70-130	10-JAN-19
Chloroform			98.4		%		70-130	10-JAN-19
cis-1,2-Dichloroethylene			99.2		%		70-130	10-JAN-19
cis-1,3-Dichloropropene			98.3		%		70-130	10-JAN-19
Dibromochloromethane			99.0		%		70-130	10-JAN-19
Dichlorodifluoromethane			104.6		%		50-140	10-JAN-19
Ethylbenzene			106.5		%		70-130	10-JAN-19
n-Hexane			113.7		%		70-130	10-JAN-19
m+p-Xylenes			103.2		%		70-130	10-JAN-19
Methyl Ethyl Ketone			119.7		%		60-140	10-JAN-19
Methyl Isobutyl Ketone			97.5		%		60-140	10-JAN-19
Methylene Chloride			108.6		%		70-130	10-JAN-19
MTBE			107.4		%		70-130	10-JAN-19
o-Xylene			102.5		%		70-130	10-JAN-19
Styrene			101.4		%		70-130	10-JAN-19
Tetrachloroethylene			110.4		%		70-130	10-JAN-19
Toluene			106.4		%		70-130	10-JAN-19
trans-1,2-Dichloroethylene			106.5		%		70-130	10-JAN-19
trans-1,3-Dichloropropene			100.1		%		70-130	10-JAN-19
Trichloroethylene			106.2		%		70-130	10-JAN-19
Trichlorofluoromethane			113.9		%		60-140	10-JAN-19
Vinyl chloride			93.5		%		60-140	10-JAN-19
WG2961410-2 MB								
1,1,1,2-Tetrachloroethane			<0.50		ug/L		0.5	10-JAN-19
1,1,2,2-Tetrachloroethane			<0.50		ug/L		0.5	10-JAN-19
1,1,1-Trichloroethane			<0.50		ug/L		0.5	10-JAN-19
1,1,2-Trichloroethane			<0.50		ug/L		0.5	10-JAN-19

Quality Control Report

Client: DS Consultants (Vaughan)
6221 Highway 7 Unit 16
Vaughan ON L4H 0K8
Contact: Shafi Andseta

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R4438097								
WG2961410-2 MB								
1,1-Dichloroethane			<0.50		ug/L		0.5	10-JAN-19
1,1-Dichloroethylene			<0.50		ug/L		0.5	10-JAN-19
1,2-Dibromoethane			<0.20		ug/L		0.2	10-JAN-19
1,2-Dichlorobenzene			<0.50		ug/L		0.5	10-JAN-19
1,2-Dichloroethane			<0.50		ug/L		0.5	10-JAN-19
1,2-Dichloropropane			<0.50		ug/L		0.5	10-JAN-19
1,3-Dichlorobenzene			<0.50		ug/L		0.5	10-JAN-19
1,4-Dichlorobenzene			<0.50		ug/L		0.5	10-JAN-19
Acetone			<30		ug/L		30	10-JAN-19
Benzene			<0.50		ug/L		0.5	10-JAN-19
Bromodichloromethane			<2.0		ug/L		2	10-JAN-19
Bromoform			<5.0		ug/L		5	10-JAN-19
Bromomethane			<0.50		ug/L		0.5	10-JAN-19
Carbon tetrachloride			<0.20		ug/L		0.2	10-JAN-19
Chlorobenzene			<0.50		ug/L		0.5	10-JAN-19
Chloroform			<1.0		ug/L		1	10-JAN-19
cis-1,2-Dichloroethylene			<0.50		ug/L		0.5	10-JAN-19
cis-1,3-Dichloropropene			<0.30		ug/L		0.3	10-JAN-19
Dibromochloromethane			<2.0		ug/L		2	10-JAN-19
Dichlorodifluoromethane			<2.0		ug/L		2	10-JAN-19
Ethylbenzene			<0.50		ug/L		0.5	10-JAN-19
n-Hexane			<0.50		ug/L		0.5	10-JAN-19
m+p-Xylenes			<0.40		ug/L		0.4	10-JAN-19
Methyl Ethyl Ketone			<20		ug/L		20	10-JAN-19
Methyl Isobutyl Ketone			<20		ug/L		20	10-JAN-19
Methylene Chloride			<5.0		ug/L		5	10-JAN-19
MTBE			<2.0		ug/L		2	10-JAN-19
o-Xylene			<0.30		ug/L		0.3	10-JAN-19
Styrene			<0.50		ug/L		0.5	10-JAN-19
Tetrachloroethylene			<0.50		ug/L		0.5	10-JAN-19
Toluene			<0.50		ug/L		0.5	10-JAN-19
trans-1,2-Dichloroethylene			<0.50		ug/L		0.5	10-JAN-19
trans-1,3-Dichloropropene			<0.30		ug/L		0.3	10-JAN-19

Quality Control Report

Client: DS Consultants (Vaughan)
6221 Highway 7 Unit 16
Vaughan ON L4H 0K8
Contact: Shafi Andseta

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch	**R4438097**							
WG2961410-2	**MB**							
Trichloroethylene			<0.50		ug/L		0.5	10-JAN-19
Trichlorofluoromethane			<5.0		ug/L		5	10-JAN-19
Vinyl chloride			<0.50		ug/L		0.5	10-JAN-19
Surrogate: 1,4-Difluorobenzene			101.8		%		70-130	10-JAN-19
Surrogate: 4-Bromofluorobenzene			98.7		%		70-130	10-JAN-19
WG2961410-5	**MS**	**WG2961410-3**						
1,1,1,2-Tetrachloroethane			101.0		%		50-140	10-JAN-19
1,1,2,2-Tetrachloroethane			116.3		%		50-140	10-JAN-19
1,1,1-Trichloroethane			102.3		%		50-140	10-JAN-19
1,1,2-Trichloroethane			113.0		%		50-140	10-JAN-19
1,1-Dichloroethane			106.0		%		50-140	10-JAN-19
1,1-Dichloroethylene			103.1		%		50-140	10-JAN-19
1,2-Dibromoethane			108.7		%		50-140	10-JAN-19
1,2-Dichlorobenzene			106.3		%		50-140	10-JAN-19
1,2-Dichloroethane			105.5		%		50-140	10-JAN-19
1,2-Dichloropropane			102.6		%		50-140	10-JAN-19
1,3-Dichlorobenzene			107.2		%		50-140	10-JAN-19
1,4-Dichlorobenzene			107.5		%		50-140	10-JAN-19
Acetone			120.7		%		50-140	10-JAN-19
Benzene			109.2		%		50-140	10-JAN-19
Bromodichloromethane			99.2		%		50-140	10-JAN-19
Bromoform			102.3		%		50-140	10-JAN-19
Bromomethane			124.5		%		50-140	10-JAN-19
Carbon tetrachloride			98.7		%		50-140	10-JAN-19
Chlorobenzene			105.4		%		50-140	10-JAN-19
Chloroform			101.3		%		50-140	10-JAN-19
cis-1,2-Dichloroethylene			101.2		%		50-140	10-JAN-19
cis-1,3-Dichloropropene			95.3		%		50-140	10-JAN-19
Dibromochloromethane			103.9		%		50-140	10-JAN-19
Dichlorodifluoromethane			91.4		%		50-140	10-JAN-19
Ethylbenzene			104.6		%		50-140	10-JAN-19
n-Hexane			108.3		%		50-140	10-JAN-19
m+p-Xylenes			100.9		%		50-140	10-JAN-19
Methyl Ethyl Ketone			110.0		%		50-140	10-JAN-19

Quality Control Report

Client: DS Consultants (Vaughan)
6221 Highway 7 Unit 16
Vaughan ON L4H 0K8
Contact: Shafi Andseta

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	**Water**							
Batch R4438097								
WG2961410-5 MS		**WG2961410-3**						
Methyl Isobutyl Ketone			107.0		%		50-140	10-JAN-19
Methylene Chloride			110.8		%		50-140	10-JAN-19
MTBE			106.7		%		50-140	10-JAN-19
o-Xylene			102.0		%		50-140	10-JAN-19
Styrene			101.6		%		50-140	10-JAN-19
Tetrachloroethylene			105.1		%		50-140	10-JAN-19
Toluene			106.0		%		50-140	10-JAN-19
trans-1,2-Dichloroethylene			102.3		%		50-140	10-JAN-19
trans-1,3-Dichloropropene			98.0		%		50-140	10-JAN-19
Trichloroethylene			103.1		%		50-140	10-JAN-19
Trichlorofluoromethane			109.3		%		50-140	10-JAN-19
Vinyl chloride			89.1		%		50-140	10-JAN-19

Quality Control Report

Workorder: L2217334 Report Date: 15-JAN-19

Client: DS Consultants (Vaughan)
6221 Highway 7 Unit 16
Vaughan ON L4H 0K8
Contact: Shafi Andseta

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
LCS-H	Lab Control Sample recovery was above ALS DQO. Non-detected sample results are considered reliable. Other results, if reported, have been qualified.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

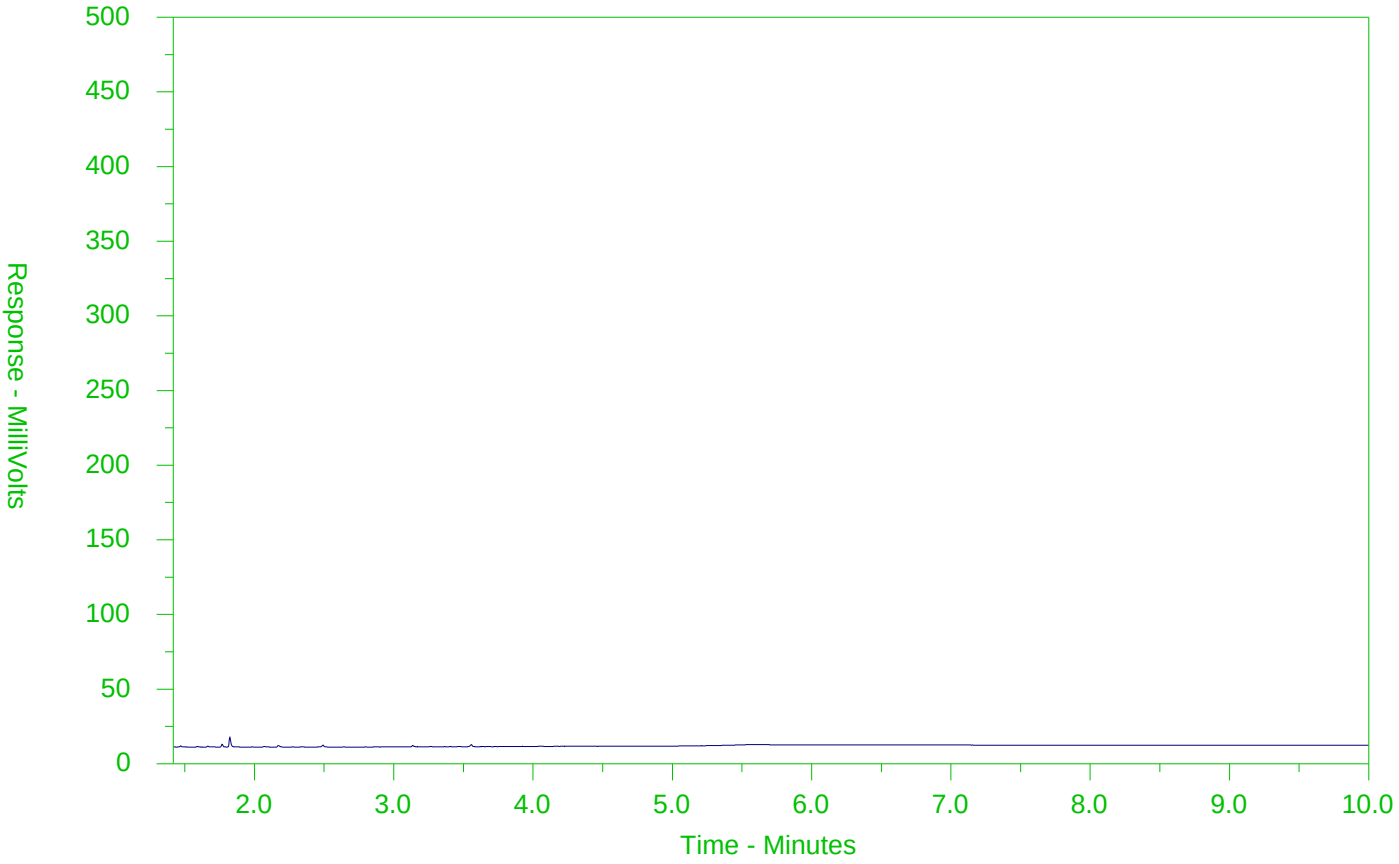
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2217334-1
Client Sample ID: BH18-1



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →	← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

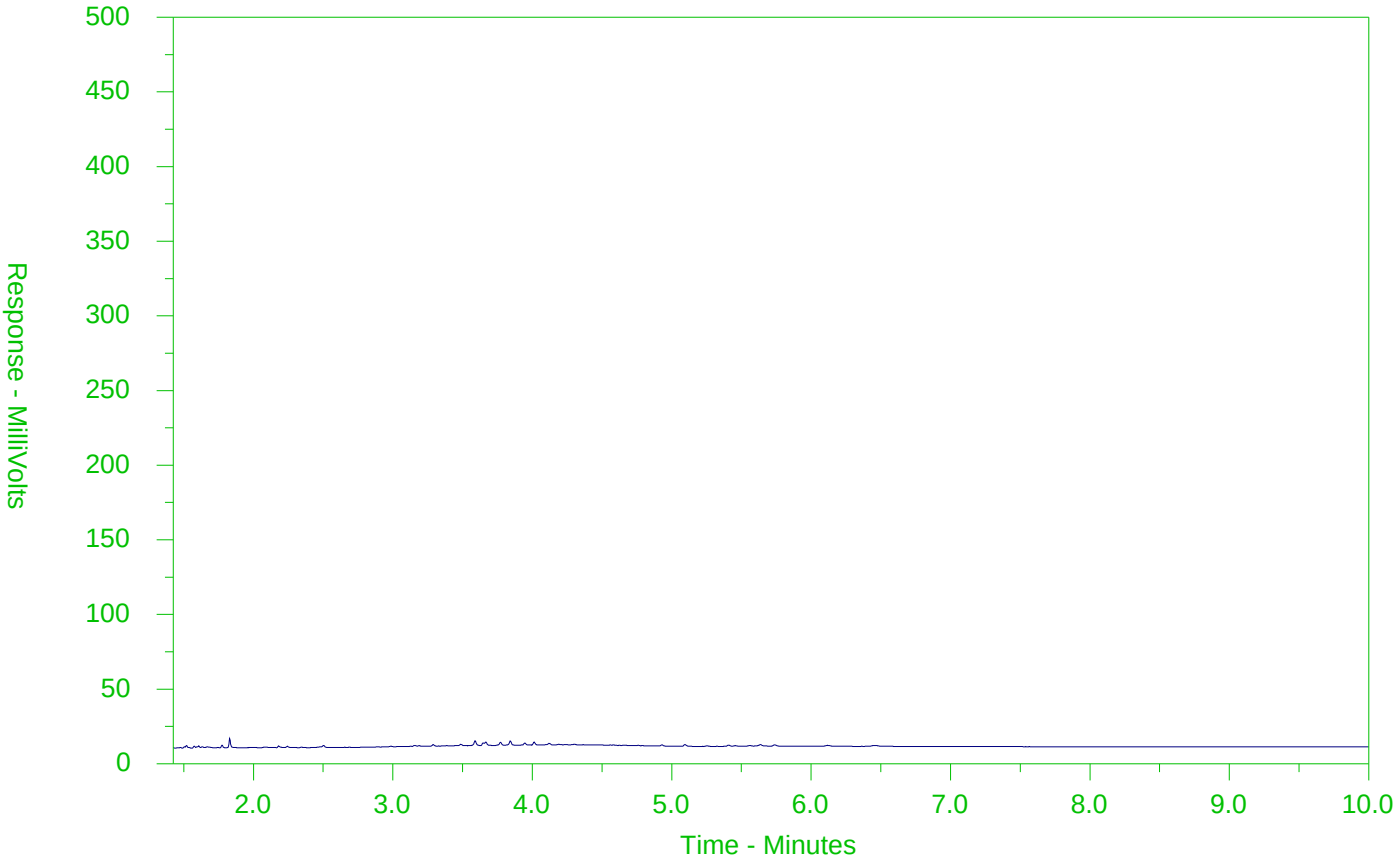
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2217334-6
Client Sample ID: BH18-7



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

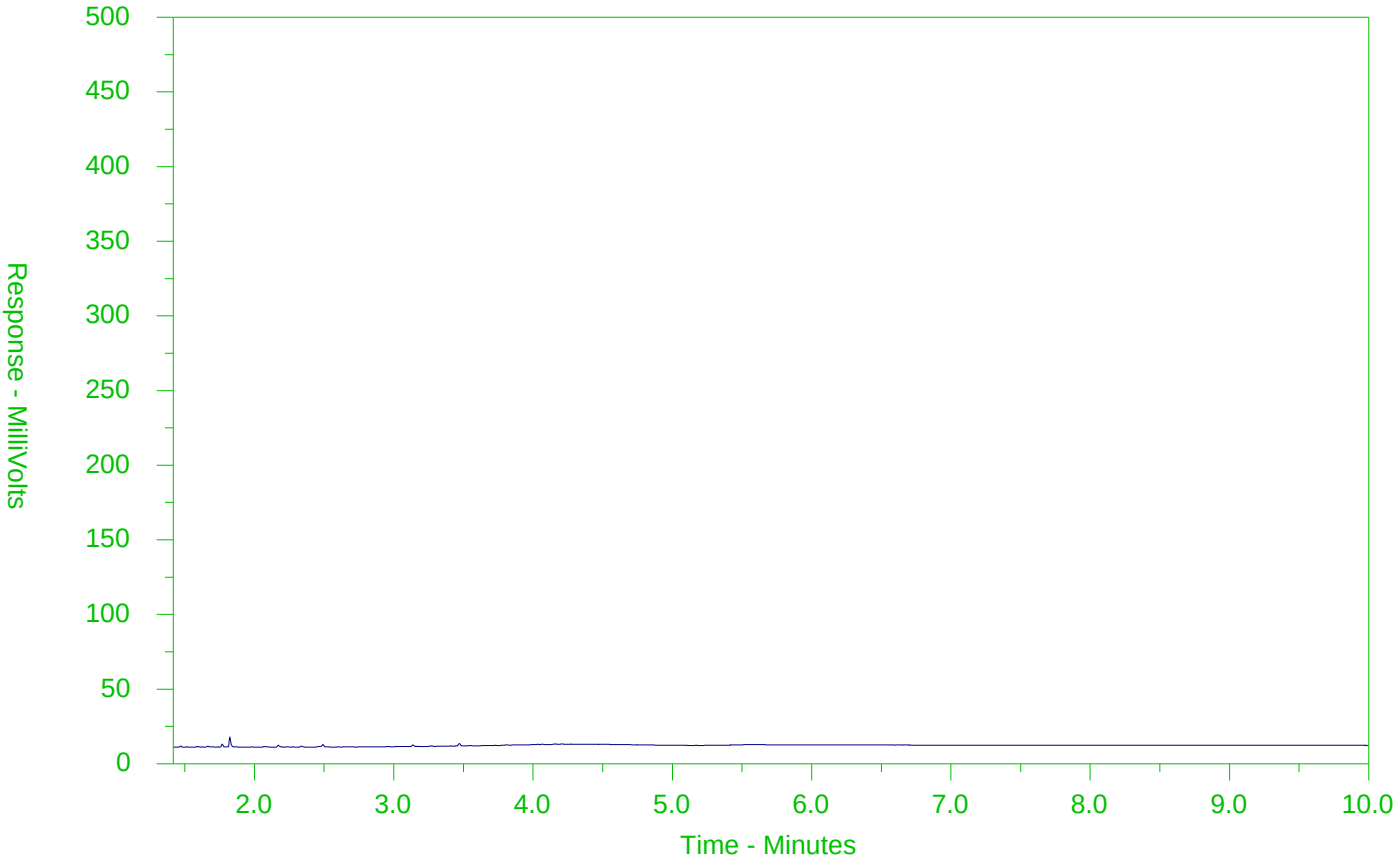
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2217334-7
Client Sample ID: BH18-9



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →	← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

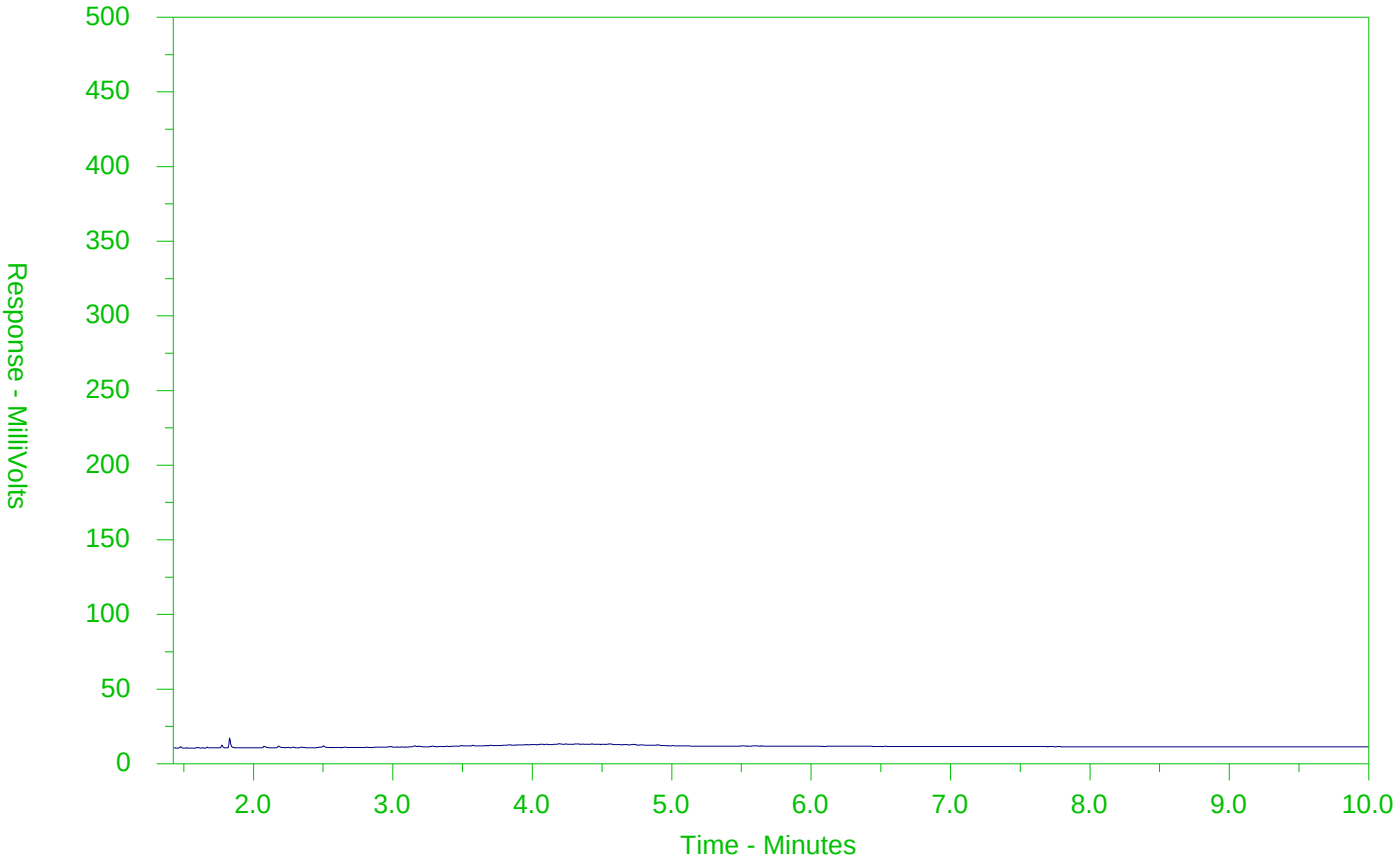
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2217334-11
Client Sample ID: DUP4



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →	← Motor Oils/Lube Oils/Grease →		
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com
Canada Toll Free: 1 800 668 9878

L2217334-COFC

COC Number: 17-639700
Page of

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	DS Consultants Ltd	Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)	Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Shafi Andreta	Quality Control (QC) Report with Report ☑ YES ☐ NO	PRIORITY (Business Days): 4 day [P4-20%] ☐; 3 day [P3-25%] ☐; 2 day [P2-50%] ☐
Phone:	416 529 5454	☑ Compare Results to Criteria on Report - provide details below if box checked	EMERGENCY: 1 Business day [E-100%] ☐; Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] ☐
	Company address below will appear on the final report	Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	Date and Time Required for all E&P TATs:
Street:	6221 Highway 7 unit 16	Email 1 or Fax shafi.andreta@dsconsultants.ca	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:	Woodbridge, ON	Email 2 Isaacfeng@dsconsultants.ca	
Postal Code:	L4H 0K8	Email 3	
Invoice To	Same as Report To ☑ YES ☐ NO	Invoice Distribution	
	Copy of Invoice with Report ☑ YES ☐ NO	Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:		AFE/Cost Center:	PO#
Job #:		Major/Minor Code:	Routing Code:
PO / AFE:	18-687-20	Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):	L2217334 KR	ALS Contact:	Sampler:

Analysis Request — Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Metal + Inorganics	PHCs	VOCs	PAHs	OC Pesticides	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
-1	BH18-1	07-01-19		GW	X	X	X					11
-2	BH18-2				X				X			6
-3	BH18-4				X			X				7
-4	BH18-5							X	X			3
-5	BH18-6				X			X	X			8
-6	BH18-7				X	X	X					11
-7	BH18-9				X	X	X					11
-8	DUP1								X			1
-9	DUP2							X				2
-10	DUP3				X							5
-11	DUP4					X	X					6
-12	trip + field blank						X					5

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	Use Table 8. With the exception of BH18-4 none of the other M+I samples were filtered. Please lab filter if possible
Are samples for human consumption/ use? ☐ YES ☐ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐	SIF Observations	Yes ☐	No ☐
Ice Packs	☑	Ice Cubes ☐	Custody seal intact	Yes ☐ No ☐
Cooling Initiated	☐			

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
5.6	6.1			0.7	0.9		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: Isaac Feng	Date: Jan 7, 2019	Time: 5:30PM	Received by:	Date: Jan 8/19	Time: 900	Received by:	Date: 8-JAN-19	Time: 1440

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

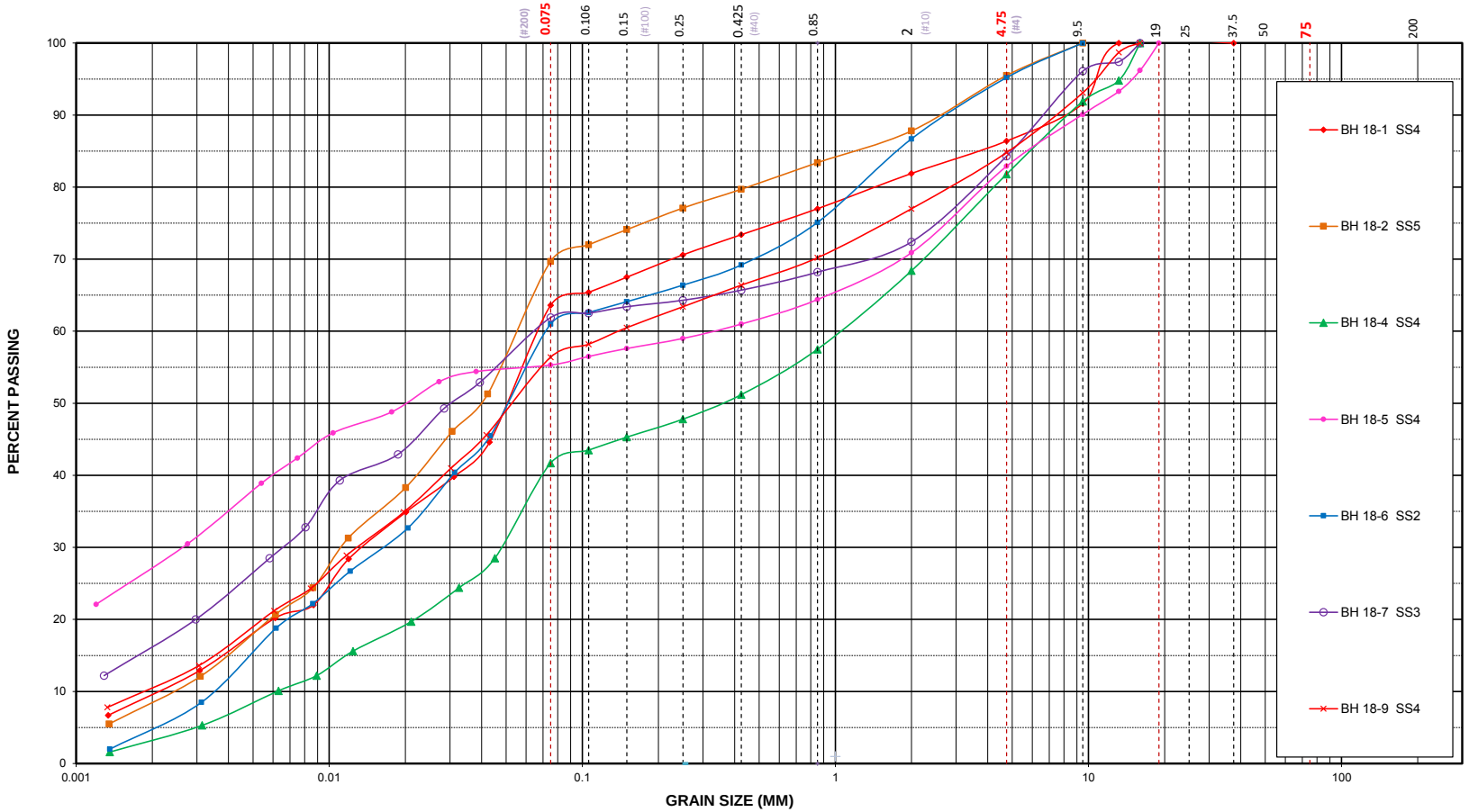
WHITE - LABORATORY COPY YELLOW - CLIENT COPY

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Appendix D

Particle Size Distribution (ASTM-D421/D422)



Silt and Clay		Sand			Gravel		Cobble +
Clay	Silt	Fine	Medium	Coarse	Fine	Coarse	

Specification and Comments:

DS Consultants Ltd
Geotechnical • Enviromental • Materials • Hydrogeology

Project:	**100 Millcroft Golf Course**	Project No.:	**18-687-10**
Client:	**ARGO**	Date:	**January 21, 2019**
Location:	**Burlington, ON**	Figure No.:	**1**